analytikjena

Products and Applications 2014

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Life Science unlimited

Research for life

Researchers in the life sciences study the structures and behavior of living organisms — and the field is experiencing extremely fast growth. The markets of the future are those throughout the world where increasing standards of living are generating a disproportionately high demand for biotech products, and Analytik Jena is keeping a very close eye on those markets. The company offers its customers one-stop shopping for all of the instruments and consumables they need to obtain results from a sample. The product portfolio encompasses over 500 reagents and kits, including those for nucleic acid isolation, PCR and pathogen analyses. The company's in-house expertise is protected by 150 patents.

Bundling expertise under one roof

A key priority for Analytik Jena is being able to support its customers with powerful systems throughout every phase of analysis. Continuously expanding its expertise allows Analytik Jena — both the parent company and its subsidiaries — to offer its customers a diverse portfolio. The range of products and services includes DNA isolation, robotics, standard and real-time PCR instruments, a variety of detection methods, and molecular diagnostic kits for food and water analysis. Automated, high-throughput screening systems for the pharmaceutical industry remain part of this extensive portfolio.
A number of instruments are defining new standards in their fields and enjoying considerable prestige among users throughout the world.

Strong brands fuel the growth and the international expansion

Analytik Jena is a case study of organic growth and sensible international expansion, with a sense for growth markets — a talent evidenced in particular when the company successfully expanded its Life Science product area within just a few years. The process was accompanied by the acquisition of promising companies that round out the product portfolio. The competencies underlying the Biometra, CyBio and UVP brands are having a tremendous impact under the Analytik Jena umbrella and hold enormous potential for the future. Likely the most important sign of this new direction came when the company made the largest acquisition of its 23-year history. In purchasing UVP, LLC of the United States, Analytik Jena not only acquired one of the world's leading providers of digital imaging systems for applications in proteomics, genomics, and plant and animal research — the company also obtained a respected firm with a long tradition and an excellent team. The move significantly strengthens the Life Science unit, supplementing and rounding out its product portfolio through the inclusion of a broad range of new *in vivo* and in *vitro systems* — the latter ranging from basic gel documentation devices to expanded, integrated instruments for fluorescent, chemiluminescent and colorimetric imaging and quantitative analysis.

Always a step ahead with innovation

Analytik Jena's broad research and development expertise currently encompasses 30 innovative projects, allowing the company to go on the offensive for its life science customers. As standards of living rise around the globe – even in developing and emerging economies – demand for biotech and molecular diagnostic products is increasing at a disproportionately high rate. And innovation is the key to meeting that demand. Analytik Jena recognizes its customers' needs and is systematically pressing ahead with innovation management for a diverse array of kits, maintaining its focus both on the quality and quantity of innovation, and, most importantly, on the speed at which the company develops marketable solutions.
To this end, the company has recently joined forces with its subsidiary AJ Innuscreen to introduce an innovative technology for enriching and isolating freely circulating DNA. Based on a novel PME (polymer mediated enrichment) method, this technology allows researchers to study the DNA that circulates freely in a variety of bodily fluids, such as plasma, serum, and urine. This type of research is becoming increasingly important in medical applications, such as sports medicine, non-invasive prenatal diagnostics, diagnostics for metabolic diseases, and diagnostics and monitoring for tumor diseases. The new Analytik Jena PME method is extremely easy and fast, and does not require large quantities of reagents.

Creating value, retaining value – maintenance packages from Analytik Jena

As Analytik Jena continues to expand its product portfolio, the company's sales and service network is becoming increasingly comprehensive and productive. The focus of this development is on robust products with long service lives, products that live up to the quality standards represented by the "Made in Germany" label.
In order to ensure high sample throughput and stable test results over long periods of time, Analytik Jena offers its customers three maintenance packages that include a variety of instrument care and testing services. These maintenance options begin with the Economy Package, which includes performance testing, small repairs and reconditioning services for worn parts. They progress to the Standard Package, which provides additional calibration services. Finally, there is the Premium Package, and customers opting for this also benefit from automatic software updates, personal telephone assistance, and replacement units while their instruments are being repaired – all in addition to the services already listed.

Let's make a Deal

- Up-to-date product offers available 24/7
- Monthly customer promotions for a wide variety of products and consumables
- Attractive discounts

If you work with our instruments every day, you should be rewarded for your loyalty and for your interest in our products. Becoming a premium member of „Life Science exclusive" will save you money.

Life Science exclusive

THE PREMIUM CUSTOMER PORTAL

www.aj-ls.com

REGISTER NOW FOR FREE

KNOW MORE. REACT FASTER. TAKE ADVANTAGE OF BETTER PRICES.

Laboratory Notebook

Order your own laboratory notebook in Analytik Jena | Life Science design.

Whether you are scientist or student, laboratory notebook is an essential part of each research project. With the laboratory notebook of Analytik Jena you are perfectly able to document your laboratory research and daily work results.

- High-quality Analytik Jena | Life Science design
- Table of content for your personal structure
- Including introduction and conversion table
- Size: 120 pages in A4 format (squared paper)

Order information

Order number	Quantity
844-MA205-2	1 piece

PME - Polymer Mediated Enrichment Products

- Unique and novel: enrichment system for extraction of free-circulating DNA
- Easy handling, high efficiency and extremely time saving
- Processing of starting sample volumes up to 5 ml for Serum/Plasma and 10 ml for urine
- Novel, patent pending technology: Polymer Mediated Enrichment (PME)

More information on page 79

innuCONVERT Bisulfit Kits

- Optimized Products for Epigenomics
- Easy sample purification
- Different starting material, e.g. purified DNA samples, FFPE sections, FFPE tissue plugs, Cell lines, Bronchial aspirates, swabs, peritoneal cavity fluid, pleural effusions, sputum, Fresh tissue
- Only liquid reagents for conversion and desulfonation
- Time-safety Conversion System

More information on page 143 and page 144

VYOO® Multiplex PCR pathogen detection (Sepsis)

- Identifies DNA of 99% of sepsis-relevant pathogens and key antibiotic resistance-factors
- Combines proprietary pathogen-DNA enrichment technology and highly multiplexed PCR
- Culture-independent detection using whole blood samples
- Therapy-relevant diagnostic information within 7 hours

More information on page 197

LOOXSTER® Enabling Technology

- Reduction of mammalian DNA background in DNA isolates intended to be used for highly sensitive PCR analysis
- Separation of DNA-molecules based on interaction with non-methyl CpG dinucleotides
- High DNA capacity (up to 300 µg/application) and simple protocol (less than 1 hour)
- Manual LOOXSTER® Enrichment kit and instrumented preanalytical workflow (LOOXSTER® Blood & Tissue DNA Kit-KFFLX) available

More information on page 81 and page 132

PureProve® Concept

- Consumables for high sensitivity DNA-amplification assays sensitive to contaminating DNA
- Clean room technology minimizes contamination risks in production, filling and packaging
- Plastics are treated with ethylene oxide to destroy contaminating DNA
- Other components are specially treated to destroy or remove DNA
- Each production lot complies to our elaborate quality assurance criteria

More information on page 131

PCR UV Cabinets and Workstations

- Up to three built-in shortwave (254 nm) UV tubes for decontamination between experiments
- Timer sets UV exposure up to 12 h
- Safety shut-off switch automatically turns the UV light off when door is opened
- Keylock prevents accidental exposure of samples to UV
- Unique, easy-clean antimicrobial coating on the stain less steel and aluminum surfaces
- Different sizes: Cabinet or Workstation to meet each individual need

More information on page 376

ChemStudio product line

- Imager for chemiluminescence, fluorescence and colorimetry, upgradeable for NIR/multi-plexing imaging applications
- Selection of highly sensitive, cooled CCD cameras with fixed-focal-length or zoom lenses (motorized or manual zoom)
- Light-tight darkrooms with large front door and unique UVsafe gel viewer window
- Available as a PC-operated unit or as stand-alone instrument with integrated color touch-screen
- Easy-to-access filter wheel with to up to five positions
- Integrated overhead (epi) white light for optimum illumination and focusing

More information on page 362

GelStudio Systems

- Computer based systems and designed to provide high functionality with easy-to-use operating interfaces
- GelStudio line also offers instruments with integrated computer
- VisionWorksLS gel analysis software is included in all GelStudio systems
- Brilliant images of fluorescence and colorimetric applications
- Monochrome, scientific grade CCD camera for black & white images
- Extraordinary compact systems are designed for fast saving and printing of gels

More information on page 343

InnuPure® C96

- New and compact design
- Adjustable elution volumes (50 - 500 µl)
- Ready-to-use purification kits for easy handling and for the extraction of high quality nucleic acids
- Preparation of up to 96 samples in parallel
- Preprogrammed extraction protocols for optimal reproducibility
- Minimum number of manual steps
- Optimized lysis by using an integrateable thermal shaker

More information on page 292

SpeedMill PLUS Accessories

- Sample Holder P12 - Sample Holder in aluminium design for up to 12 sample, passive cooling function and storage down to -80 °C
- Sample Holder P20 - Sample Holder in aluminium design for up to 20 sample, passive cooling function and storage down to -80 °C
- Tube Fixation- Lock to fix Lysis Tubes, optimized for usage of innuSPEED Lysis Tube Q (spike)

More information on page 284

Kits and solutions for nucleid acid isolation

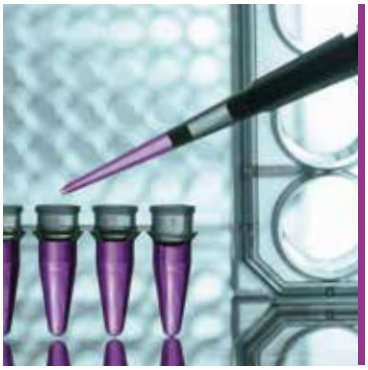
Reagents for molecular biology

Kits and reagents for diagnostics

Mobile diagnostics

Instruments

Consumables/Accessories



LIMS

Service

Analytik Jena | Life Science offers a comprehensive range of kits for nucleic acid isolation as well as enzymes, Reagents and additives for PCR.

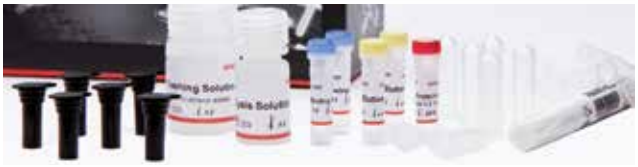
We also focus on protein analysis and molecular diagnostic kits.

Kits and solutions for nucleid acid isolation

innuPREP Kits

The innuPREP extraction and purification systems have been developed for a very fast and efficient isolation of DNA and/or RNA from different kinds of starting materials. The isolation procedure is based on a new kind of chemistry, which allows the isolation of nucleic acids with high yield and quality. The isolation procedure consists of lysis of starting material, binding of the DNA or RNA on the surface of a Spin Filter column, washing of the bound nucleic acids and its final elution. All steps are performed by means of a table centrifuge.

blackPREP Kits



The blackPREP Kits are a new product line of specialized kits for isolation of DNA and/or RNA from different kinds of complex starting materials. The extraction procedure is based on a new patented technology and combines a very fast and efficient lysis step with the subsequent binding of DNA or RNA on a Spin Filter surface. The Spin Filter bound nucleic acids are washed and finally eluted using a low salt buffer. All kits are optimized for a specific application to get maximum yield and high quality DNA or RNA.

innuEASY Kits

The innuEASY Kits allow to speed up nucleic acid extraction processes. Due to the absence of the former necessary steps to isolate the nucleic acid, the extracted DNA or RNA can be used immediately after a few minutes for further downstream applications. The extraction procedure is based on a new patented technology. It combines a fast sample lysis of the starting material using a unique two components formula of solid Reagents. Therefore the whole procedure is finished within 1 hour (sample lysis and *rapid*PCR) by minimal hands on time. All Reagents for sample lysis and amplification of the nucleic acid are provided in the kit.

innuSPEED Kits

All innuSPEED Kits are optimized kits for the complete isolation of nucleic acids (DNA and RNA) from various starting materials. These kits contain special Lysis Tubes with application specific beads for the usage of a homogenizer (e.g. SpeedMill P12 or SpeedMill PLUS). Furthermore the kits also contain all other components needed for the extraction of nucleic acids from the homogenized sample. The mechanical disruption of the sample as well as the proteolytic lysis step take place inside the Lysis Tube. Following the DNA or RNA is bound to a Spin Filter membrane, washed and finally eluted. Both, the yield and quality of the isolated nucleic acids are excellent.

innuPREP Kits - KFml

The innuPREP Kits KFml have been developed for the automatic isolation of nucleic acids by using the extraction system KingFisher ml. These kits are based on the isolation of nucleic acids by magnetic particles. The kits contain all necessary Reagents for the extraction, as well as all needed consumables for the KingFisher processors.

innuPREP Kits - KFFLX

KFFLX innuPREP kits have been specifically adapted to the operating features of the KingFisher® FLEX automated extraction system. All products contain the consumables and solutions needed for highly efficient DNA and/or RNA isolation, which is based on the use of specially developed magnetic particles.

innuPREP Kits - IPC16

All innuPREP-IPC16 kits contain pre-filled, sealed Reagent Strips/ Plates, allowing operators to use the InnuPure® C16 for automating nucleic acid isolation with as few manual steps as possible. The piercing feature of this unit eliminates the need for removing the sealing foil, making potential cross-contamination a thing of the past. Plus, customers can choose between Reagent Strips (for preparing individual samples) and Reagent Plates (for processing up to 16 samples in parallel). Following the highly efficient lysis process, nucleic acids are bound to magnetic or paramagnetic particles, washed and, in a final step, eluted into a separate vessel.

innuPREP Kits - IPC96

The innuPREP Kits-IPC96 are optimized for the usage of the InnuPure® C96 and predestinated for extremely fast and efficient isolation of DNA or RNA from different starting materials. The kits contain specialized magnetic or paramagnetic beads, which will be processed in an automized nucleic acid extraction robot. The nucleic acids to be isolated are adsorbed to surface functionalized magnetic or paramagnetic particles. Further the kits contain the required extraction chemistry, which is optimally adapted to the application or used starting material and facilitates the isolation of very pure nucleic acids with excellent yields. For extraction up to 96 samples in parallel.

LOOXSTER®

LOOXSTER® is a technology for the enrichment of bacterial and fungal DNA in DNA isolates containing predominant amounts of mammalian DNA. Resulting DNA is available for all kinds of downstream applications. LOOXSTER® is an enabling technology enhancing the efficiency of downstream applications. All system components are PureProve® level assuring low risk of foreign DNA contamination. LOOXSTER® enrichment-effect is achieved by the specific affinity of LOOXSTER® for non-methylated CpG dinucleotides. DNA extracts containing a mixture of predominantly methylated host DNA and minute amounts of bacterial or fungal DNA are incubated under stringent conditions with LOOXSTER®. Under these conditions LOOXSTER® binds to DNA-molecules containing non-methylated CpG dinucleotides. A stringent washing step removes methylated DNA and finally enriches bacterial and fungal DNA can be eluted.

PureProve®

The PureProve® concept: following suitable processes for reducing contamination with DNA, all system components. Clean room technology minimizes contamination risks in production, filling and packaging. The plastics are treated with ethylene oxide to destroy contaminating DNA and other components are specially treated to destroy or remove DNA. Each production lot complies to our elaborate quality assurance criteria.

innuAMP Tests

The innuAMP Tests can easily be used for the confirmation of a successful DNA extraction. The verification is done by amplification of a specific DNA sequence and the final visualization of the PCR products on an agarose gel. The test avoids false negative results of any downstream application and is used as a control of the extraction procedure.

Manual DNA extraction I

	Manual																
	innuPREP																
x – Recommended Kit (x) – Recommended with limitations **Sample type**	innuPREP DNA Micro Kit	innuPREP DNA Mini Kit	innuPREP DNA / RNA Mini Kit	innuPREP Forensic Kit	innuPREP Blood DNA Mini Kit	innuPREP Blood DNA Midi Kit	innuPREP Blood DNA Midi Direct Kit	innuPREP Blood DNA Masrer Kit	innuPREP Plant DNA Kit	innuPREP Bacteria DNA Kit	innuPREP Mycobacteria DNA Kit	innuPREP Stool DNA Kit	innuPREP Virus DNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	innuPREP Plasmid Mini Kit	innuPREP Plasmid Mini Kit Plus
Catalog page	28	29	30	31	32	33	34	35	36	42	43	44	45	74	75	53	54
Agarose gel (TBE or TAE)																	
Backing powder (virus, bacteria)																	
Bacterial cell pellets (gram+ & gram-)				(x)							x						
Bacterial suspension (Plasmid)																	x
Blood		x			x	x	x	x	x								
Bone powder					x												
Bronchoalveolar lavage (Mycobacteria)												x					
Cartilage material																	
Cell culture supernatants (virus)														x	(x)	x	
Cell cultures (virus)														x	(x)	x	
Cell-free body fluids (virus)														x	(x)	x	
Chewing gum					x												
Cigarette butts					x												
Coffee powder (virus, bacteria)																	
Dental floss					x												
Dust (virus, bacteria)																	
Eucaryotic cells		x	x	(x)													
Finger nails					x												
Flour (virus, bacteria)																	
Food Material after cultivation																	
Forensic material					x												
Fungi										x							
Fungi spores																	
Hairs, barb hairs, hair roots					x												
Mycobacteria												x					
Mycoplasma			*x*														
Paraffin-embedded tissue			x											x	(x)		
PCR Fragments																	
PCR reaction mixes																	

															Manual using homogenizer				
									blackPREP						innuSPEED				
	innuPREP Plasmid MIDI Direct Kit	innuPREP Plasmid Rapid Kit	innuPREP Plasmid Small Kit	innuPREP PCRpure Kit	innuPREP PCRpure 96 Kit	innuPREP Gel Extraction Kit	innuPREP DOUBLEpure Kit	innuPREPDYEpure Kit	blackPREP Swab DNA Kit	blackPREP Rodent tail DNA Kit	blackPREP FFPE DNA Kit	blackPREP Food DNA I Kit	blackPREP Tick DNA Kit	blackPREP Tick DNA / RNA Kit	blackPREP Powder DNA/RNA Kit	innuSPEED Tissue DNA Kit	innuSPEED Plant DNA Kit	innuSPEED Soil DNA Kit	innuSPEED Bacteria/Fungi DNA Kit	innuSPEED Stool DNA Kit
	55	56	57	59	59	60	61	62	37	38	39	48	49	50	51	89	90	91	92	93
						x	x													
															x					
												(x)							x	
	x	x	x																	
																x				
															x					
															x					
															x					
												x								
																	x			
																			x	
											x									
				x	x	x	x													
				x	x		x	x												

Manual DNA extraction II

	Manual																
	innuPREP																
x – Recommended Kit (x) – Recommended with limitations **Sample type**	innuPREP DNA Micro Kit	innuPREP DNA Mini Kit	innuPREP DNA / RNA Mini Kit	innuPREP Forensic Kit	innuPREP Blood DNA Mini Kit	innuPREP Blood DNA Midi Kit	innuPREP Blood DNA Midi Direct Kit	innuPREP Blood DNA Masrer Kit	innuPREP Plant DNA Kit	innuPREP Bacteria DNA Kit	innuPREP Mycobacteria DNA Kit	innuPREP Stool DNA Kit	innuPREP Virus DNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	innuPREP Plasmid Mini Kit	innuPREP Plasmid Mini Kit Plus
Catalog page	28	29	30	31	32	33	34	35	36	42	43	44	45	74	75	53	54
Pepper (virus, bacteria)																	
Plant material									x								
Plasma (virus)													x	(x)	x		
Plasmid																x	x
Powder (virus, bacteria)																	
Rodent tails		x															
Saliva															x		
Saliva stains				x													
Salt (virus, bacteria)																	
Sand (virus, bacteria)																	
Serum (virus)													x	(x)	x		
Soil																	
Sperm stains				x													
Spicery (virus, bacteria)																	
Sputum (Mycobacteria)											x						
Stamps and envelopes				x													
Stool												x			x		
Sugar (virus, bacteria)																	
Swabs		x		x									x	(x)	x		
Tea (virus, bacteria)																	
Ticks																	
Tissue samples	x	x	(x)	x							x		x	(x)	x		
Virus (from various sources)													x	(x)	x		
Washing detergent (virus, bacteria)																	
Yeast																	

															Manual using homogenizer				
									blackPREP						innuSPEED				
	innuPREP Plasmid MIDI Direct Kit	innuPREP Plasmid Rapid Kit	innuPREP Plasmid Small Kit	innuPREP PCRpure Kit	innuPREP PCRpure 96 Kit	innuPREP Gel Extraction Kit	innuPREP DOUBLEpure Kit	innuPREPDYEpure Kit	blackPREP Swab DNA Kit	blackPREP Rodent tail DNA Kit	blackPREP FFPE DNA Kit	blackPREP Food DNA I Kit	blackPREP Tick DNA Kit	blackPREP Tick DNA / RNA Kit	blackPREP Powder DNA/RNA Kit	innuSPEED Tissue DNA Kit	innuSPEED Plant DNA Kit	innuSPEED Soil DNA Kit	innuSPEED Bacteria/Fungi DNA Kit	innuSPEED Stool DNA Kit
	55	56	57	59	59	60	61	62	37	38	39	48	49	50	51	89	90	91	92	93
															x					
																	x			
	x	x	x																	
															x					
										x						x				
															x					
															x					
															x			x		
															x					
																				x
															x					
									x											
															x					
													x	x						
																x				
															x					
																			x	

Automated DNA isolation

	Automated DNA extraction using InnuPure® systems													
	InnuPure® C16												InnuPure® 96	
	innuPREP												innuPREP	
x – Recommended Kit (x) – Recommended with limitations Sample type	innuPREP DNA Kit – IPC16	innuPREP Forensic Kit - IPC16	innuPREP Blood DNA Mini Kit – IPC16	innuPREP Blood DNA Midi Kit – IPC16	innuPREP Plant DNA Kit – IPC16	innuPREP Food DNA Kit - IPC16	innuPREP FFPE DNA Kit - IPC16	innuPREP Swab DNA Kit – IPC16	innuPREP Bacteria DNA Kit – IPC16	innuPREP Mycobacteria DNA Kit – IPC16	innuPREP Stool DNA Kit – IPC16	innuPREP Virus DNA/RNA Kit – IPC16	innuPREP Blood DNA Mini Kit – IPC96	innuPREP Virus DNA/RNA Kit – IPC96
Catalog Page	105	106	107	108	109	110	111	112	113	114	115	116	118	119
Bacterial cell pellets (gram+ & gram-)									x					
Blood		x	x	x									x	
Bone powder		x												
Bronchoalveolar lavage (Mycobacteria)										x				
Cell culture supernatants (virus)												x		x
Cell-free body fluids (virus)												x		x
Cerebrospinal fluids (virus)														
Chewing gum		x												
Cigarette butts		x												
Dental floss		x												
Eucaryotic cells	x													
Finger nails		x												
Food Material after cultivation						x								
Forensic material		x												
Hairs, barb hairs, hair roots		x												
Lichens					x									
Liquor (virus)														
Mycobacteria										x				
Mycobacteria cell pellets										x				
Paraffin-embedded tissue							x							
Plant material					x									
Plasma (Virus)												x		x
Rodent tails	x													
Saliva stains		x												
Serum (Virus)												x		x
Sputum (Mycobacteria)										x				
Stamps and envelopes		x												
Stool											x	x		x
Swabs		x						x				x		x
Tissue samples	x	x							(x)					
Virus (from various sources)												x		x

	Automated DNA extraction using KingFisher® systems											
	KFml				KF96 & KFFLX							
	innuPREP				innuPREP							
	innuPREP DNA I Kit – KFmL	innuPREP Bacteria DNA Kit – KFmL	innuPREP Virus DNA Kit – KFmL	innuPREP Virus DNA / RNA Kit – KFmL	innuPREP Tissue DNA Kit – KF96 & KFFLX	innuPREP Stool DNA Kit – KF96 & KFFLX	innuPREP Blood DNA Kit – KFFLX	innuPREP Blood DNA Midi Kit – KFFLX	PureProve® Blood & Tissue DNA Maxi Kit-KFFLX	LOOXTER® Blood & Tissue DNA Kit-KFFLX	innuPREP Plant DNA Kit - KFFLX	innuPREP DNA/RNA Virus Plus Kit-KFFLX
	121	122	123	125	127	128	129	130	131	132	133	137
		x										
	x						x	x	x	x		
			x	x								x
			x	x					x	x		x
			x	x								x
			x	x								x
	x				x							
											x	
			x	x								x
	x				x							
			x	x								x
						x						x
	x		x	x								x
	x		x	x	x				x	x		x
			x	x								x

Manual and automated RNA extraction

	Manual												
	innuPREP										blackPREP		innuSOLV
x – Recommended Kit (x) – Recommended with limitations **Sample type**	innuPREP RNA Mini Kit	innuPREP RNA Midi Direct Kit	innuPREP Micro RNA Kit	innuPREP DNA / RNA Mini Kit	innuPREP Blood RNA Kit	innuPREP Blood RNA Midi Direct Kit	innuPREP Plant RNA Kit	innuPREP Virus RNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	blackPREP Tick DNA/RNA Kit	blackPREP Powder DNA/RNA Kit	innuSOLV RNA Reagent
Catalog Page	64	65	66	67	68	69	70	73	74	75	50	51	87
Backing powder (virus, bacteria)												x	
Bacterial cells (gram+ & gram-)	x	x	x	x									x
Blood					x	x							
BTV													
Cell culture supernatants (virus)								x	x	x			
Cell cultures (virus)								x	x	x			
Cell-free body fluids (virus)								x	x	x			
Cerebrospinal fluid (virus)								x	x	x			
Coffee powder (virus, bacteria)												x	
Dust (virus, bacteria)												x	
Eucaryotic cells	x	x	x	x									x
Flour (virus, bacteria)												x	
Fungi							x						
Fungi spores													
Liquor (virus)													
Paraffin embedded material (virus)								x	x				
Pepper (virus, bacteria)												x	
Plant material							x						
Plasma (virus)								x	x	x			
Powder (virus, bacteria)												x	
Salt (virus, bacteria)												x	
Sand (virus, bacteria)												x	
Serum (virus)								x	x	x			
Soil (virus, bacteria)												x	
Spicery (virus, bacteria)												x	
Stool samples										x			
Sugar (virus, bacteria)												x	
Swabs (virus)								x	x	x			
Tea (virus, bacteria)												x	
Ticks											x		
Tissue samples	x	x	x	x				x	x	x			x
Virus (various sources)								x	x			x	
Washing powder (virus, bacteria)												x	
Yeast cells													x

	Manual using homogenizer			Automated using InnuPure® systems			Automated using KingFisher® systems						
				InnuPure® C16 and C96			KFml			KFFLX			
	innuSPEED			innuPREP			innuPREP			innuPREP			
	innuSPEED Tissue RNA Kit	innuSPEED Plant RNA Kit	innuSPEED Bacteria/Fungi RNA Kit	innuPREP Virus DNA/RNA Kit - IPC16	innuPREP Virus DNA/RNA Kit - IPC96		innuPREP Virus RNA Kit – KFmL	innuPREP Virus DNA / RNA Kit – KFmL	innuPREP BTV RNA Kit – KFmL	innuPREP RNA Virus Plus Kit – KFFLX	innuPREP BTV RNA Virus Kit – KFFLX	innuPREP BVDV/INFL/SP Kit – KFFLX	innuPREP DNA/RNA Virus Plus Kit - KFFLX
	95	96	97	116	119		124	125	126	134	135	136	137
			x						x				
									x		x		
							x	x			x		
				x	x					x			x
							x	x					
				x	x		x	x		x		(x)	x
				x	x					x			x
		x											
			x				x	x					
				x	x					x			x
		x					x	x					
				x	x					x		x	x
							x	x					
				x	x					x		x	x
							x						
				x	x					x			x
							x	x					
				x	x					x			x
							x	x					
	x						x	x	(x)	x			x
										x	(x)	(x)	x
							x	(x)	x				

Isolation of genomic DNA

Kits of the innuPREP and blackPREP product groups contain optimized solutions for isolating genomic DNA from human, animal and plant starting materials.

The kits utilize well-established Spin Filter technology to extract excellent yields of high-quality genomic DNA. Nucleic acids are available within a very short period of time for further downstream applications or for direct storage.

	Manual											
	innuPREP									blackPREP		
x - Recommended (x) - Recommended with limitations	innuPREP DNA Micro Kit	innuPREP DNA Mini Kit	innuPREP DNA / RNA Mini Kit	innuPREP Forensic Kit	innuPREP Blood DNA Mini Kit	innuPREP Blood DNA Midi Kit	innuPREP Blood DNA Midi Direct Kit	innuPREP Blood DNA Masrer Kit	innuPREP Plant DNA Kit	blackPREP Swab DNA Kit	blackPREP Rodent tail DNA Kit	blackPREP FFPE DNA Kit
Cataloge page	28	29	30	31	32	33	34	35	36	37	38	39
Blood	**x**			**x**	**x**	**x**	**x**	**x**				
Blood sticks/ FPE samples	x			x								
Whole blood 50 µl	x				x							
Whole blood up to 300 µl					x							
Whole blood 0.3 -1 ml							x					
Whole blood 0.5 - 2 ml						x		(x)				
Whole blood 0.5 - 5 ml								x				
Bone powder				**x**								
Chewing gum				**x**								
Cigarette butts				**x**								
Dental floss				**x**								
Eucaryotic cells	**x**	**x**	**(x)**									
1x 10^6 cells	x	x										
5x 10^6 cells		x	(x)									
Finger nails				**x**								
Forensic material				**x**								
Fungi									**x**			
Hairs, barb hairs, hair roots				**x**								
Mycoplasma		**x**										
Paraffin-embedded tissue		**x**										**x**
Plant material									**x**			
Up to 100 mg									x			
Fresh									x			
Frozen									x			
Dried									x			

	Manual											
	innuPREP									blackPREP		
x - Recommended (x) - Recommended with limitations	innuPREP DNA Micro Kit	innuPREP DNA Mini Kit	innuPREP DNA / RNA Mini Kit	innuPREP Forensic Kit	innuPREP Blood DNA Mini Kit	innuPREP Blood DNA Midi Kit	innuPREP Blood DNA Midi Direct Kit	innuPREP Blood DNA Masrer Kit	innuPREP Plant DNA Kit	blackPREP Swab DNA Kit	blackPREP Rodent tail DNA Kit	blackPREP FFPE DNA Kit
Cataloge page	28	29	30	31	32	33	34	35	36	37	38	39
Rodent tails		**x**									**x**	
0.5 - 1 cm		x									x	
Mouse tail 0.5 - 1.2 cm											x	
Rat tail 0.2 - 0.6 cm											x	
Saliva stains				**x**								
Sperm stains				**x**								
Stamps and envelopes				**x**								
Swabs		**x**		**x**						**x**		
Buccal swabs		x		x						x		
Swabs from surfaces				x								
Tissue samples	**x**	**x**	**(x)**	**x**								
Biopsies (host DNA)				x								
Up to 5 mg	x	(x)										
Up to 20 mg			(x)	x								
Up to 50 mg		x										

innuPREP **DNA Micro** Kit

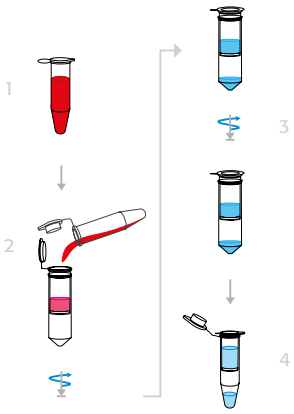
- Simplest method for isolating genomic DNA from a variety of starting materials in only 8 minutes
- Specially optimized to accommodate small starting quantities
- Patented technology utilizing a stringent Lysis Buffer and a novel Binding Buffer
- CE certification for *in-vitro* diagnostic applications (CE-IVD)

Product description

The innuPREP DNA Micro Kit represents a fast and effective means of purifying genomic DNA from small quantities and with a wide variety of starting materials. These include, among others, paraffin and tissue samples, whole blood or blood sticks and eucaryotic cells. The patented chemistry underlying the purification method combines extremely fast lysis followed by efficient binding of the genomic DNA to the optimized surface of a Spin Filter. The bound DNA is then washed and eluted. The result is an excellent yield of highly pure DNA, available for all subsequent applications after only 8 minutes. The kit is also certified for *in-vitro* diagnostics use (CE-IVD).

Procedure

1. Lyse the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:

- Tissue samples or biopsies of up to 5 mg
- Paraffin samples (tissue)
- Eucaryotic cells (max. 1×10^6)
- 1 – 50 µl of whole blood
- Blood sticks

Extraction time:
Approx. 8 minutes after lysis

Binding capacity:
Column binding capacity: > 100 µg gDNA

Average yield:
Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

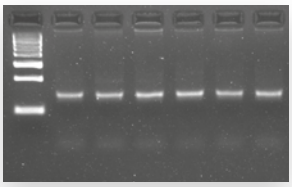
Storage conditions and stability

The innuPREP DNA Micro Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

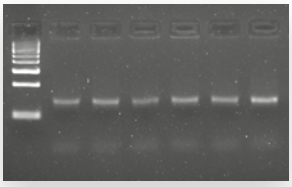
Extraction of genomic DNA from 50 µl whole blood samples, followed by human-specific PCR (GAPDH).

Lane 1: DNA ladder
Lane 2 – 7: PCR products



Extraction of genomic DNA from various blood sticks, followed by human-specific PCR (GAPDH).

Lane 1: DNA ladder
Lane 2 – 7: PCR products



Order information

Order number	Quantity
845-KS-1010010	10 reactions
845-KS-1010050	50 reactions
845-KS-1010250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNA Mini** Kit

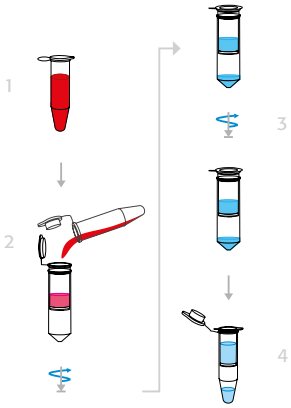
- Flexible and universally applicable for a broad range of starting materials
- Patented DC technology for faster lysis and highly efficient gDNA binding
- Spin Filter columns used for isolation
- CE-IVD certified

Product description

The universal innuPREP DNA Mini Kit has been specially designed for fast, efficient purification of genomic DNA from a variety of different starting materials. The kit utilizes patented Dual Chemistry (DC) technology, which combines a stringent Lysis Buffer with a novel Binding Buffer to help minimize the time required to purify DNA. The result is an extraction process that takes no more than 8 minutes (not including lysis). Spin Filter columns are at the heart of the isolation process, which is very easy to perform and offers a binding capacity of up to 100 µg of gDNA. The innuPREP DNA Mini Kit is also certified for *in-vitro* diagnostics use (CE-IVD).

Procedure

1. Lyse the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:

- Tissue samples of up to 50 mg
- Rodent tail specimens 0.5 – 1 cm in length
- Paraffin samples (tissue)
- Eucaryotic cells (max. 5×10^6)
- Buccal swabs

Extraction time:
Approx. 8 minutes after lysis

Binding capacity:
Column binding capacity: > 100 µg gDNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 65 µg

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

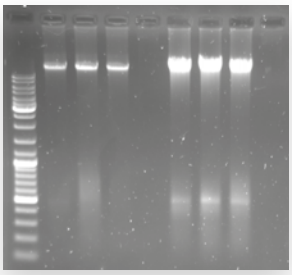
Storage conditions and stability

The innuPREP DNA Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

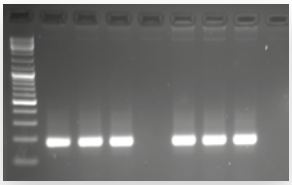
Isolation of genomic DNA from different quantities of tissue (mouse liver).

Lane 1: DNA ladder
Lane 2 – 4: gDNA from 5 mg tissue
Lane 6 – 8: gDNA from 30 g tissue
Lane 5 and 9: empty



After the DNA was isolated, the mouse DNA was target-specific amplified (GAPDH).

Lane 1: DNA ladder
Lane 2 – 4: Amplification after DNA isolation from 5 mg tissue
Lane 6 – 8: Amplification after DNA isolation from 30 g tissue



Order information

Order number	Quantity
845-KS-1040010	10 reactions
845-KS-1040050	50 reactions
845-KS-1040250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNA/RNA Mini** Kit

- For rapid, parallel extraction of genomic DNA and total cellular RNA from a single starting sample
- Flexible for use with different starting materials
- Based on nucleic acid extraction using optimized Spin Filter membranes
- Ready-to-use DNA and RNA in just 15 – 40 minutes

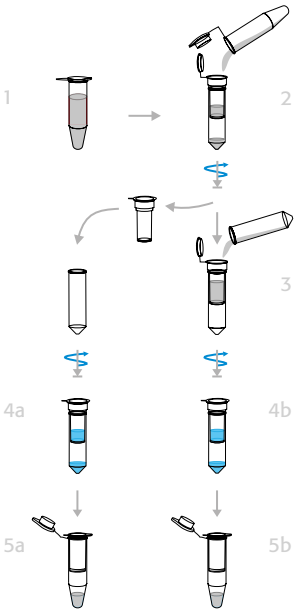
Product description

The innuPREP DNA/RNA Mini Kit is the **jack-of-all-trades** from Analytik Jena. The binding capacity is 50 µg DNA and 100 µg RNA, which means that both nucleic acids can be isolated from a single starting material to produce excellent quality and yields. Eucaryotic cells, gram+ and gram– bacteria and tissue samples can all be used as starting materials. The genomic DNA and total cellular RNA are available for subsequent downstream applications after only 15 to 40 minutes, each in their own reaction vessel. The DNA is eluted in 100 µl Elution Buffer, while the RNA is eluted in 30 to 80 µl RNase-free water.

Procedure

1. Lyse the starting material
2. Bind the genomic DNA to the first Spin Filter
3. Bind the total RNA to the second Spin Filter

4a. Wash the bound DNA
4b. Wash the bound RNA
5a. Elute the DNA
5b. Elute the RNA



Product specifications

Starting material:

- Eucaryotic cells (max. 5×10^6)
- Tissue samples (max. 20 mg)
- Gram+ and gram– bacteria (max. 1×10^9)

Extraction time:
Approx. 15 – 40 minutes

Binding capacity:
Approx. 100 µg RNA; > 50 µg gDNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 60 µg RNA; up to 40 µg DNA

Average purity (A_{260}:A_{280}):
RNA: 1.8 – 2.1; DNA: 1.7 – 2.0

Kit components

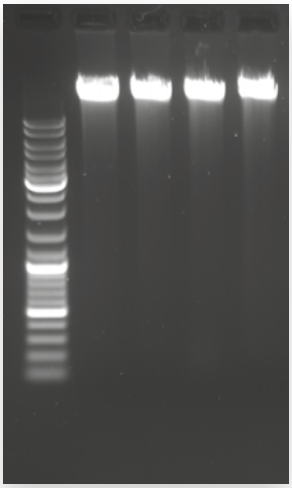
Lysis Solution, Washing Solutions, RNase-free water, Elution Buffer, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

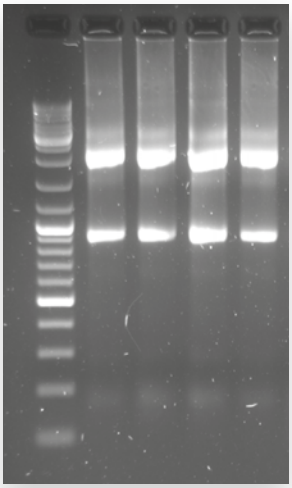
The innuPREP DNA/RNA Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 to 25 °C).

Sample application

Genomic DNA and total cellular RNA isolated in parallel from a human cell line using the innuPREP DNA/RNA Mini Kit. The DNA was then applied to a 0.8 % TAE agarose gel and the RNA was visualized on a 1.2 % denaturating formaldehyd gel.



Lane 1: Marker
Lane 2 – 5: Genomic DNA extracted from a human cell line



Lane 1: Marker
Lane 2 – 5: Total cellular RNA extracted from a human cell line

Order information

Order number	Quantity
845-KS-2080010	10 reactions
845-KS-2080050	50 reactions
845-KS-2080250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Forensic** Kit

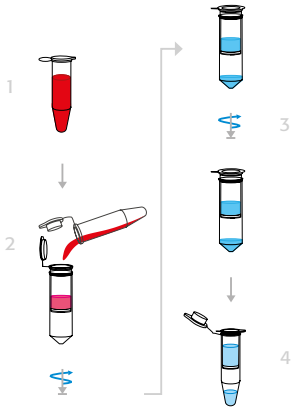
- Optimal DNA extraction from very small forensic or highly contaminated samples
- Ready-to-use genomic DNA for immediate downstream applications
- Large range of starting materials have been tested with positive results
- Certified for *in-vitro* diagnostic applications (CE-IVD)

Product description

The innuPREP Forensic Kit is a sophisticated tool optimized specifically for isolating genomic DNA from tiny samples and from highly contaminated forensic specimens. Extraction has already been successfully tested for a large number of starting materials, such as blood, traces of blood, hair, hair roots, beard stubble, finger nails, postage stamps, cigarette butts, chewing gum, traces of sperm, swab samples and finger prints on a variety of surfaces. The novel extraction chemistry used also makes it possible to recover severely degraded nucleic acids. In addition, CE-IVD certification makes the innuPREP Forensic Kit suitable for use in *in-vitro* diagnostic applications.

Procedure

1. Lyse the forensic sample
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the gDNA



Product specifications

Starting material:

- Blood and traces of blood
- Hair, hair roots and beard stubble
- Finger nails
- Stamps and envelopes
- Cigarette butts
- Chewing gum
- Swab samples and fingerprints taken from surfaces
- Traces of sperm
- Bone meal

Extraction time:
Approx. 15 minutes after lysis

Binding capacity:
Column binding capacity: > 100 µg gDNA

Average yield:
Depends on the type and quantity of the sample used

Average quality:

- Free of contamination
- No inhibiting effect on PCRs and other downstream applications

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

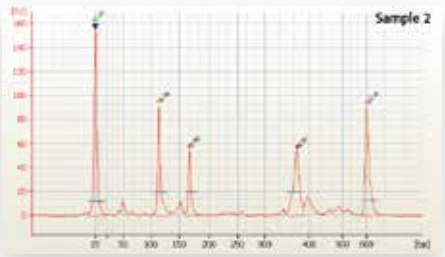
Storage conditions and stability

The innuPREP Forensic Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Extraction of genomic DNA from postage stamps, followed by amplification of a target sequence specific to human beings (marker for the Y chromosome; human GAPDH; marker for aneuploidy on chromosome 21). The amplified DNA fragments were analyzed using an Agilent Bioanalyzer.

Stamps (female DNA)



Stamps (male DNA)

Order information

Order number	Quantity
845-KS-1050010	10 reactions
845-KS-1050050	50 reactions
845-KS-1050250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA Mini** Kit

improved product
better performance

selected products for in-vitro-Diagnostics CE IVD

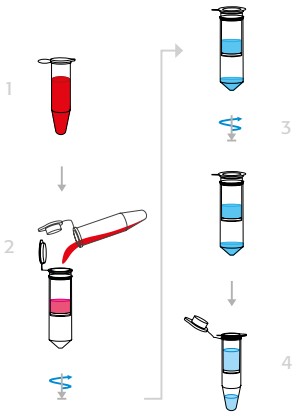
- Fast, direct isolation of genomic DNA from whole blood samples of up to 400 µl
- High yields of up to 30 µg and extremely high-quality gDNA, depending on the sample and the amount used
- CE-IVD certified
- 2 protocols: < 200 µl and up to 400 µl blood sampls
- Tested for EDTA and citrate stabilized and for fresh or frozen blood sample (including long time storage)
- Based on patented DC chemistry

Product description

The new innuPREP Blood DNA Mini Kit is a highly efficient tool for directly isolating DNA from whole blood samples of up to 400 µl. The new optimized Kit for extraction of DNA from blood guarantees extremely high-quality DNA that can be used immediately for photometric determinations, PCR or other downstream applications. The innuPREP Blood DNA Mini Kit is very fast and easy to use. Isolation of genomic DNA – free of inhibitors or impurities – can be completed in just 24 minutes. The kit is also CE-IVD certified and has already undergone successful testing: genomic DNA has been isolated from whole blood samples and then used in subsequent diagnostic applications.

Procedure

1. Lyse whole blood sample
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the gDNA



Product specifications

Starting material:
- Whole blood samples (up to 400 µl)
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 24 minutes, including lysis

Binding capacity:
Column binding capacity: > 60 µg gDNA

Average yield:
- Depends on sample and the used volume
- Up to 30 µg gDNA

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

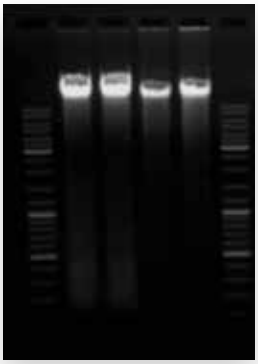
Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (red), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

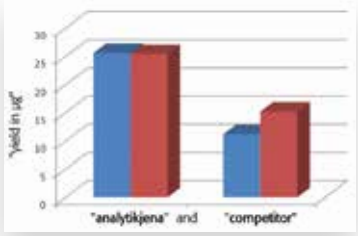
The innuPREP Blood DNA Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Extraction of gDNA from differrent 400 µl bloos samples (EDTA) in comparison with another competitor. The extracted gDNA was the visualized on an 0.8 % TAE agarose gel.



Lane 1: DNA Ladder
Lane 2-3: Extracted gDNA from 400 µl blood samples (EDTA) with innuPREP Blood DNA Mini Kit (AJ)
Lane 4-5: Extracted gDNA from 400 µl blood samples (EDTA) with a Kit of competitor



Comparison of quantity of extracted gDNA between Kit of analytikjena and competitor.
The innuPREP Blood DNA Mini Kit extracted 100 % more gDNA.

Order information

Order number	Quantity
845-KS-1020010	10 reactions
845-KS-1020050	50 reactions
845-KS-1020250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA Midi** Kit

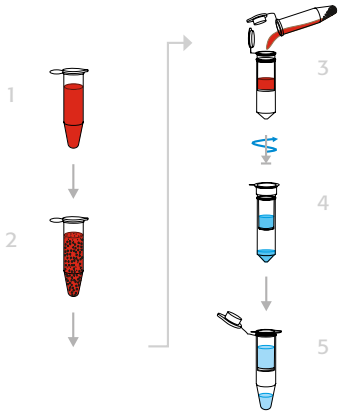
- Extremely simple tool for isolating genomic DNA from 0.5 ml to 2 ml whole blood samples
- Excellent purity and yields of up to 50 µg
- Processing in mini-Spin Filter format despite large starting volumes
- Patented, optimized extraction chemistry

Product description

The innuPREP Blood DNA Midi Kit has been specially designed as an effective tool for isolating genomic DNA from 0.5 ml to 2 ml samples of whole blood. The kit combines three steps: erythrocytes are first selectively digested, after which nucleated blood cells are pelleted and then lysed. After a precipitation step to selectively remove proteins, the DNA is bound to the surface of a Spin Filter membrane and then eluted. The extraction process involves the use of standard bench-top centrifuges and operates on a mini-column scale. Combining a highly stringent Lysis Buffer with a novel Binding Buffer makes it possible to achieve unique yields of highly pure DNA.

Procedure

1. Digest erythrocytes and then pellet and lyse lymphocytes
2. Precipitate proteins
3. Bind gDNA to the Spin Filter
4. Wash DNA
5. Perform final elution



Product specifications

Starting material:

- 0.5 to 2 ml samples of whole blood
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 30 – 40 minutes, including lysis

Binding capacity:
Column binding capacity: > 100 µg gDNA

Average yield:

- Depends on the sample and the volumes used
- Approx. 10 – 50 µg gDNA

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

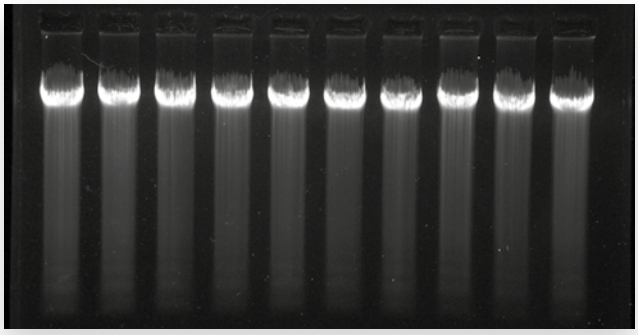
Ery Lysis Solution, Lysis Solution, Precipitation Buffer, Proteinase K, Washing Solution, Elution Buffer, Spin Filter (vanilla), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Blood DNA Midi Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Human genomic DNA was extracted from 1 ml whole blood samples. The isolated gDNA was then loaded directly onto a 0.8 % TAE agarose gel.



Lane 1 – 10: Human gDNA isolated from 1 ml whole blood samples

Order information

Order number	Quantity
845-KS-1030010	10 reactions
845-KS-1030050	50 reactions
845-KS-1030250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA MIDI Direct** Kit

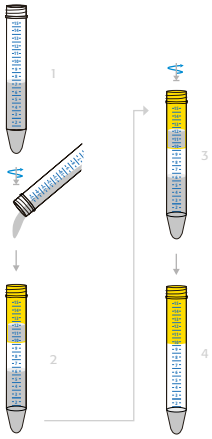
- Direct isolation of genomic DNA from up to 1 ml whole blood
- Extraction of up to 30 µg high-quality DNA
- Based on the use of optimized MIDI Spin Filters
- Centrifugation steps minimized
- Simple protocol with no preliminary erythrocyte lysis step

Product description

The innuPREP Blood MIDI Direct Kit was developed for directly extracting genomic DNA from 0.3 – 1 ml whole blood. The fast protocol involved omits the initial erythrocyte lysis step, thereby reducing the number of required centrifugation steps to an absolute minimum. Following direct lysis of the whole blood sample, the nucleic acids are bound to optimized MIDI Spin Filters, washed and finally eluted into a 15 ml tube using 300 – 400 µL elution buffer. This allows researchers to isolate roughly 35 µg of extremely high-quality genomic DNA from 1 ml whole blood.

Procedure

1. Lyse the starting material
2. Bind the genomic DNA to the MIDI Spin Filter
3. Wash the bound nucleic acids
4. Elute the genomic DNA



Product specifications

Starting material:

- 0.3 – 1 ml whole blood sample
- Fresh or frozen whole blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 50 minutes

Binding capacity:
Column binding capacity: > 50 µg gDNA

Average yield:

- Depends on the sample and the volumes used
- From 0.5 ml whole blood: approx. 4 – 12 µg gDNA
- From 1 ml whole blood: approx. 10 – 35 µg gDNA

Average purity (A_{260}:A_{280}):
1,8 – 2,0

Kit components

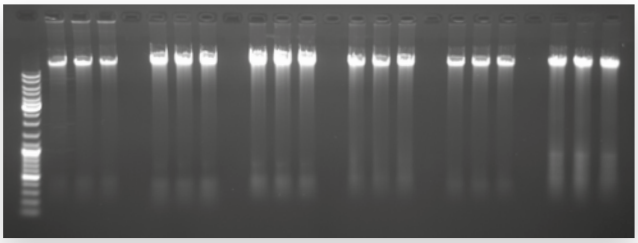
Lysis solution, proteinase K, binding solution, washing solutions, elution buffer, MIDI Spin Filter, 15 ml tubes, user manual

Storage conditions and stability

The innuPREP Blood MIDI Direct Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

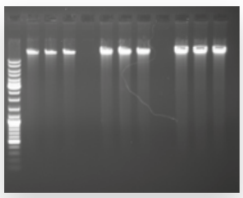
The following example demonstrates the high quality of DNA isolated from 6 different whole blood samples. Triple determinations on 1 ml whole blood were performed for each preparation. The isolated nucleic acids were subsequently visualized on an 0.8 % TAE agarose gel.



Lane 1: DNA ladder
lanes 2 – 4: DNA from whole blood sample 1
lanes 6 – 8: DNA from whole blood sample 2
lanes 10 – 12: DNA from whole blood sample 3
lanes 14 – 16: DNA from whole blood sample 4
lanes 18 – 20: DNA from whole blood sample 5
lanes 22 – 24: DNA from whole blood sample 6
lanes 5, 9, 13, 17 and 21: blanks

An additional DNA extraction was performed on whole blood samples with different starting volumes. Triple determinations were performed on these samples as well. The isolated genomic DNA was then loaded directly onto a 0.8 % TAE agarose gel.

Lane 1: DNA ladder
lanes 2 – 4: DNA from 0.4 ml whole blood
lanes 6 – 8: DNA from 0.7 ml whole blood
lanes 10 – 12: DNA from 1.0 ml whole blood
lanes 5 and 9: blanks



Order information

Order number	Quantity
845-KS-3000010	10 reactions
845-KS-3000025	25 reactions
845-KS-3000050	50 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA Master** Kit

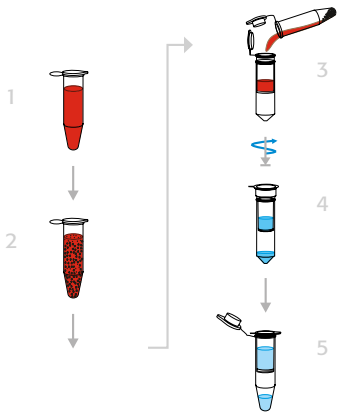
- Uncomplicated method for isolating genomic DNA from 0.5 ml to 5 ml whole blood samples
- Extremely high yields of up to 100 µg gDNA
- Extraction process using mini-Spin Filter, despite large starting volumes
- Optimized PLP Lysis Tubes reduce the pipetting work involved and make the process considerably less time-consuming

Product description

The innuPREP Blood DNA Master Kit is used for extracting genomic DNA from 0.5 ml to 5 ml whole blood samples. The basis for the test is an optimum combination of three steps: selective digestion of erythrocytes, along with pelleting and subsequent lysing of nucleated blood cells. The lysis step is performed in what are known as PLP Tubes, which already contain all of the Reagents required as well as the proteolytic enzymes, all in a stable form. This is followed by three additional steps: selective removal of proteins via precipitation, binding of the gDNA to a Spin Filter membrane, and the final elution. Standard bench-top centrifuges for mini-Spin Filters can be used despite the starting quantity in the master format.

Procedure

1. Digest erythrocytes and then pellet and lyse lymphocytes
2. Precipitate proteins
3. Bind gDNA to the Spin Filter
4. Wash DNA
5. Perform final elution



Product specifications

Starting material:

- 0.5 – 5 ml samples of whole blood
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 30 – 40 minutes, including lysis

Binding capacity:
Column binding capacity: > 100 µg gDNA

Average yield:

- Depends on the sample and the starting volumes used
- Approx. 10 – 100 µg gDNA

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

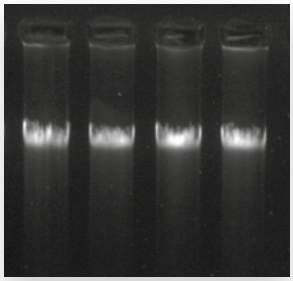
Ery Lysis Solution, Lysis Tubes PLP, Precipitation Buffer, Washing Solution, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

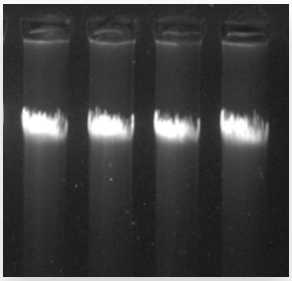
The innuPREP Blood DNA Master Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

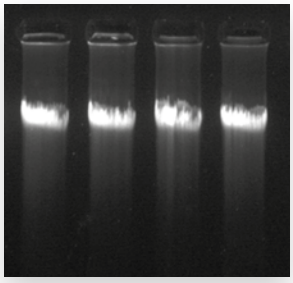
DNA was isolated from whole blood in a variety of different starting volumes (0.5 – 3 ml) and the human gDNA was then visualized on an 0.8 % TAE agarose gel.



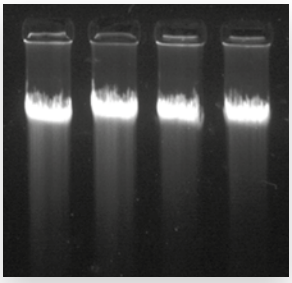
gDNA from 0.5 ml whole blood samples



gDNA from 1 ml whole blood samples



gDNA from 2 ml whole blood samples



gDNA from 3 ml whole blood samples

Order information

Order number	Quantity
845-KS-1070010	10 reactions
845-KS-1070050	50 reactions
845-KS-1070250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plant DNA** Kit

improved product
better performance

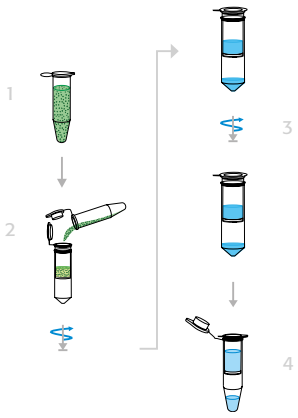
- Isolation of highly pure DNA free of plant inhibitors and secondary metabolic products
- Suitable for use with an extremely wide variety of plant materials
- High yields from up to 100 mg starting material
- 3-lysis buffer system for optimized and specialised lysis of plant material
- Specific guidelines according to kind of sample
- Tested for fresh or frozen blood sample (including dry archived material), leafs, wood, seeds, needles, fruits

Product description

The innuPREP Plant DNA Kit has been specially developed for quickly and easily isolating DNA from an extremely wide variety of plant starting materials (such as leaves, stems, roots, flowers, etc.). In addition to efficient sample digestion, the extraction routine also includes a prefiltration step to effectively minimize unlysed plant components. The DNA is then bound to a Spin Filter column using a novel Binding Buffer, after which it is washed and then eluted in a separate Elution Tube. The extracted nucleic acid is then immediately available for a number of downstream applications and can be stored for future applications without any trouble.

Procedure

1. Homogenize and lyse the plant material; follow with a prefiltration step (use Prefilter)
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute



Product specifications

Starting material:
- Various plant materials (max. 100 mg)
- Fresh, frozen or dried plant material

Extraction time:
Approx. 30–40 minutes

Binding capacity:
Column binding capacity: > 50 µg DNA

Average yield:
- Depends on the type and starting quantity of the plant material
- Approx. 3–25 µg

Average purity (A_{260}:A_{280}):
1.7–2.0

Kit components

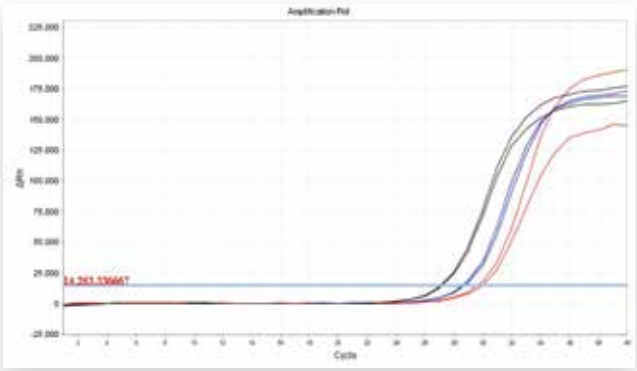
Lysis Solution, Binding Solution, Washing Solutions, Elution Buffer, Prefilter (lavender), Spin Filter (green), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Plant DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Plant DNA was isolated from rice. The purified DNA was analysed by plant specific Real-Time PCR.



Amplification plot of real-time PCR for detection of a plant specific target gene using three different lysis buffer for extraction of DNA from rice. Lysis Buffer CBV (black), OPT (blue) and SLS (red).

Lysis Buffer	Ø Ct-Value
CBV	27,0
OPT	28,8
SLS	29,6

Order information

Order number	Quantity
845-KS-1060010	10 reactions
845-KS-1060050	50 reactions
845-KS-1060250	250 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Swab DNA** Kit

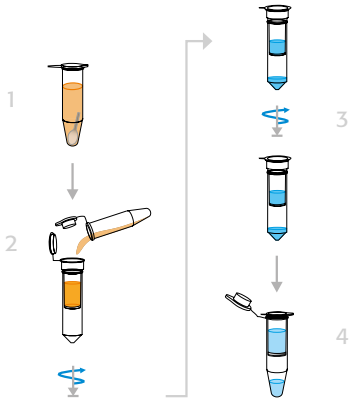
- Optimized protocol; chemistry adapted for DNA isolation from buccal swabs
- Fast and easy to use: DNA in just 20–25 minutes
- Prefiltration step maximizes DNA yields
- Includes high-quality swabs for sampling
- All black Spin Filter available in colourless

Product description

The blackPREP Swab DNA Kit has been optimized for fast, simple extraction of DNA from buccal swab samples. The kit contains optimized swabs for collecting samples. Each swab consists of a wooden stick with a cotton swab and is packaged separately in a sterile sample vessel. The isolation routine includes a prefiltration step for optimum swab drying. The DNA is then bound to a Spin Filter column, washed and eluted. Using the blackPREP Swab DNA Kit allows researchers to isolate high-quality DNA and maximize yields in just 20–25 minutes.

Procedure

1. Transfer the swab to a reaction vessel and lyse the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:
Buccal swabs

Extraction time:
- Lysis: 10–15 minutes
- Isolation: approx. 10 minutes

Binding capacity:
Column binding capacity: > 100 µg DNA

Average yield:
- Depends on starting sample
- Up to 20 µg DNA

Average purity (A_{260}:A_{280}):
1.7–2.0

Kit components

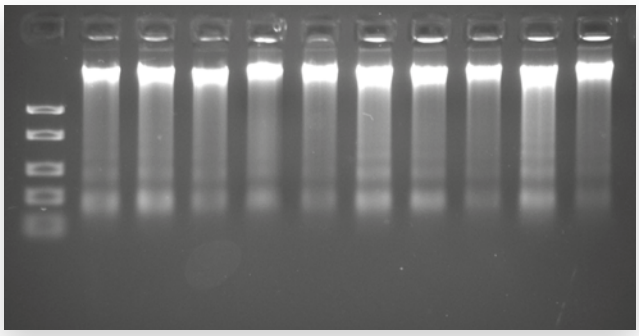
Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Prefilter (colourless), Spin Filter (black), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The blackPREP Swab DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Genomic DNA was extracted from buccal swabs. The isolated DNA was then loaded directly onto a 1.0 % TBE agarose gel.



Lane 1 and 12: DNA ladder
Lane 2–11: DNA extracted from buccal swabs taken from different test subjects

Order information

Order number	Quantity
845-BP-0030010	10 reactions
845-BP-0030050	50 reactions
845-BP-0030250	250 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Rodent Tail DNA** Kit

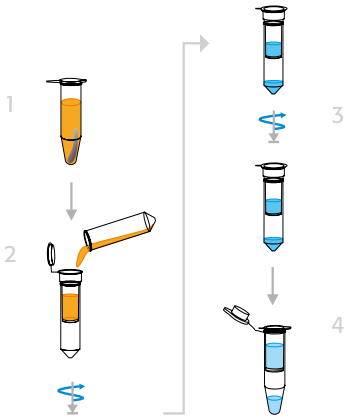
- Optimized for extracting genomic DNA from pieces of rodent tails (complex starting materials)
- Extremely fast lysis and highly efficient DNA isolation in just 1 and no more than 3 hours
- Samples do not need to be incubated overnight
- Mouse and rat tail pieces can be up to 1.2 cm and 0.6 cm in length, respectively
- All black Spin Filter available in colourless

Product description

The blackPREP Rodent Tail DNA Kit has been specially optimized for isolating DNA from pieces of mouse and rat tails, guaranteeing extremely high yields in a very short period of time. The kit, with its new purification chemistry, is part of a new Analytik Jena product line for nucleic acid extraction. Like the innuPREP DNA Kits that have been available now for many years, blackPREP DNA Kits are likewise based on a reliable separation process using Spin Filter columns. In addition, the extraction process for pieces of rodent tails is complete within 3 hours thanks to a highly efficient sample lysis step that eliminates the need for the traditional overnight lysis process.

Procedure

1. Lyse the pieces of mouse or rat tail
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the gDNA



Product specifications

Starting material:

- Mouse or rat tail pieces
- Maximum mouse tail length = 1.2 cm
- Maximum rat tail length = 0.6 cm

Extraction time:

- Lysis: Between 1 and no more than 3 hours
- Isolation: approx. 9 minutes

Binding capacity:

Column binding capacity: > 100 µg DNA

Average yield:

- Mouse tail pieces (1.2 cm): 30 – 40 µg
- Rat tail pieces (0.6 cm): 35 – 45 µg

Average purity (A_{260}:A_{280}):

1.8 – 2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solution, Elution Buffer, Spin Filter (black), Receiver Tubes, user manual

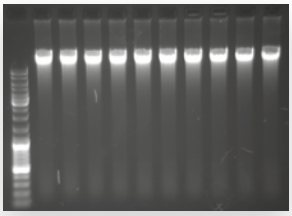
Storage conditions and stability

The blackPREP Rodent Tail DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

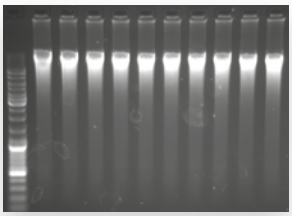
Sample application

Genomic DNA was extracted from pieces of rodent tails and the extracted gDNA was then visualized on an 0.8 % TAE agarose gel.

Lane 1: DNA ladder
Lane 2 – 11: Extracted gDNA from mouse tail pieces (1.0 cm)



Lane 1: DNA ladder
Lane 2 – 11: Extracted gDNA from rat tail pieces (0.5 cm)



Order information

Order number	Quantity
845-BP-0010010	10 reactions
845-BP-0010050	50 reactions
845-BP-0010250	250 reactions
844-MA205-2	Laboratory Notebook

blackPREP **FFPE DNA** Kit

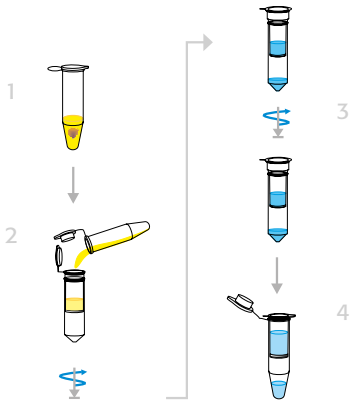
- A safe, fast and enormously simplified process for isolating genomic DNA from formalin-fixed, paraffin-embedded (FFPE) tissue samples
- The need for paraffin removal steps has been completely eliminated
- Toxic solvents such as xylol or octane no longer need to be used
- CE-IVD certified
- All black Spin Filter available in colourless

Product description

The blackPREP FFPE DNA Kit has been specially adapted for extracting genomic DNA from formalin-fixed, paraffin-embedded tissue samples. The novel chemistry underlying this purification kit renders the previously standard, time-consuming paraffin removal step utterly unnecessary. This means that the entire DNA isolation process can be performed in roughly 2 ½ hours without the use of toxic solvents such as xylol or octane. The blackPREP FFPE DNA Kit is also CE-IVD certified and has been successfully tested by isolating genomic DNA from tumor material to verify point mutations in the K-ras gene.[1]

Procedure

1. Lyse the FFPE tissue sample
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the gDNA



Product specifications

Starting material:

- FFPE tissue samples (formalin-fixed, paraffin-embedded)
- Approx. 2 × 5 µm; more starting material may also be used (option)

Extraction time:
Approx. 2.5 hours, including lysis

Binding capacity:
Column binding capacity: approx. 50 µg

Average yield:
Depends on type and amount of starting material used

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solution, Elution Buffer, Spin Filter (black), Receiver Tubes, user manual

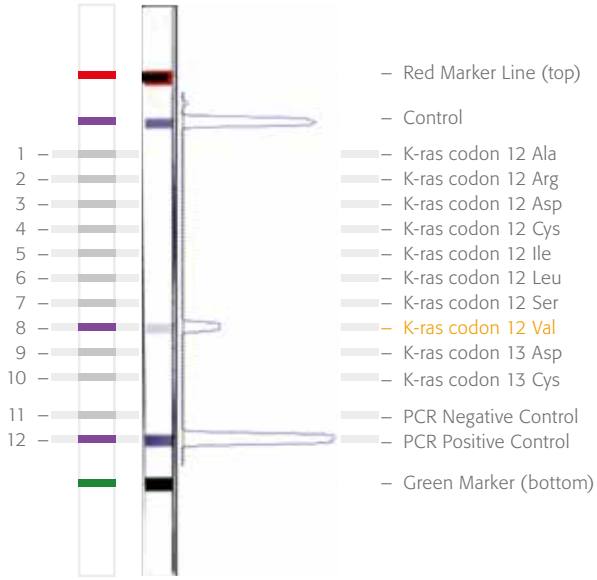
Storage conditions and stability

The blackPREP FFPE DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Successful testing by isolating genomic DNA from tumor material to verify point mutations in the K-ras gene (K-ras StripAssay used as an example). [1]

[1] Protrans medizinische diagnostische Produkte GmbH



Summary:
K-ras: cd12 (Val) present [1]

Order information

Order number	Quantity
845-BP-0020010	10 reactions
845-BP-0020050	50 reactions
845-BP-0020250	250 reactions
844-MA205-2	Laboratory Notebook

Isolation of microbial DNA

The innuPREP and blackPREP product series offer a wide variety of kits for isolating viral and bacterial DNA.

Along with Spin Filter columns, these products also make use of magnetic particles for manual DNA separation.
Special highlight: the ability to isolate microbial DNA and RNA at the same time from a single sample.

	Manuell										
	innuPREP							blackPREP			
"x - Recommended (x) - Recommended with limitations"	innuPREP DNA / RNA Mini Kit	innuPREP Bacteria DNA Kit	innuPREP Mycobacteria DNA Kit	innuPREP Stool DNA Kit	innuPREP Virus DNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	blackPREP Food DNA I Kit	blackPREP Tick DNA Kit	blackPREP Tick DNA / RNA Kit	blackPREP Powder DNA/RNA Kit
Catalogue page	30	42	43	44	45	74	75	48	49	50	51
Backing powder (Virus, Bacteria)											**x**
Bacterial cell pellets (gram+ & gram-)	**(x)**	**x**						**(x)**			
1x 10^9 cells	(x)	x						(x)			
Bronchoalveolar lavage (Mycobacteria)			**x**								
Cell culture supernatants (Virus)					**x**	**(x)**	**x**				
Up to 150 µl						(x)					
Up to 200 µl					x		x				
Cell cultures (Virus)					**x**	**(x)**	**x**				
5x 10^6 cells					x	(x)	x				
Cell-free body fluids (Virus)					**x**	**(x)**	**x**				
Up to 150 µl						(x)					
Up to 200 µl					x		x				
Coffee powder (Virus, Bacteria)											**x**
Dust (Virus, Bacteria)											**x**
Flour (Virus, Bacteria)											**x**
Food material after cultivation								**x**			
Mycobacteria			**x**								
Paraffin-embedded tissue					**x**	**(x)**					
Viral DNA					x	(x)					
Pepper (Virus, Bacteria)											**x**
Plasma (Virus)					**x**	**(x)**	**x**				
Up to 150 µl						(x)					
Up to 200 µl					x		x				
Powder (Virus, Bacteria)											**x**

	Manuell										
	innuPREP							blackPREP			
"x - Recommended (x) - Recommended with limitations"	innuPREP DNA / RNA Mini Kit	innuPREP Bacteria DNA Kit	innuPREP Mycobacteria DNA Kit	innuPREP Stool DNA Kit	innuPREP Virus DNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	blackPREP Food DNA I Kit	blackPREP Tick DNA Kit	blackPREP Tick DNA / RNA Kit	blackPREP Powder DNA/RNA Kit
Cataloge page	30	42	43	44	45	74	75	48	49	50	51
Saliva							**x**				
Salt (Virus, Bacteria)											**x**
Sand (Virus, Bacteria)											**x**
Serum (Virus)					**x**	**(x)**	**x**				
Up to 150 µl						(x)					
Up to 200 µl					x		x				
Soil											**x**
20 - 50 mg											x
Spicery (Virus, Bacteria)											**x**
Sputum (Mycobacteria)			**x**								
Up to 200 µl			x								
Up to 5 ml			x								
Stool				**x**			**x**				
50 - 100 mg							x				
200 - 400 mg				x							
200 - 400 µl				x							
Host DNA				x							
Bacterial DNA				x			x				
Sugar (Virus, Bacteria)											**x**
Swabs					**x**	**(x)**	**x**				
Tea (Virus, Bacteria)											**x**
Ticks									**x**	**x**	
Tissue samples	**(x)**		**x**		**x**	**(x)**	**x**				
Biopsies (viral DNA)					x	(x)	x				
Biospies (Mycobacteria)			x								
Up to 20 mg (viral DNA)					x	(x)					
Virus (from various sources)					**x**	**(x)**	**x**				**x**
Washing detergent (Virus, Bacteria)											**x**

innuPREP **Bacteria DNA** Kit

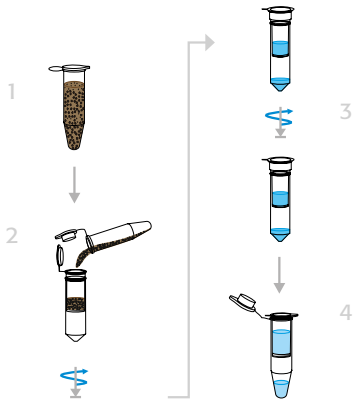
- Bacterial DNA extraction from gram+ and gram– cell cultures
- Patented DC technology for short lysis times and efficient binding of bacterial DNA
- DNA isolation from up to 1×10^9 bacterial cells
- Certified for *in-vitro* diagnostic applications (CE-IVD)

Product description

The innuPREP Bacteria DNA Kit has been optimized specifically for isolating bacterial DNA from cell pellets after culturing, making it possible to process both gram+ and gram– bacteria. The extraction process combines an initial lysis step using lysozyme and a subsequent proteolytic digestion step with a highly efficient process for binding bacterial DNA to the surface of a Spin Filter membrane. The DNA is then washed and desorbed from the surface of the filter. Extraction is based on Spin Filter columns and, in addition to being very easy to perform, also makes it possible to bind more than 50 µg of bacterial DNA. CE-IVD marking also makes the innuPREP Bacteria DNA Kit suitable for *in-vitro* diagnostics.

Procedure

1. Lyse bacteria
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the bacterial DNA



Product specifications

Starting material:

- Gram+ and gram– bacterial cell pellets after culturing
- Up to 1×10^9 cells

Extraction time:
Approx. 45 minutes

Binding capacity:
Column binding capacity: > 50 µg DNA

Average yield:
Depends on the type and starting quantity and/or cell count of the bacteria; up to 35 µg

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

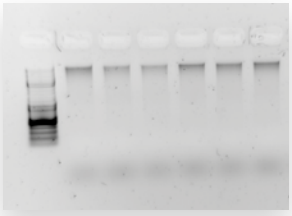
Storage conditions and stability

The innuPREP Bacteria DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at -20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

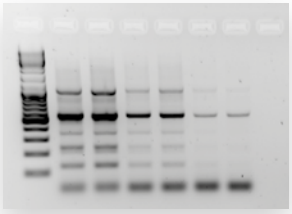
Extraction of bacterial DNA from gram+ bacteria. The bacterial DNA is then visualized on an 0.8 % TAE agarose gel.

Lane 1: DNA ladder
Lane 2 – 7: Bacterial DNA



Arbitrarily primed (AP) PCR with 3 different dilutions of bacterial DNA. PCR was performed as a double determination followed by analysis on a 2 % TAE agarose gel.

Lane 1: DNA ladder
Lane 2 – 3: Double determination of dilution I
Lane 4 – 5: Double determination of dilution II
Lane 6 – 7: Double determination of dilution III
Lane 8: Negative control



Order information

Order number	Quantity
845-KS-6000010	10 reactions
845-KS-6000050	50 reactions
845-KS-6000250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Mycobacteria DNA** Kit

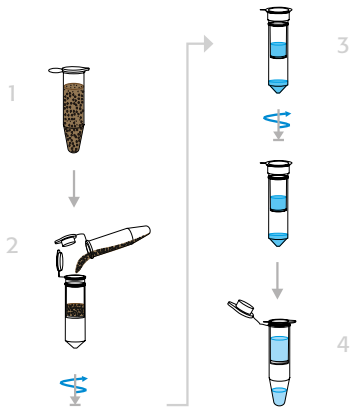
- Isolation of mycobacterial DNA from sputum, bronchoalveolar lavage or lymph node
- Especially effective thanks to sample material pretreatment with N-acetyl cysteine
- High-quality, ready-to-use DNA for all downstream applications

Product description

The innuPREP Mycobacteria DNA Kit selectively extracts mycobacterial DNA from sputum, bronchoalveolar lavages or tissue samples (e.g. lymph nodes). The extraction process includes a step in which samples are pretreated with N-Acetyl cysteine followed by digestion with lysozyme and Proteinase K. After sample digestion, DNA is bound (under optimized binding conditions) to a Spin Filter membrane, washed and then desorbed from the filter membrane through the addition of a low-salt buffer. Special protocols adapted to different starting materials ensure maximum DNA yields and outstanding purity.

Procedure

1. Lyse the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:

- Sputum samples, 0.2 – 5.0 ml
- Bronchoalveolar lavages, up to 1.0 ml
- Tissues (e.g., lymph nodes) ranging in size from 1.0 mg to no more than 10 mg

Extraction time:
Approx. 15 minutes after lysis

Kit components

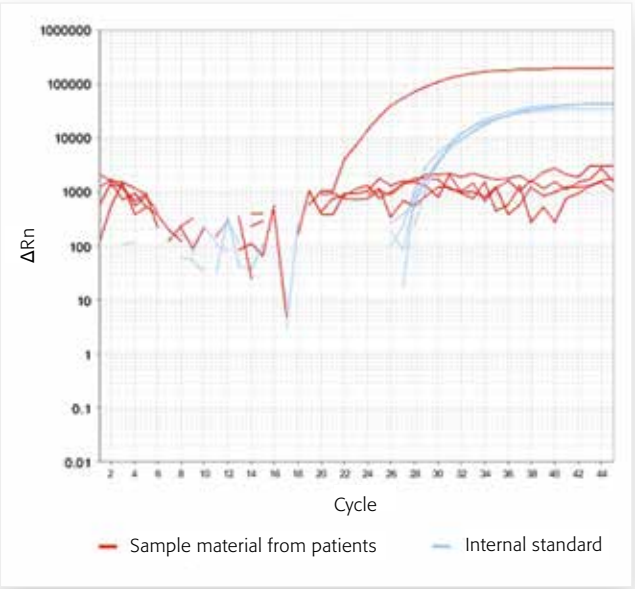
NAC Buffer, Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Mycobacteria DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Respiratory sample material from patients was tested for *M. tuberculosis* complex (MTC) at a genomic level. The first step was to use the innuPREP Mycobacteria DNA Kit to extract DNA from the sample material; the resulting DNA was then introduced in a specific real-time PCR.



Amplification plot of the MTB specific, real-time PCR compared to a reference gene

Red curve: 5 patients were studied; one patient tested positive
Blue curve: Internal standard (reference gene)

Order information

Order number	Quantity
845-KS-6100010	10 reactions
845-KS-6100050	50 reactions
845-KS-6100250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Stool DNA** Kit

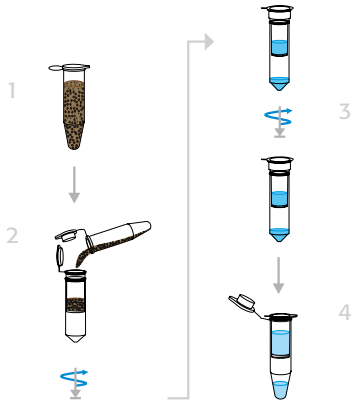
- For isolating bacterial or genomic DNA from human or animal stool samples
- Includes prefiltration for removing undissolved sample components
- Ready-to-use DNA in just 30–45 minutes, free of inhibitors and other impurities
- CE-IVD certified

Product description

The innuPREP Stool DNA Kit is suitable both for extracting bacterial DNA from stool samples as well as for isolating genomic DNA from sloughed off intestinal epithelial cells. The extraction process is based on sample lysis followed by a pre-filtration step to remove undissolved sample particles. The sample DNA is then bound to the surface of a Spin Filter membrane and washed, and the bound DNA is then desorbed from the surface of the Spin Filter column. The innuPREP Stool DNA Kit is also certified for *in-vitro* diagnostic use (CE-IVD) and makes it possible to purify high-quality, ready-to-use DNA for a variety of downstream applications.

Procedure

1. Lyse and Prefilter the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:

- 200–400 µg of solid stool samples
- 200–400 µl of liquid stool samples
- Of human or animal origin

Extraction time:
Approx. 30–45 minutes

Binding capacity:
Column binding capacity: > 50 µg DNA

Average yield:
Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280}):
1.7–2.0

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Prefilter (lavender), Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

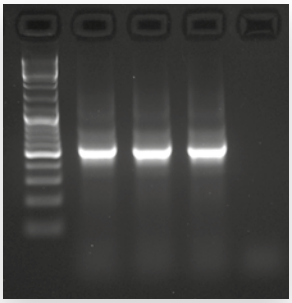
Storage conditions and stability

The innuPREP Stool DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

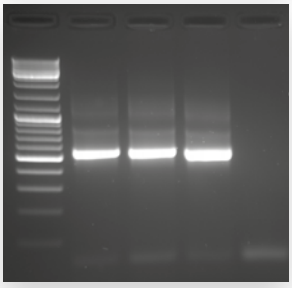
Sample application

Extraction of bacterial DNA from stool samples, followed by amplification of a target sequence (538 bp) specific to *E.coli* in less than 8 minutes using *rapid*PCR (SpeedCycler from Analytik Jena).

Lane 1: DNA ladder
Lane 2–4: 538 bp fragment specific to *E.coli*
Lane 5: Negative control



Lane 1: DNA ladder
Lane 2–4: 538 bp fragment specific to *E.coli*
Lane 5: Negative control



Order information

Order number	Quantity
845-KS-7000010	10 reactions
845-KS-7000050	50 reactions
845-KS-7000250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA** Kit

improved product
better performance

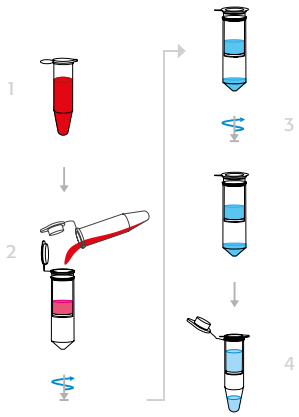
- Universal kit for isolating viral DNA from a broad range of starting materials
- High-quality, exceptionally pure nucleic acids ideally suited for later downstream applications
- Positive PCR and TaqMan® real-time PCR testing results
- Including Carrier Mix with internal DNA extraction control

Product description

The innuPREP Virus DNA Kit is ideally suited for isolating viral ssDNA and dsDNA from serum, plasma or other cell-free fluids, from tissue, paraffin or swab samples or from cell cultures. The extraction process is based on a novel extraction chemistry using Spin Filter columns and an optimized binding membrane. Elution volumes can also be varied between 50 µl and 200 µl depending on the starting material. Inhibiting sample components are completely removed, making viral DNA immediately available for further downstream applications.

Procedure

1. Lyse the starting material
2. Bind the viral DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the viral DNA



Product specifications

Starting material:

- Cell-free bodily fluids such as serum and plasma (200 µl each)
- Supernatant from cell cultures (200 µl)
- Tissue samples and biopsies of up to 20 mg
- Cell cultures (max. 5×10^6)
- Swab samples
- Paraffin samples (tissue)

Extraction time:
Approx. 25 minutes

DNA quality:
Positive PCR and TaqMan® real-time PCR testing results

Kit components

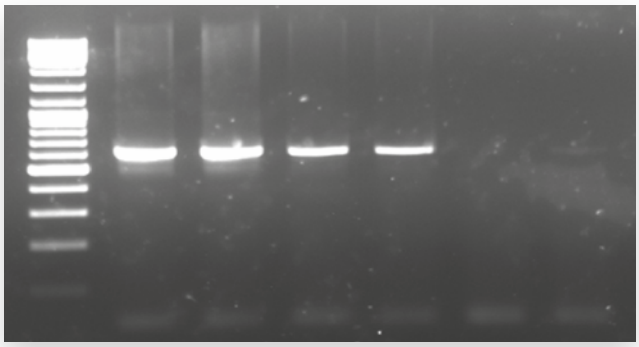
Lysis Solution, Binding Solution, Proteinase K, Carrier Mix, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Virus DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

DNA was isolated from a DNA virus prepared in serum at a number of different concentrations. The virus was then tested with the innuPREP Virus DNA Kit (double determinations) and eluted in 60 µl. 1.5 µl DNA samples were then added to a virus-specific PCR (total reaction volume = 15 µl) in the FlexCycler. Finally, 10 µl of the reaction were visualized on a TAE agarose gel.



Lane 1: DNA ladder
Lane 2–3: 1.5×10^4 genome equivalents per 150 µl starting material
Lane 4–5: 1.5×10^3 genome equivalents per 150 µl starting material
Lane 6–7: 1.5×10^2 genome equivalents per 150 µl starting material

Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KS-4600010	10 reactions
845-KS-4600050	50 reactions
845-KS-4600250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA/RNA** Kit

improved product
better performance

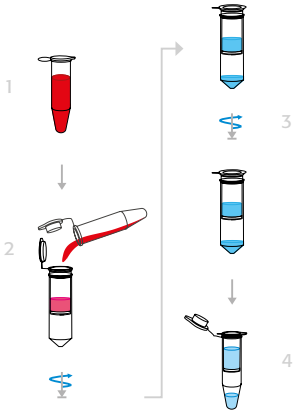
- Simultaneous isolation of viral DNA and RNA from a variety of starting materials
- Patented DC technology: rapid lysis and efficient binding
- Extraction method based on the use of Spin Filters
- Optimum removal of inhibitors ensures trouble-free use of nucleic acids in subsequent applications
- Recommended for samples with unknown virus
- Includes Carrier Mix with internal DNA and RNA extraction control

Product description

The innuPREP Virus DNA/RNA allows researchers to purify viral ssDNA or dsDNA and ssRNA simultaneously from serum, plasma or other cell-free bodily fluids, from tissue, paraffin or swab samples, or from cell cultures. A novel extraction chemistry known as "Dual Chemistry" (DC) technology guarantees researchers the ability to isolate highly pure viral nucleic acids of excellent quality. The use of a Spin Filter membrane maximizes DNA and RNA yields. In addition, having a number of different extraction protocols makes it possible to adapt the innuPREP Virus DNA/RNA Kit to the starting material used. One major advantage of this kit is the time saved by isolating nucleic acids simultaneously, particularly when using starting materials in which the viral contamination is not clear.

Procedure

1. Lyse the starting material
2. Bind the viral nucleic acids to the Spin Filter
3. Wash the bound nucleic acids
4. Elute the viral nucleic acids



Product specifications

Starting material:

- Serum, plasma, cell-free bodily fluids, supernatants from cell cultures (150 µl each)
- Tissues and biopsies of up to 20 mg
- Cell cultures (max. 5×10^6)
- Swab samples
- Paraffin samples (tissue)

Extraction time:
Approx. 25 minutes

Nucleic acid quality:
Positive PCR and TaqMan® real-time PCR testing results

Kit components

Lysis Solution, Binding Solution, Carrier Mix, Proteinase K, Washing Solutions, RNase-free water, Spin Filter (purple), Receiver Tubes, Elution Tubes, user manual

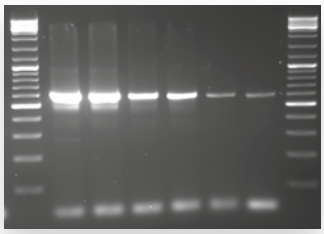
Storage conditions and stability

The innuPREP Virus DNA/RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

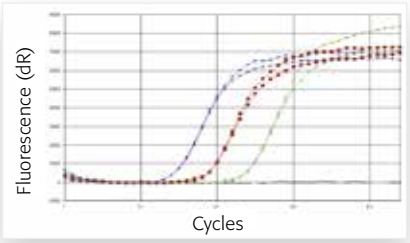
Various concentrations of a DNA virus were prepared in serum and processed with the innuPREP Virus DNA/RNA Kit (double determinations). The final nucleic acid elution was performed in 60 µl. 1.5 µl aliquots of this were added to a virus-specific PCR (total reaction volume = 15 µl). The reaction was then visualized in 10 µl aliquots on a TAE agarose gel.

Lane 1 and 8: DNA ladder
Lane 2–3: 1×10^5 genome equivalents per 150 µl starting material
Lane 4–5: 1×10^4 genome equivalents per 150 µl starting material
Lane 6–7: 1×10^3 genome equivalents per 150 µl starting material



The innuPREP DNA/RNA Virus Kit was used for extracting ssRNA from various RNA virus dilutions in a cell culture medium. The virus was identified after cDNA synthesis in a TaqMan® real-time PCR (double determination).

Dilution 1:
1:10^3 with Ct 18
Dilution 2:
1:10^4 with Ct 21
Dilution 3:
1:10^5 with Ct 24
and NTC



Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KS-4800010	10 reactions
845-KS-4800050	50 reactions
845-KS-4800250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **MP Basic** Kit A

- Fast, efficient isolation of DNA and RNA of either viral or bacterial origin
- Based on manual magnetic particle separation with various magnetic racks
- Optimized for a variety of different starting materials and quantities
- Positive test results for an extremely wide range of viruses and bacteria

Product description

The innuPREP MP Basic Kit A was developed for isolating viral/bacterial DNA and/or RNA from various cell-free bodily fluids. The separation technology involved is based on a novel extraction chemistry that allows users to simultaneously bind DNA and RNA to the surface of functionalized magnetic particles, thereby combining the steps of first lysing the starting material and then binding the nucleic acids to magnetic beads. These are then washed and the DNA/RNA is eluted in RNase-free water. The routine is extremely easy to carry out, yet universally applicable and highly efficient. Various magnetic racks (for 1.5 - 50 ml tubes) are available, accommodating an extremely wide variety of starting materials and, especially, volumes.

Product specifications

Starting material:

- Serum, plasma, synovial fluids, saliva, other cell-free bodily fluids and supernatants from cell cultures (200 µL each)
- Biopsies (1 – 5 mg)
- Cell cultures (max. 5 x 10^6)
- Nasopharyngeal swabs
- Stool samples (0.05 – 0.1 g)

Extraction time:

- Approx. 20 minutes after lysis

Positive test results obtained for the following targets:

- Rift valley fever virus (RNA virus model)
- Vaccinia virus (DNA virus model)
- *Yersinia pestis* (gram- bacteria)
- *Bacillus anthracis* spores (gram+ bacteria)
- Ebola virus
- Bovine viral diarrhea virus (BVDV)
- Marburg virus
- Yellow fever virus
- Norovirus
- Sigma virus
- Influenza A & influenza B virus
- *Francisella tularensis*
- *Bacillus cereus*
- *Bacillus thuringiensis*

Kit components

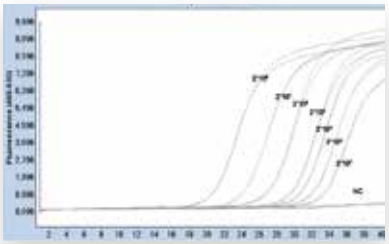
Lysis solution, Binding Solution, Washing solutions, RNase-free water, MAG Suspension, user manual

Storage conditions and stability

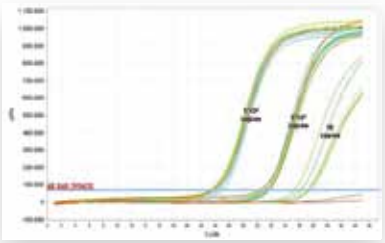
The innuPREP MP Basic kit will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for the MAG suspension is 4°C. The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Plasma was initially spiked with an RNA virus, after which the RNA could be extracted using the innuPREP MP Basic kit A. Different numbers of copies were used in a virus-specific TaqMan® real-time PCR for final detection of the isolated viral RNA and for reviewing its quality. After using the innuPREP MP Basic Kit A to extract the viral RNA, different numbers of starting copies were introduced in a virus-specific TaqMan® real-time PCR in order to assess the quality of the isolated RNA.



Amplification plot of a negative control and of various viral RNA concentrations ranging from 2x 10^2 to 2x 10^8 copies.



Amplification plot of various concentrations of an RNA virus (from 10 copies to 1 x 10^4 copies per batch).

Available magnetic racks

Small magnetic rack for 1.5 – 2.0 ml tubes	250
Medium magnetic rack for 15 ml tubes	250
Large magnetic rack for 50 ml tubes	250

Order information

Order number	Quantity
845-KS-4900100	100 reactions
845-KS-4900500	500 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Food DNA I** Kit

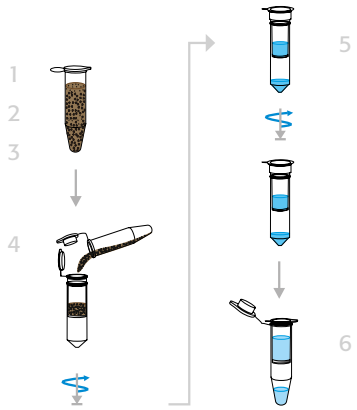
- Extremely fast isolation of bacterial DNA, esp. from food cultured in a Stomacher apparatus
- Established Spin Filter column technology makes the system easy to use
- Only 1 h required for extraction (incl. lysis)
- Highly sensitive detection of food pathogens when used in combination with rapidSTRIPE assays
- All black Spin Filter available in colourless

Product description

The blackPREP Food DNA I Kit has been specially developed for extracting bacterial DNA from food after the bacteria have been cultured according to standard procedure in a Stomacher apparatus. The starting material for the extraction is a bacterial pellet taken from 1 ml culture. The subsequent purification step is based on binding the extracted DNA to an optimized Spin Filter membrane. Multiple wash steps precede elution; these guarantee highly pure DNA for later applications. Analytik Jena's rapidSTRIPE assays can then be used as fast, uncomplicated tools for detecting food-borne bacterial pathogens in later applications. Ready-to-use kits include, among others, highly-specific systems for detecting listeria and salmonella.

Procedure

1. Culture the food according to standard procedure in a Stromacher apparatus
2. Obtain a bacterial pellet from a 1 ml Stromacher culture
3. Lyse the cell pellet
4. Bind the DNA to the Spin Filter
5. Wash the bound DNA
6. Elute the DNA



Product specifications

Starting material:
Bacterial cell pellet after standard culturing in a Stomacher apparatus (1 ml)

Extraction time:
Approx. 1 hour after culturing (including lysis)

Average yield:
Depends on bacteria and culture density

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

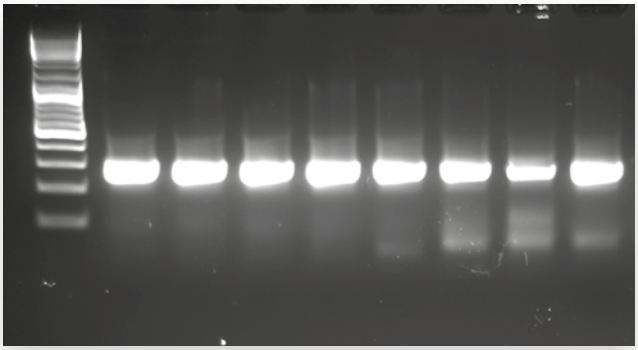
Lysis Tube, Resuspension Buffer, Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (black), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The blackPREP Food DNA I Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The blackPREP Food DNA I Kit was used to isolate bacterial DNA from meat samples that had undergone the standard culturing process in a Stomacher apparatus. This was followed by a PCR application specific to S. enterica. The PCR products were loaded onto a TAE agarose gel.



Lane 1: DNA ladder
Lane 2 – 9: PCR products specific to *S. enterica*

Other products for Food Quality Control

Order information

Order number	Quantity
845-BP-3200010	10 reactions
845-BP-3200025	25 reactions
845-BP-3200050	50 reactions
844-MA205-2	Laboratory Notebook

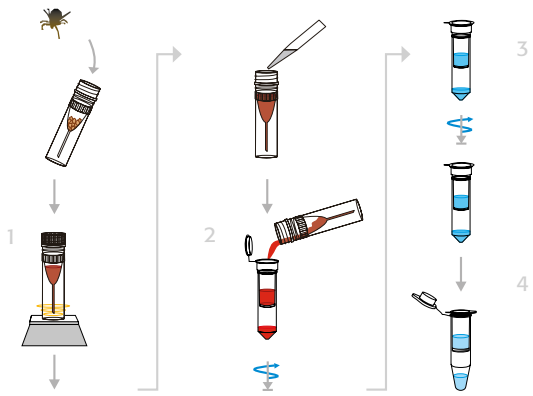
blackPREP **Tick DNA** Kit

- Optimized for extracting pathogen DNA from ticks
- Includes application-specific Lysis Tubes with homogenization beads
- When combined with rapidSTRIPE assays, the kit provides a highly sensitive means of detecting tick-borne pathogens
- Based on well-established Spin Filter technology
- All black Spin Filter available in colourless

Product description

The blackPREP Tick DNA Kit has been adapted specifically for isolating DNA from ticks. The kit contains Lysis Tubes with optimized beads and can be used in combination with the SpeedMill (Analytik Jena) or other homogenizers as an efficient means of mechanically disruption of ticks without degrading the DNA. The steps that follow lysis (binding and washing the DNA; final elution) guarantee highly efficient DNA purification. Analytik Jena's rapidSTRIPE assays can then be used in later applications as fast, uncomplicated tools for detecting tick-borne pathogens. These ready-to-use assays can be used as highly specific tools for detecting *Borrelia*, *Rickettsia*, *Anaplasma* and *Babesia*, among other pathogens.

Procedure



1. Homogenize and lyse the tick
2. Bind the DNA to the Spin Filter membrane
3. Wash the bound DNA
4. Elute the DNA

Product specifications

Starting material:
Ticks

Extraction time:
Less than 1 hour (including lysis)

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

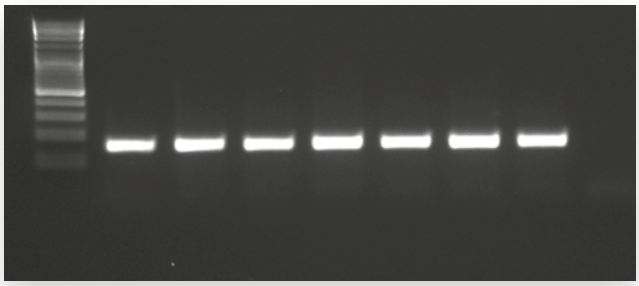
Lysis Tube, Lysis Solution, Proteinase K, Binding Solution, Precipitation Buffer, Washing Solutions, Prefilter (colourless), Spin Filter (black), Receiver Tubes, Elution Buffer, user manual

Storage conditions and stability

The blackPREP Tick DNA Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The blackPREP Tick DNA Kit was used to isolate the DNA from a variety of different ticks and/or tick species. The nucleic acids were then introduced into a tick-specific amplification reaction. The PCR products were visualized on an agarose gel as the final step.



Lane 1: DNA ladder
Lane 2 – 8: Tick-specific PCR products
Lane 9: Negative control

Other products for Tick Born Diseases

Order information

Order number	Quantity
845-BP-3100010	10 reactions
845-BP-3100025	25 reactions
845-BP-3100050	50 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Tick DNA/RNA** Kit

- Optimized for parallel extraction of DNA and RNA from ticks
- Application-specific Lysis Tubes with beads guarantee effective homogenization of the starting material
- Patented extraction chemistry with a stringent Lysis Buffer system and a novel Binding Buffer
- When combined with rapidSTRIPE assays, the kit serves as a highly sensitive tool for detecting tick-borne pathogens (including TBE and/or FSME)
- All black Spin Filter available in colourless

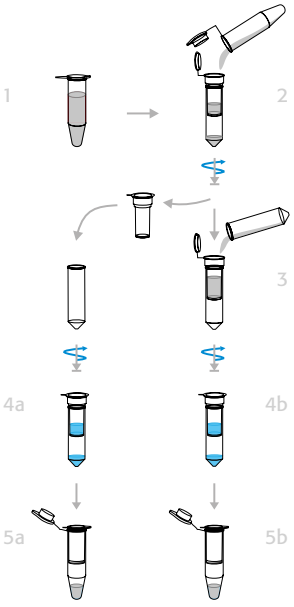
Product description

The blackPREP Tick DNA/RNA Kit allows researchers to simultaneously isolate DNA and RNA from ticks. This is of particular interest when testing ticks for RNA viruses (such as TBE or FSME) in addition to bacterial pathogens. The kit contains application-specific Lysis Tubes, including beads that have been optimized (in terms of their characteristics and quantity) specifically for homogenizing ticks. Following a subsequent lysis process, the DNA is bound to one filter membrane and the RNA is bound to another. The nucleic acids are then washed and eluted into separate reaction vessels. Analytik Jena's rapidSTRIPE assays can then be used in later applications as fast, uncomplicated tools for detecting nucleic acids from tick-borne pathogens. These ready-to-use assays can be used as highly specific tools for detecting FSME, *Borrelia*, *Rickettsia*, *Anaplasma* and *Babesia*, among other pathogens.

Procedure

1. Homogenize and lyse the starting material
2. Bind the DNA to the first Spin Filter
3. Bind the total RNA to the second Spin Filter

4a. Wash the bound DNA
4b. Wash the bound RNA
5a. Elute the DNA
5b. Elute the RNA



Product specifications

Starting material:
Ticks

Extraction time:
Less than 1 hour (including lysis)

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

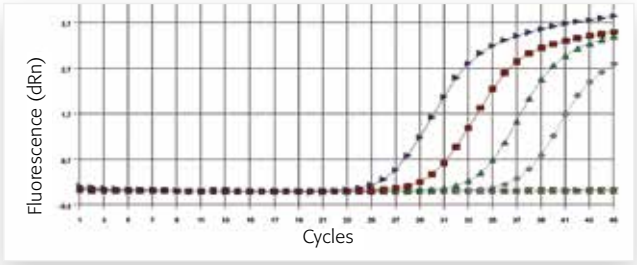
Lysis Tube, Lysis Solution, Washing Solutions, Spin Filter, Receiver Tubes, Elution Buffer, RNase-free water, Elution Tubes, user manual

Storage conditions and stability

The blackPREP Tick DNA/RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

The blackPREP Tick DNA/RNA Kit was used to isolate nucleic acids from ticks. This was followed by a TaqMan® real-time PCR specific to TBE or FSME and performed at different dilution levels.



Amplification plot of a TaqMan® real-time PCR specific to TBE/FSME.

Cell count/reaction	Ct value (average)
3×10^4	25.5
3×10^3	29.0
3×10^2	34.1
3×10	34.7

Ct values from the TaqMan® real-time PCR as a function of cell count

Reference: „Rickettsia aeschlimannii in Hyalomma marginatum Ticks, Germany"; Rumer L, Graser E, Hillebrand T, Talaska T, Dautel H, Mediannikov O, et al.; Emerg Infect Dis [serial on the Internet].; February 2011; Vol. 17; No. 2

Other products for Tick Born Diseases

Order information

Order number	Quantity
845-BP-5100010	10 reactions
845-BP-5100025	25 reactions
845-BP-5100050	50 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Powder DNA/RNA** Kit

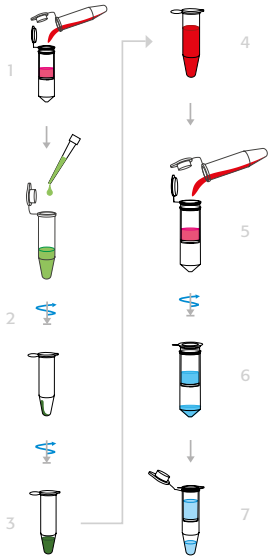
- Optimized for the simultaneous extraction of viral and bacterial nucleic acids from difficult samples in powder form of unknown origin
- Optimal removal of inhibitors followed by use of the highly pure nucleic acids in a broad spectrum of subsequent applications
- Use of innovative polymers in the sample preparation for maximal nucleic acid yield from solid starting material
- Processing in the "mini-Spin Filter format"
- All black Spin Filter available in colourless

Product description

The blackPREP Powder DNA/RNA Kit is particularly ideal for the extraction of viral and bacterial nucleic acids from difficult starting materials, such as soaps, tea, soil, milk and powdery solids of unknown origin. The purification is based on an effective prefiltration to eliminate insoluble materials and inhibitors. Through the use of a novel filter membrane, nucleic acids can be optimally collected and enriched. Ultracentrifugation and special laboratory equipment are not necessary for the purification. The unique extraction routine is shown in only one protocol and can be used for all materials tested previously. The isolated highly pure nucleic acids are directly available for a variety of downstream reactions.

Procedure

1. Dissolution of the sample and removal of insoluble components through prefiltration
2. Complexation of the target molecules, precipitation and collection
3. Release of the target molecules in solution
4. Lysis of the target molecules
5. Binding of the viral and/or bacterial DNA and/or RNA to the Spin Filter (black)
6. Washing of the bound nucleic acids
7. Elution of the DNA and/or RNA



Product specifications

Starting material:

- Liquid or solid samples
- Liquid samples max. 1.2 ml
- Solid samples max. 0.02 – 0.05 g

Extraction time:

- Sample preparation: approx. 35 minutes
- Purification: approx. 25 minutes

Average quality and yield:

- Depends on the type and quantity of the starting material
- Successfully tested using a wide variety of RNA and DNA viruses (ss, ds, enveloped, non-enveloped) and bacteria
- Positively tested in a variety of different downstream applications
- Positively tested in PCR and TaqMan® real-time PCR

Kit components

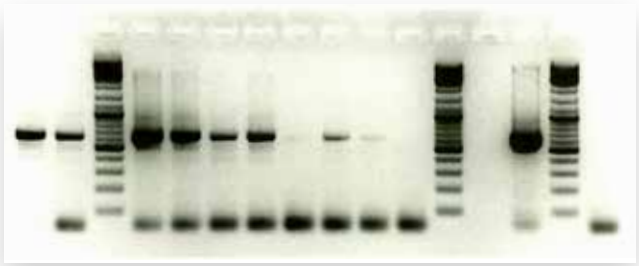
Reagent 1-3, PBS, Lysis Solution, Binding Solution, Proteinase K, Washing Solution, Elution buffer, RNase-free water, Spin Filter (black), Receiver tubes, user manual

Storage conditions and stability

The blackPREP Powder DNA/RNA Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14°C to 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

To use the blackPREP Powder DNA/RNA Kit, different virus concentrations of a DNA virus were produced which were then used in the extraction as described below. 1.5 µL aliquots of the eluted nucleic acid were amplified in a virus-specific fashion and the resultant product including positive and negative control was applied to TAE agarose gel.



Lane 1 and 2: Amplification product Standard 10 µL virus/ml (150 µl)
Lane 3, 21 and 16: DNA controls
Lane 4 and 5: Amplification product dilution series 10 µL virus/ml (1 ml)
Lane 6 and 7: Amplification product dilution series 1 µL virus/ml (1 ml)
Lane 8 and 9: Amplification product dilution series 0.1 µL virus/ml (1 ml)
Lane 10 and 11: Amplification product dilution series 0.01 µL virus/ml (1 ml)
Lane 13: Empty
Lane 14: Amplification product positive control
Lane 16: Amplification product negative control

Order information

Order number	Quantity
845-BP-0040010	10 reactions
845-BP-0040050	50 reactions
844-MA205-2	Laboratory Notebook

Isolation of plasmid DNA

Analytik Jena's plasmid kits allow researchers to process bacterial suspensions ranging in size from 250 µL (direct) to 50 mL.

Mini Spin Filters and MIDI Spin Filters can both be used for this task. The nucleic acids are eluted into a low-salt buffer, after which they are immediately available for use in sequencing reactions and other downstream applications.

	Manual				
	innuPREP				
x - Recommended (x) - Recommended with limitations	innuPREP Plasmid Mini Kit	innuPREP Plasmid Mini Kit Plus	innuPREP Plasmid MIDI Direct Kit	innuPREP Plasmid Rapid Kit	innuPREP Plasmid Small Kit
Cataloge page	53	54	55	56	57
Bacterial suspension (Plasmid)	**x**	**x**	**x**	**x**	**x**
250 µl (direct)					x
0.5 - 5 ml	x			x	
> 5 - 10 ml	x	x		x	
5 - 15 ml		x			
25 - 50 ml			x		
High copy plasmid	x		x	x	
Low copy plasmid or P1 constructs	x		x	x	
Plasmid	**x**	**x**	**x**	**x**	**x**

innuPREP **Plasmid Mini** Kit

improved product
better performance

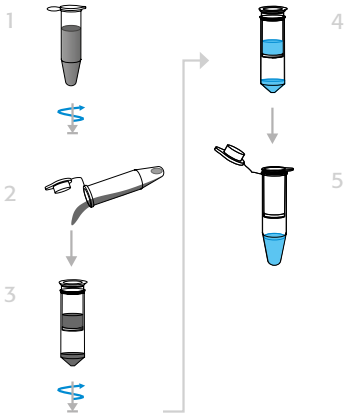
- A combination kit for extracting high-copy and low-copy plasmid DNA, P1 constructs, etc.
- Final yields of up to 40 µg of highly pure plasmid DNA
- Starting volumes of the bacterial suspensions to be used covers a large range (0.5 – 10 ml)
- The eluted pDNA can be used immediately prior to sequencing

Product description

The innuPREP Plasmid Mini Kit allows researchers to isolate plasmid DNA from bacterial lysates quickly and easily. The method combines alkaline lysis with the process of binding plasmid DNA to a filter membrane once the chromosomal DNA and bacterial proteins have been precipitated. The bound plasmid DNA are then washed and eluted by adding a low salt buffer. The resulting isolated plasmid DNA can then be used immediately in a variety of additional down-stream applications. The new method allows scientists to isolate plasmid DNA from 0.5 – 10 ml starting material. The use of a novel binding membrane makes it possible to isolate up to 40 µg of pDNA.

Procedure

1. Perform alkaline lysis
2. Centrifuge for 10 minutes to precipitate chromosomal DNA and proteins
3. Bind plasmid DNA
4. Wash
5. Elute pDNA



Product specifications

Starting material:

- Bacterial suspensions
- Isolation of high-copy plasmids: 0.5 – 5 ml
- Isolation of low-copy plasmid DNA, P1 constructions, etc.: > 5 – 10 ml

Extraction time:
Approx. 16 minutes

Binding capacity:
Column binding capacity: approx. 40 µg pDNA

Average yield:
Typical yield from 2 ml starting material (high-copy plasmid): 6 – 20 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

Resuspension Buffer, Lysis Buffer, Neutralization Buffer, Washing Solutions, Elution Buffer, Spin Filter (orange), Receiver Tubes, user manual

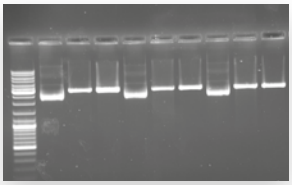
Storage conditions and stability

The innuPREP Plasmid Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

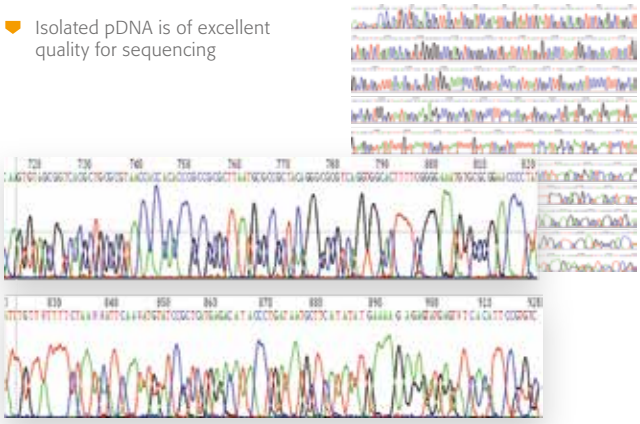
Sample application

pDNA (Bluescript) isolated using innuPREP Plasmid Mini Kit. pDNA was incubated for 1 hour at 37 °C with HindIII and EcoRI restriction enzymes. The restriction digestion was then analyzed on a 1 % TAE agarose gel.

Lane 1: DNA ladder
Lane 2, 5 and 8: pDNA, uncleaved
Lane 3, 6 and 9: pDNA, cleaved with HindIII
Lane 4, 7 and 10: pDNA, cleaved with EcoRI



Isolated pDNA is of excellent quality for sequencing



Order information

Order number	Quantity
845-KS-5040010	10 reactions
845-KS-5040050	50 reactions
845-KS-5040250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plasmid Mini** Kit Plus

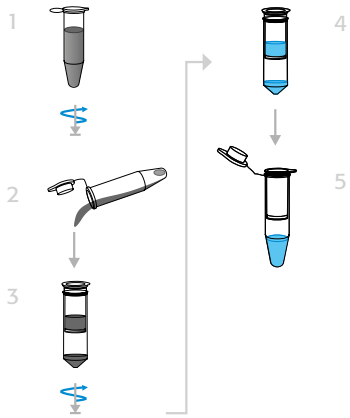
- Spin Filter column used for preparing 5 – 15 ml bacterial suspensions
- Isolation of up to 80 µg of highly pure plasmid DNA
- Low-salt elution means that extracted pDNA can be used directly in sequencing reactions
- Quality of isolated pDNA is excellent

Product description

Use of the innuPREP Plasmid Mini Kit Plus makes it possible to extract highly pure plasmid DNA from bacterial lysates ranging in volume between 5 and 15 ml. After performing an alkaline lysis step and precipitating both chromosomal DNA as well as bacterial proteins, pDNA is bound to a Spin Filter membrane, washed and then eluted in a low-salt buffer. This typically results in 60 – 70 µg plasmid DNA from a 15 ml bacterial suspension – available in just 20 minutes for further downstream applications. As such, the method makes it possible to isolate extremely high-quality plasmid DNA using a simple "plasmid mini-protocol".

Procedure

1. Perform alkaline lysis
2. Centrifuge for 10 minutes to precipitate chromosomal DNA and proteins
3. Bind plasmid DNA
4. Wash
5. Elute pDNA



Product specifications

Starting material:
5 – 15 ml bacterial suspension

Extraction time:
Approx. 20 minutes

Binding capacity:
Column binding capacity: approx. 80 µg pDNA

Average yield:
Typical yield from 15 ml starting material (high-copy plasmid): 60 – 70 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

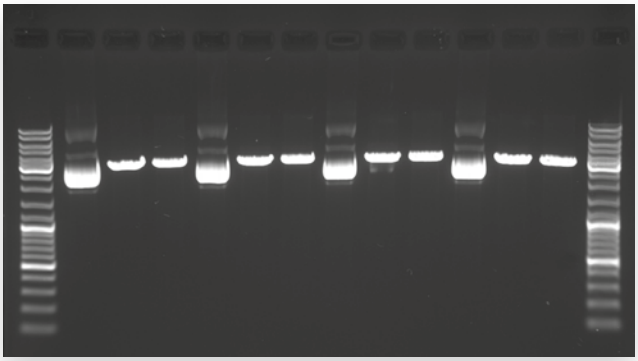
Resuspension Buffer, Lysis Buffer, Neutralization Buffer, Washing Solutions, Elution Buffer, Spin Filter (lavender), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Plasmid Mini Kit Plus will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

pDNA was extracted from 10 ml starting material using the innuPREP Plasmid Mini Kit Plus. The pDNA was incubated for 1 hour at 37 °C with HindIII and EcoRI restriction enzymes. The restriction digestion was then analyzed on a 1 % TAE agarose gel.



Lane 1 and 14: DNA ladder
Lane 2, 5, 8 and 11: pDNA, uncleaved
Lane 3, 6, 9 and 12: pDNA, cleaved with HindIII
Lane 4, 7, 10 and 13: pDNA, cleaved with EcoRI

Order information

Order number	Quantity
845-KS-5240010	10 reactions
845-KS-5240050	50 reactions
845-KS-5240250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plasmid MIDI Direct** Kit

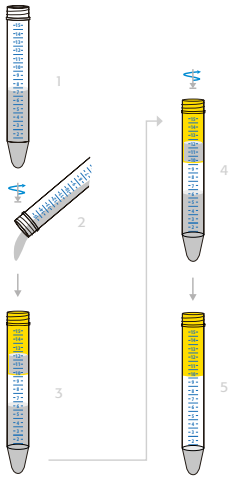
- Includes MIDI columns for isolating high-copy or low-copy plasmids from bacterial suspensions of up 50 ml
- Yields of up to 100 µg of highly pure pDNA
- Plasmid DNA can be used directly for sequencing reactions
- No complex ethanol precipitation step required

Product description

The innuPREP Plasmid MIDI Direct Kit is a tool for fast, simple isolation of plasmid DNA from bacterial cultures of up to 25 ml (high-copy plasmids) or from bacterial suspensions of up to 50 ml (low-copy plasmids). Unlike the technology used in anion exchangers, the innuPREP Plasmid MIDI Direct Kit is based on binding plasmid DNA to the surface of an optimized MIDI Spin Filter membrane. The plasmid DNA is eluted into a low-salt buffer after the bound nucleic acids have been washed. Using the innuPREP Plasmid MIDI Direct Kit allows researchers to obtain up to 80 µg of plasmid DNA of excellent purity and quality while eliminating the need for ethanol precipitation. The nucleic acids obtained can be used directly for other applications.

Procedure

1. Perform alkaline lysis on the starting material
2. Centrifuge for 10 minutes to precipitate chromosomal DNA and proteins
3. Bind plasmid DNA
4. Wash
5. Elute pDNA



Product specifications

Starting material:

- Bacterial suspension
- For isolating high-copy plasmids: up to 25 ml
- For isolating low-copy plasmid DNA, P1 constructions, etc.: up to 50 ml

Extraction time:
Approx. 55 minutes

Binding capacity:
Column binding capacity: approx. 100 µg pDNA

Average yield:

- Depends on the type and quantity of the starting material
- Typical yield from 25 ml starting material (pBL Bluescript): approx. 50 – 80 µg

Average purity (A_{260}:A_{280}):
1,8 – 2,0

Kit components

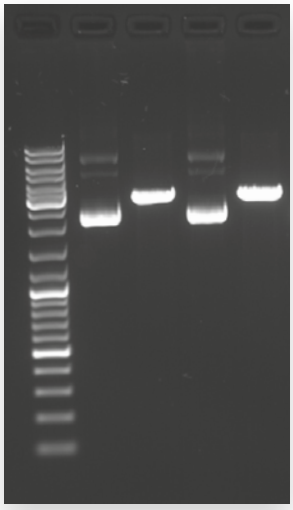
Resuspension buffer, Lysis buffer, Neutralization buffer, Washing solutions, Elution buffer, Midi Spin Filter, 15 ml tubes, user manual

Storage conditions and stability

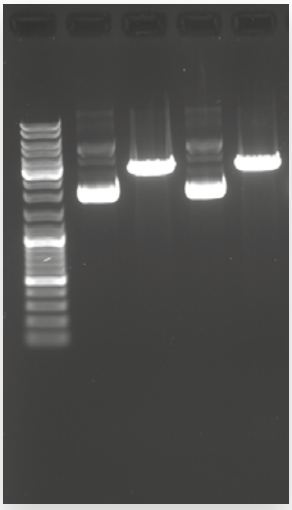
The innuPREP Plasmid MIDI Direct Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C).

Sample application

The innuPREP Plasmid MIDI Direct Kit was used to isolate plasmid DNA from 25 ml of a bacterial suspension. The nucleic acids were then incubated with HindIII and EcoRI restriction enzymes for 1 hour at 37°C. The results were visualized on a 1% TAE agarose gel.



Lane 1: DNA control
Lane 2 und 4: pDNA, uncut
Lane 3 und 5: pDNA EcoRI, cleaved



Lane 1: DNA control
Lane 2 und 4: pDNA, uncut
Lane 3 und 5: pDNA HindIII, cleaved

Order information

Order number	Quantity
845-KS-2090010	10 reactions
845-KS-2090025	25 reactions
845-KS-2090050	50 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plasmid Rapid** Kit

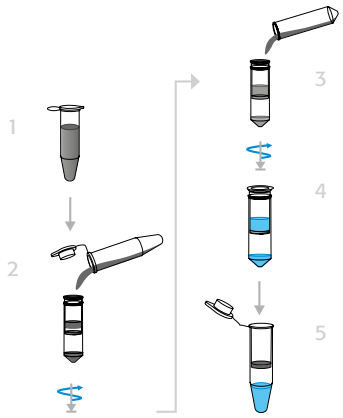
- Extraction of highly pure plasmid DNA in just 6 minutes
- Can accommodate bacterial suspensions having volumes ranging between 1 and 5 ml
- Up to 40 µg pDNA can be bound to the Spin Filter membrane used
- The eluate is directly suitable for plasmid sequencing

Product description

The innuPREP Plasmid Rapid Kit allows users to isolate plasmids from 1 – 5 ml bacterial suspensions, radically reducing the time involved to just 6 minutes. Unlike traditional methods for isolating plasmid DNA, this kit utilizes a simple, fast filtration step with a specially optimized filter membrane to separate out chromosomal DNA and bacterial proteins. The plasmid DNA are then bound to a fiberglass membrane, washed and eluted by adding a low salt buffer. The extracted pDNA can then be used immediately in a wide variety of subsequent applications.

Procedure

1. Perform alkaline lysis
2. Isolate chromosomal DNA and bacterial proteins with the aid of a special filter membrane
3. Bind plasmid DNA
4. Wash
5. Elute pDNA



Product specifications

Starting material:
1 – 5 ml bacterial suspension

Extraction time:
Approx. 6 minutes

Binding capacity:
Column binding capacity: approx. 40 µg pDNA

Average yield:
Typical yield from 2 ml starting material (high-copy plasmid):
6 – 14 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

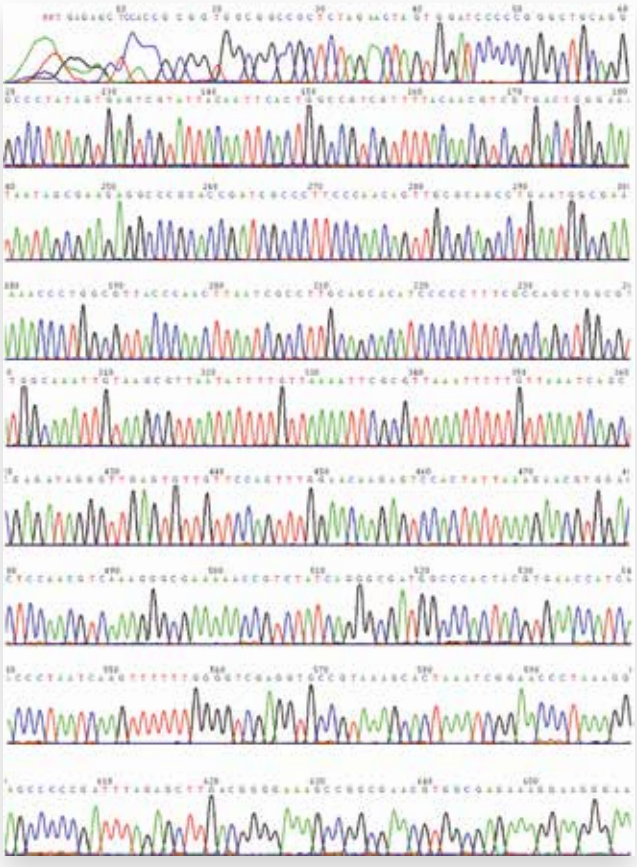
Resuspension Buffer, Lysis Buffer, Neutralization Buffer, Washing Solutions, Elution Buffer, Prefilter (vanilla), Spin Filter (orange), Receiver Tubes, user manual

Storage conditions and stability

The innuPREP Plasmid Rapid Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Plasmid DNA (Bluescript) isolation followed by Big Dye Primer Sequencing.



Sequence fragment verifying outstanding quality of purified plasmid DNA for plasmid sequencing.

Order information

Order number	Quantity
845-KS-5140010	10 reactions
845-KS-5140050	50 reactions
845-KS-5140250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plasmid Small** Kit

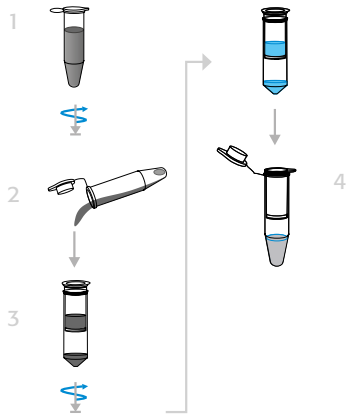
- Direct plasmid isolation from bacterial suspensions with no need for pelleting and resuspension
- Saves time while reducing the number of protocol steps and work sequences
- Eluted plasmid DNA can be used directly in sequencing reactions
- High yields and excellent quality

Product description

The innuPREP Plasmid Small Kit provides a fast, simplified method of directly isolating plasmid DNA from a 250 µl bacterial culture. After performing an alkaline lysis step and precipitating chromosomal DNA and bacterial proteins, the next step is to bind plasmid DNA to a Spin Filter column. The need to pellet and then resuspend the bacteria is completely eliminated. The extraction process begins as soon as the bacterial culture is lysed; the process is complete in just 12 minutes. The resulting isolated plasmid DNA can then be used immediately in a variety of additional applications.

Procedure

1. Perform alkaline lysis directly on the starting material
2. Bind pDNA to the Spin Filter
3. Wash
4. Elute plasmid DNA



Product specifications

Starting material:
250 µl bacterial suspension (direct)

Extraction time:
Approx. 12 minutes

Binding capacity:
Column binding capacity: > 20 µg pDNA

Average yield:
- Depends on the type and quantity of the starting material
- 250 µl starting material (high-copy plasmid): 1 – 3 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

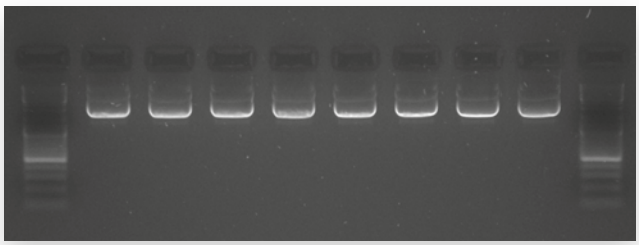
Lysis Buffer, Neutralization Buffer, Washing Solutions, Elution Buffer, Spin Filter (orange), Receiver Tubes, user manual

Storage conditions and stability

The innuPREP Plasmid Small Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Plasmid DNA was isolated directly from a 250 µl bacterial suspension and then visualized on a 1 % TAE agarose gel.



Lane 1 and 10: DNA ladder
Lane 2 – 9: Extracted pDNA from a 250 µl bacterial suspension

An isolated plasmid DNA (Bluescript) was sequenced using Big Dye Primer Sequencing (sequence fragment).

The quality of the isolated plasmid DNA was confirmed to be excellent for plasmid sequencing.

Order information

Order number	Quantity
845-KS-5340010	10 reactions
845-KS-5340050	50 reactions
845-KS-5340250	250 reactions
844-MA205-2	Laboratory Notebook

Cleanup products

Kits in the innuPREP product group include flexible, effective clean-up products. PCR amplification products are not only isolated in an optimized process—thanks to adjustable elution volumes, they can be concentrated efficiently as well.

Solutions are available for processing PCR reactions, agarose gels and sequencing batches.

	Manual				
	innuPREP				
x - Recommended (x) - Recommended with limitations	innuPREP PCRpure Kit	innuPREP PCRpure 96 Kit	innuPREP Gel Extraction Kit	innuPREP DOUBLEpure Kit	innuPREPDYEpure Kit
Cataloge page	59	59	60	61	62
Agarose gel (TBE or TAE)			**x**	**x**	
Up to 300 mg			x	x	
PCR fragments	**x**	**x**	**x**	**x**	
PCR reaction mixes	**x**	**x**		**x**	**x**
Up to 50 µl	x	x		x	
Removal of dye terminators					x

innuPREP **PCRpure** Kit | innuPREP **PCRpure 96** Kit

improved product
better performance

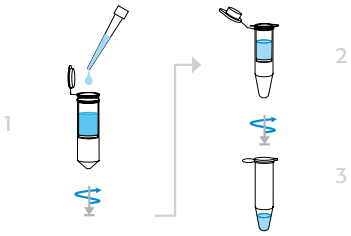
- A new, 2-step process for performing PCR purification in just 3 minutes
- Ability to process very small elution volumes of at least 10 µl
- High rates of recovery for a large range of fragment lengths
- Extremely fast and simple with minimal steps involved

Product description

The innuPREP PCRpure Kit provides an extremely fast, simple and highly efficient method for purifying amplification products directly from PCR reaction mixtures and/or for concentrating PCR products. Purification is based on a two-step method and takes only approx. 3 minutes to complete. The need for previously standard wash steps is eliminated, thereby reducing the overall process to binding and elution. The process makes it possible to recover amplification products ranging in size from > 60 bp to 30 kb with recovery rates of 75 % to 95 % depending on the length of the amplification product. Also, elution can be performed with a very small volume of just 10 µl, which eliminates the need for specialized "mini-elute" Spin Filter columns.

Procedure

1. Add Binding Buffer to the PCR reaction mixture
2. Bind PCR fragments
3. Elute



Product specifications

Starting material:
PCR reaction mixtures (up to 50 µl)

Extraction time:
- Approx. 3 minutes
- Based on a fast, 2-step process

Binding capacity:
Column binding capacity: > 20 µg

Fragment lengths:
> 60 bp – 30 kb

Average recovery rate:
- Approx. 60 % to 95 %
- Depends on fragment length

Kit components

Binding Buffer, Elution Buffer, Spin Filter (green), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP PCRpure Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

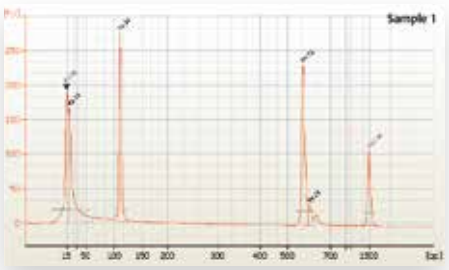
Comparison with competing products

innuPREP	Bind	Elute		
	Total time: **3 minutes**			
Competitor's product	Bind	Wash	Dry	Elute
	Total time: 8 minutes			

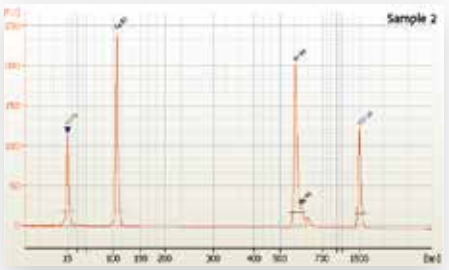
Sample application

After amplifying a 270 bp fragment, the PCR reaction mixture was purified using the innuPREP PCRpure Kit and then measured by using Agilent Bioanalyzer.

Example of efficient primer removal:



Before purification



After purification

Order information

Order number	Quantity
innuPREP PCRpure Kit	
845-KS-5010010	10 reactions
845-KS-5010050	50 reactions
845-KS-5010250	250 reactions
innuPREP PCRpure 96 Kit*	
845-FP-5010192	2 × 96 reactions
845-FP-5010384	4 × 96 reactions
845-FP-5010960	10 × 96 reactions
844-MA205-2	Laboratory Notebook

*Using 96 well filter Plates and a centrifuge makes it possible to process up to 96 samples in parallel in just approx. 30 minutes.

innuPREP **Gel Extraction** Kit

improved product
better performance

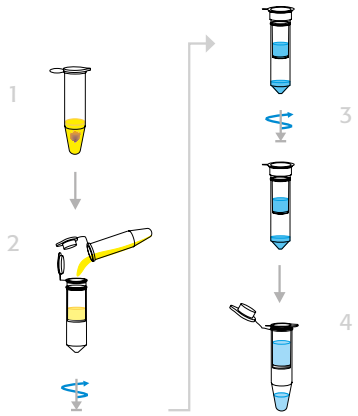
- Fast, efficient isolation of DNA from TAE or TBE agarose gels (up to 300 mg)
- High recovery rates and excellent quality for subsequent applications
- Capable of processing a large range of fragment lengths (from 100 bp to 30 kb)
- Elution volumes can be reduced to 10 µl

Product description

The innuPREP Gel Extraction Kit is a tool for extremely fast, simple isolation and concentration of DNA fragments from TAE or TBE agarose gels. The first step of the process on which the kit is based is to solubilize agarose gel pieces; this is then followed by selective binding of the DNA onto a filter membrane. The bound DNA are then washed and desorbed from the filter membrane by adding a low-salt buffer. The elution volumes used in this process may be varied between 10 µl and 50 µl. All of the buffers have been adjusted to work well together, resulting in a highly efficient recovery process. The isolated DNA fragments are suitable for immediate use in further applications.

Procedure

1. Solubilize gel
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Elute the DNA



Product specifications

Starting material:
- TAE agarose gels (up to 300 mg)
- TBE agarose gels (up to 300 mg)

Extraction time:
Approx. 20 minutes

Binding capacity:
Column binding capacity: > 20 µg DNA

Fragment lengths:
100 bp – 30 kb

Average recovery rate:
- Approx. 60 % to 90 %
- Depends on fragment length

Kit components

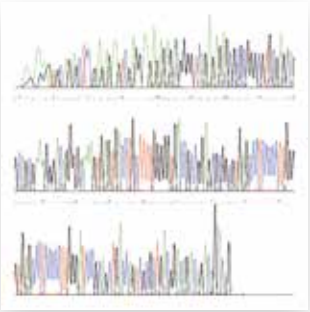
Gel Solubilizer, Binding Optimizer, Washing Solution, Elution Buffer, Spin Filter (green), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

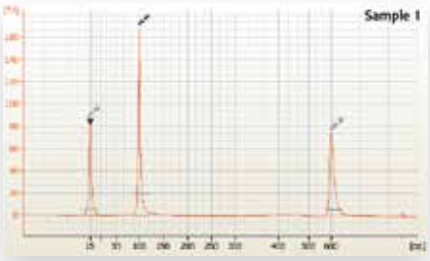
The innuPREP Gel Extraction Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

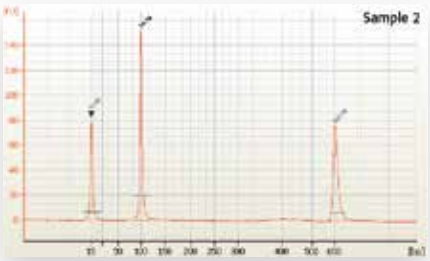
Following amplification of a 260 bp fragment, the corresponding band was cut out of the agarose gel, purified using the innuPREP Gel Extraction Kit and then sequenced.



The recovery rate of a 98 bp fragment was determined on an Agilent Bioanalyzer. Recovery rate: 85 %



Before purification



After purification

Order information

Order number	Quantity
845-KS-5030010	10 reactions
845-KS-5030050	50 reactions
845-KS-5030250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DOUBLEpure** Kit

improved product
better performance

- Combination kit for fast extraction of DNA fragments from agarose gels or amplification products from PCR reaction mixtures
- Flexible elution volumes between 30 and 50 µl (standard protocol) and 10 to 20 µl ("Mini-Elute" protocol)
- High recovery rates of up to 95 %
- Capable of processing fragment lengths of up to 30 kb

Product description

The innuPREP DOUBLEpure Kit allows efficiently extracting of DNA fragments from TAE or TBE agarose gels and utilizes a novel 2-step technology for purifying amplification products from PCR reaction mixtures. The Spin Filter column has a binding capacity of over 20 µg, making it possible to achieve high yields and excellent quality when isolating DNA fragments. In addition, the kit also produces recovery rates of up to 95 % depending on the fragment size. Other outstanding features of the innuPREP DOUBLEpure Kit include easy handling, flexible settings for elution volumes and fast purification protocols.

Product specifications

Starting material:

- PCR reaction mixes (up to 50 µl)
- TAE agarose gels (up to 300 mg)
- TBE agarose gels (up to 300 mg)

Extraction time:

- PCR purification: approx. 3 minutes (2-step process)
- Gel extraction: approx. 20 minutes

Binding capacity:

Column binding capacity: > 20 µg DNA

Fragment lengths:

- PCR purification: > 60 bp – 30 kb
- Gel extraction: 100 bp – 30 kb

Average recovery rate:

- PCR purification: approx. 60 % to 95 %
- Gel extraction: approx. 60 % to 90 %
- Depends on fragment length

Kit components

Gel Solubilizer, Binding Optimizer, Binding Buffer, Washing Solution, Elution Buffer, Spin Filter (green), Receiver Tubes, Elution Tubes, user manual

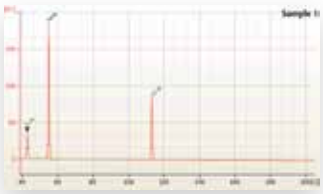
Storage conditions and stability

The innuPREP DOUBLEpure Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C).

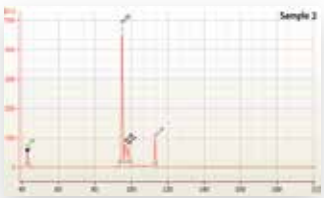
Sample application

Purification of various PCR fragments from an amplification reaction. The recovery rate is then determined using an Agilent bioanalyzer.

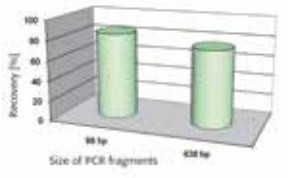
A



B



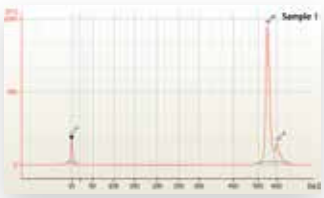
C



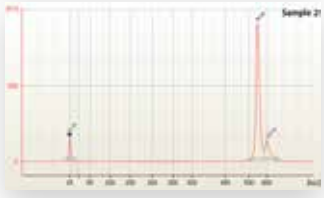
A 98 bp fragment after purification; recovery rate: 85 %
B 638 bp fragment after purification; recovery rate: 76 %
C Recovery rate comparison

Extraction of a 538 bp fragment from a section of TBE agarose gel with subsequent determination of the recovery rate using an Agilent bioanalyzer. Recovery rate: 87 %

538 bp fragment before purification



538 bp fragment after purification



Order information

Order number	Quantity
845-KS-5050010	10 reactions
845-KS-5050050	50 reactions
845-KS-5050250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DYEpure** Kit

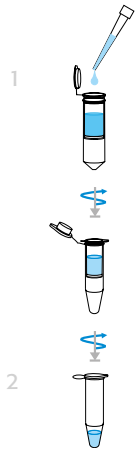
- Effective removal of dye terminators from sequencing reactions
- Novel two-step technology based on Spin Filter columns results in a very simple procedure
- Extremely fast – full purification in just 5 minutes
- Elution volume reduced down to 10 µl

Product description

The innuPREP DYEpure Kit is an especially effective, fast tool for removing of fluorescence-labelled didesoxynukleotide triphosphates (dye terminators) from sequencing reactions. Dye terminators are typically used for sequencing by chain termination and can interfere with the sequence during read-out. The utterly new, patented Dual Chemistry (DC) technology allows researchers to omit unnecessary wash steps and time-consuming precipitation with ethanol. This reduces the process to just binding and elution, allowing the entire purification process to be completed in no more than 5 minutes. Thanks to the high quality of the eluate and its exceptional purity, the innuPREP DYEpure Kit serves as ideal preparation for subsequent sequencing runs.

Procedure

1. Add DYE Removal Buffer to the sequencing reaction mix and bind the DNA fragments
2. Elute DNA fragments



Kit components

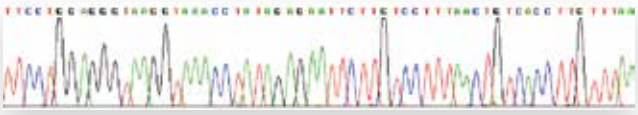
DYE Removal Buffer, molecular biology grade H_2O, Spin Filter (green), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP DYEpure Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

A specific *rapid*PCR was performed, after which the innuPREP PCRpure Kit was used to purify the PCR product, which was then subjected to a sequencing reaction with a specific primer. The innuPREP DYEpure Kit was used to remove unincorporated dye terminators (fluorescent marker dyes). Capillary electrophoresis was used to separate the pure chain termination product and to analyze the sequence.



Part of a sequence to show excellent quality of the PCR product for sequencing reactions.

Product specifications

Starting material:
Sequencing reactions (up to 50 µl)

Extraction time:
- Approx. 5 minutes
- Based on a fast 2-step process

Recovery rate:
> 75 % depending on the fragment size

Quality:
> 99 % of dye terminators are removed

Order information

Order number	Quantity
845-KS-5020010	10 reactions
845-KS-5020050	50 reactions
845-KS-5020250	250 reactions
844-MA205-2	Laboratory Notebook

Isolation of total RNA

The innuPREP product line includes kits for extracting total RNA from an extremely wide variety of starting materials. Because they serve as a simple, selective tool for separating genomic DNA from samples (using an initial Spin Filter), none of these RNA kits involve additional DNase I digestion.
Looking out for operator health: RNA isolation proceeds without the use of highly toxic β-mercaptoethanol.

	Manual							
	innuPREP							innuSOLV
x - Recommended (x) - Recommended with limitations	innuPREP RNA Mini Kit	innuPREP RNA Midi Direct Kit	innuPREP Micro RNA Kit	innuPREP DNA / RNA Mini Kit	innuPREP Blood RNA Kit	innuPREP Blood RNA Midi Direct Kit	innuPREP Plant RNA Kit	innuSOLV RNA Reagent
Cataloge page	64	65	66	67	68	69	70	87
Bacterial cells (gram+ & gram-)	**x**	**x**	**x**	**x**				**x**
5x 10^6								x
1x 10^9	x		x	x				
max. 5x 10^8 - 5x 10^9		x						
Blood					**x**	**x**	**x**	
Whole blood 0.5 - 1.0 ml					x			
Whole blood 1.5 - 10.0 ml						x		
Eucaryotic cells	**x**	**x**	**x**	**x**				**x**
5x 10^6	x		x	x				x
5x 10^6 - 1x 10^8		x						
Fungi							**x**	
Plant material							**x**	
Up to 50 mg							x	
Up to 100 mg							x	
Tissue samples	**x**	**x**	**x**	**x**				**x**
Biopsies	**x**		**x**	**x**				
Up to 20 mg	x		x	x				
Up to 100 mg								x
50 - 200 mg		x						
Yeast cells								**x**
5x 10^6								x

innuPREP **RNA Mini** Kit

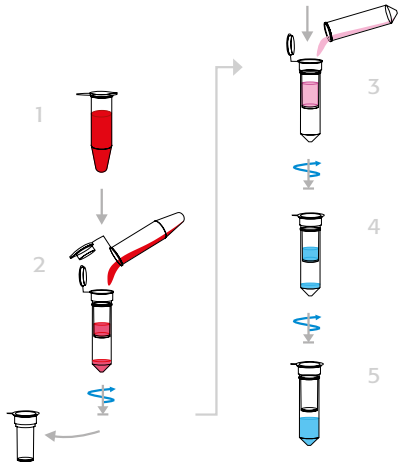
- Fast, efficient purification of total RNA from a wide variety of different starting materials and in varying amounts
- Prefiltration to selectively remove genomic DNA with no DNase digestion
- Eliminates need for using highly toxic β-mercaptoethanol
- Ready-to-use RNA isolated after only 15–40 minutes; quality and quantity of isolated RNA is excellent

Product description

The innuPREP RNA Mini Kit **is a jack-of-all-trades** when it comes to extracting total RNA that is excellent in terms of both quality and quantity. The specially optimized Lysis Buffer system guarantees isolation of intact RNA and lasting deactivation of endogenous and exogenous RNases. A precolumn contained in the kit can be used to remove genomic DNA, which utterly eliminates the traditional need for DNase I digestion. The RNA is then bound to a second Spin Filter membrane, washed and finally eluted in 30–80 µl of RNase-free water. As such, the extraction process can be concluded in 15–40 minutes, depending on the starting material.

Procedure

1. Homogenize/lyse starting material
2. Selectively remove genomic DNA
3. Bind total cellular RNA
4. Wash
5. Elute



Product specifications

Starting material:

- Eucaryotic cells (max. 5×10^6)
- Tissue samples (max. 20 mg)
- Gram+ and gram– bacteria (max. 1×10^9)
- Biopsies

Extraction time:
Approx. 15–40 minutes

Binding capacity:
Column binding capacity: approx. 100 µg RNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 100 µg RNA

Average purity (A_{260}:A_{280}):
1.8–2.1

Kit components

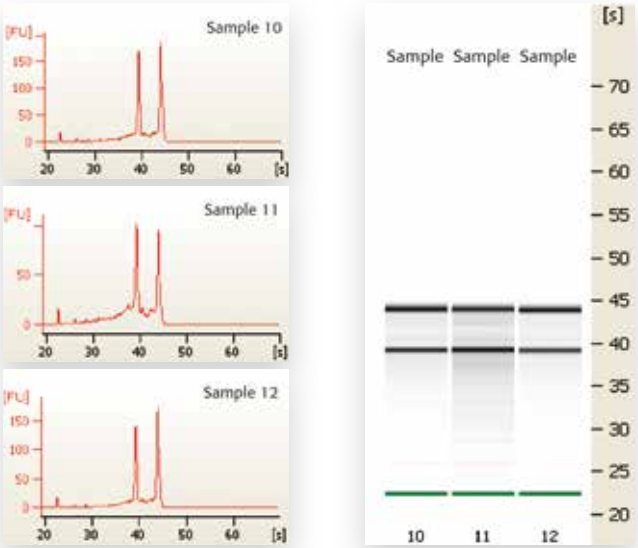
Lysis Solution, Washing Solutions, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuPREP RNA Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Extraction of total RNA from gram+ bacterial pellets. The bacteria were first digested with lysozyme, after which the bacterial RNA was isolated using the innuPREP RNA Mini Kit.



The analysis was performed using an Agilent Bioanalyzer, and shows pure RNA free of gDNA and with no degradation.

Order information

Order number	Quantity
845-KS-2040010	10 reactions
845-KS-2040050	50 reactions
845-KS-2040250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **RNA MIDI Direct** Kit

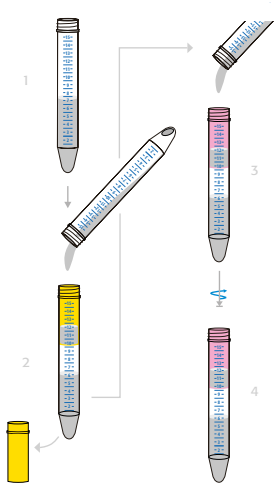
- Universal, MIDI-format kit for extracting total RNA
- The use of a pre-column to remove genomic DNA eliminates DNase I digestion
- Complete elimination of the use of highly toxic β-mercaptoethanol
- An easy-to-use kit for isolating high-quality total RNA from a variety of different starting materials and quantities

Product description

The extraction procedure for the innuPREP RNA MIDI Direct Kit is based on a patented technology. After homogenizing and/or lysing the starting material, the next step is to remove the genomic DNA from the sample by efficiently binding it to an initial MIDI Spin Filter column. Adding ethanol to the RNA-containing filtrate binds the nucleic acid to a second MIDI Spin Filter where it is washed and finally eluted in RNase-free water. The optimized isolation chemistry inactivates both endogenous as well as exogenous RNases, thereby guaranteeing a final yield of intact, pure total RNA free of gDNA or other contaminants.

Procedure

1. Homogenize / lyse starting material
2. Selectively remove genomic DNA
3. Bind total cellular RNA
4. Wash and elute



Product specifications

Starting material:

- Eucaryotic cells (5 x 10^6 – 1 x 10^8)
- Tissue samples (50 – 200 mg)
- Gram+ und gram- bacteria (max. 5 x 10^8 – 5 x 10^9)

Extraction time:
Approx. 65 minutes after the corresponding lysis step

Binding capacity:
Column binding capacity: approx. 1000 µg RNA

Average yield:

- Depends on the type and quantity of the starting material
- From 2.5 x 10^7 NIH 3T3 cells: approx. 200 µg RNA
- From 1.0 x 10^7 NIH 3T3 cells: approx. 100 µg RNA
- From 150 mg mouse liver: approx. 400 µg RNA
- From 4 x 10^9 Listeria cells: approx. 100 µg RNA

Average purity (A_{260}:A_{280}):
1,8 – 2,0

Kit components

Lysis Solution, Washing Solutions, RNase-free water, MIDI Spin Filter, Spin Filter, 15 ml tubes, user manual

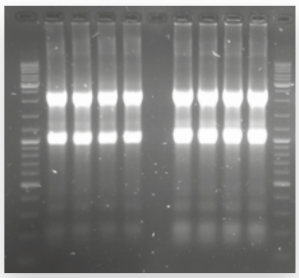
Storage conditions and stability

The innuPREP RNA MIDI Direct Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 – 25°C).

Sample application

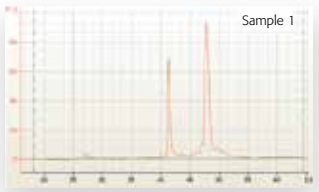
The innuPREP RNA MIDI Direct Kit was used to extract total RNA from a variety of different starting quantities of NIH 3T3 cells. The isolated RNA was then visualized directly on a denaturing formaldehyde gel.

Isolation of Total RNA from and 2.5 x 10^7 NIH 3T3 cells



Lanes 1 and 11: DNA ladder
lanes 2 – 5: total RNA from 1 x 10^7 NIH 3T3 cells
lane 6: blank
lanes 7 – 10: total RNA from 2.5 x 10^7 NIH 3T3 cells

The analysis (performed using an Agilent Bioanalyzer) shows pure RNA free of gDNA and with no degradation. Total RNA was isolated in each case from 2.5 x 10^7 NIH 3T3 cells



RIN: 10

RIN: 10

Order information

Order number	Quantity
845-KS-2070010	10 reactions
845-KS-2070025	25 reactions
845-KS-2070050	50 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Micro RNA** Kit

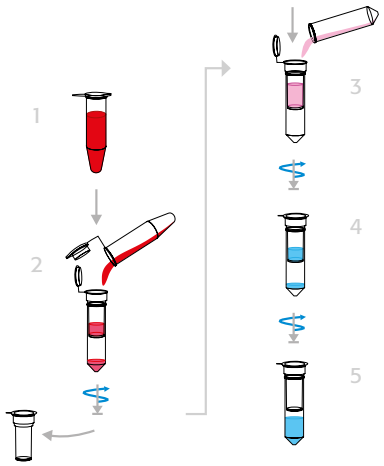
- Fast, efficient isolation especially of small RNA molecules, such as mRNA, tRNA, rRNA, snRNA, miRNA, siRNA
- Optimized Binding Buffer system for recovering large amounts of small RNA molecules and total RNA
- Selective removal of genomic DNA prevents DNase I digestion
- Easy to use; no toxic β-mercaptoethanol

Product description

Using the innuPREP Micro RNA Kit allows researchers to isolate small RNA molecules and achieve high yields. The new, optimized Binding Buffer system makes it possible to achieve high rates of recovery for small RNA molecules such as mRNA, tRNA, rRNA and snRNA. The first step utilizes well-established Spin Filter column technology to selectively remove genomic DNA; the RNA is then bound, washed and finally removed from the filter membrane using RNase-free water. Users have the flexibility to adjust the elution volume within a range of 30 µl to 80 µl. Also, the extraction chemistry (DC technology) renders the use of highly toxic β-mercaptoethanol utterly unnecessary for isolating RNA.

Procedure

1. Homogenize/lyse starting material
2. Selectively remove genomic DNA
3. Bind RNA to a Spin Filter membrane
4. Wash
5. Elute



Product specifications

Starting material:

- Eucaryotic cells (max. 5×10^6)
- Tissue samples (max. 20 mg)
- Gram+ and gram– bacteria (max. 1×10^9)
- Biopsies

Extraction time:
Approx. 15–40 minutes

Binding capacity:
Column binding capacity: approx. 100 µg RNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 100 µg RNA
- High recovery rate for small RNA molecules

Average purity (A_{260}:A_{280}):
1.8–2.1

Kit components

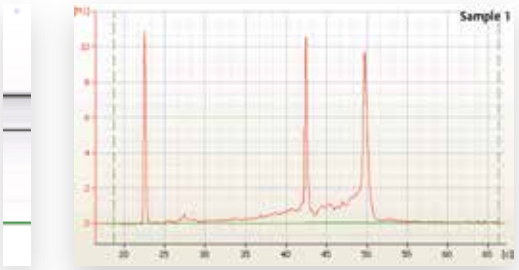
Lysis Solution, Binding Solution, Washing Solutions, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

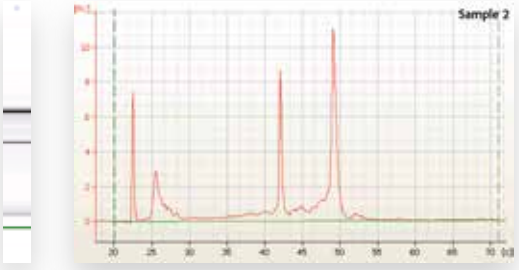
The innuPREP Micro RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Comparison between the innuPREP RNA Mini Kit and the innuPREP Micro RNA Kit with respect to the recovery of small RNA molecules. Both kits were used to extract RNA from human cells, which were then analyzed with an Agilent Bioanalyzer.



RNA isolated using the innuPREP RNA Mini Kit shows excellent results for total RNA, but not for small RNA molecules.



RNA isolated using the innuPREP Micro RNA Kit; yield of small RNA molecules is shown to be clearly higher. Referring to yield of total RNA both kits are comparable.

Order information

Order number	Quantity
845-KS-2030010	10 reactions
845-KS-2030050	50 reactions
845-KS-2030250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNA/RNA Mini** Kit

- For rapid, parallel extraction of genomic DNA and total cellular RNA from a single starting sample
- Flexible for use with different starting materials
- Based on nucleic acid extraction using optimized Spin Filter membranes
- Ready-to-use DNA and RNA in just 15 – 40 minutes
- No use of toxic β-mercaptoethanol

Product description

The innuPREP DNA/RNA Mini Kit is the **jack-of-all-trades** from Analytik Jena. The binding capacity is 50 µg DNA and 100 µg RNA, which means that both nucleic acids can be isolated from a single starting material to produce excellent quality and yields. Eucaryotic cells, gram+ and gram– bacteria and tissue samples can all be used as starting materials. The genomic DNA and total cellular RNA are available for subsequent downstream applications after only 15 to 40 minutes, each in their own reaction vessel. The DNA is eluted in 100 µl Elution Buffer, while the RNA is eluted in 30 to 80 µl RNase-free water.

Procedure

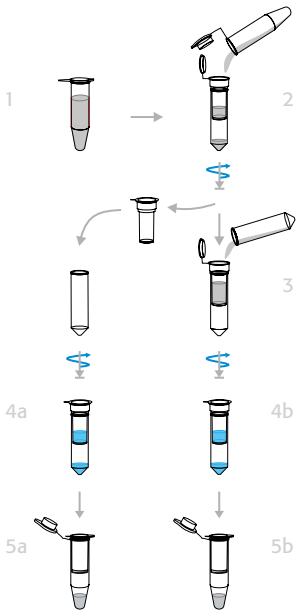
1. Lyse the starting material
2. Bind the genomic DNA to the first Spin Filter
3. Bind the total RNA to the second Spin Filter

4a. Wash the bound DNA

4b. Wash the bound RNA

5a. Elute the DNA

5b. Elute the RNA



Product specifications

Starting material:

- Eucaryotic cells (max. 5×10^6)
- Tissue samples (max. 20 mg)
- Gram+ and gram– bacteria (max. 1×10^9)

Extraction time:
Approx. 15 – 40 minutes

Binding capacity:
Approx. 100 µg RNA; > 50 µg gDNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 60 µg RNA; up to 40 µg DNA

Average purity (A_{260}:A_{280}):
RNA: 1.8 – 2.1; DNA: 1.7 – 2.0

Kit components

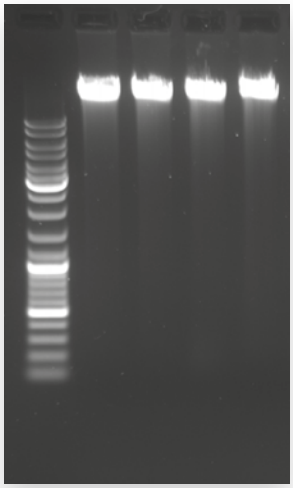
Lysis Solution, Washing Solutions, RNase-free water, Elution Buffer, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

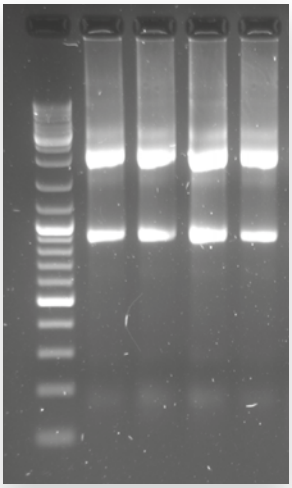
The innuPREP DNA/RNA Mini Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 to 25 °C).

Sample application

Genomic DNA and total cellular RNA isolated in parallel from a human cell line using the innuPREP DNA/RNA Mini Kit. The DNA was then applied to a 0.8 % TAE agarose gel and the RNA was visualized on a 1.2 % denaturating formaldehyd gel.



Lane 1: Marker
Lane 2 – 5: Genomic DNA extracted from a human cell line



Lane 1: Marker
Lane 2 – 5: Total cellular RNA extracted from a human cell line

Order information

Order number	Quantity
845-KS-2080010	10 reactions
845-KS-2080050	50 reactions
845-KS-2080250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood RNA** Kit

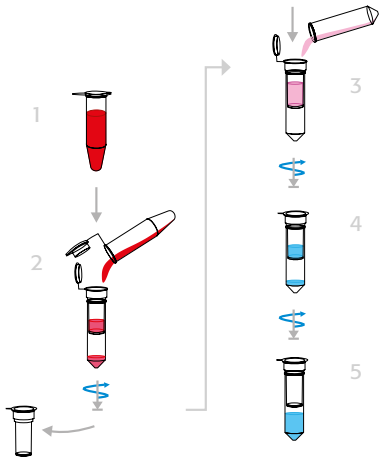
- Isolation of total cellular RNA from whole blood samples of up to 1 ml
- Selective removal of genomic DNA with no DNase digestion
- Efficient inactivation of endogenous and exogenous RNases
- Extraction of highly pure RNA with no degradation

Product description

The innuPREP Blood RNA Kit allows users to extract total cellular RNA from fresh or frozen whole blood samples, which were stabilized with either EDTA or citrate. The specially optimized Lysis Buffer makes lysis extremely efficient, effectively deactivating endogenous and exogenous RNases. Using innuPREP Blood RNA Kit allows researchers to isolate highly pure RNA in an extremely short amount of time while completely omitting the highly toxic β-mercaptoethanol traditionally used in the extraction process. Upon elution in RNase-free water, the final RNA is ready-to-use and can be integrated in subsequent applications immediately.

Procedure

1. Lyse whole blood sample
2. Selectively remove genomic DNA
3. Bind total cellular RNA
4. Wash
5. Elute



Product specifications

Starting material:

- 0.5 – 1 ml whole blood samples
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 45 minutes

Binding capacity:
Column binding capacity: > 20 µg RNA

Average yield:

- Depends on sample
- Approx. 1 – 8 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.1

Kit components

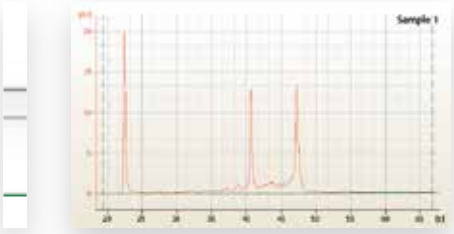
Buffer (concentrate), Lysis Solution, Washing Solutions, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

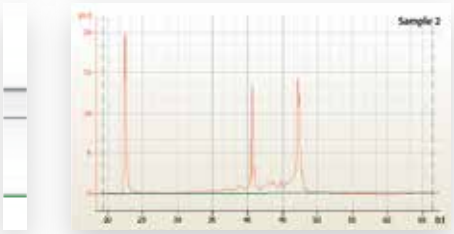
Storage conditions and stability

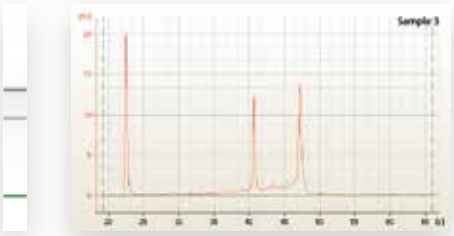
The innuPREP Blood RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Extraction of total RNA from a 1 ml whole blood sample followed by analysis of the isolated RNA on an Agilent Bioanalyzer.
The analysis shows pure RNA free of gDNA and with no degradation.







Order information

Order number	Quantity
845-KS-2010010	10 reactions
845-KS-2010050	50 reactions
845-KS-2010250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood RNA MIDI Direct** Kit

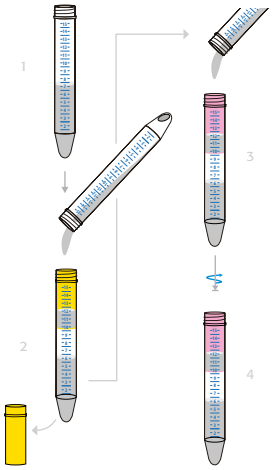
- Isolates pure total RNA from 1.5 – 10 ml whole blood samples
- Patented extraction chemistry with no DNase I digestion and no toxic β-mercaptoethanol
- Optimized lysis buffer for inactivating endogenous and exogenous RNases
- Based on the use of MIDI-format Spin Filter columns

Product description

The innuPREP Blood RNA MIDI Direct Kit was specifically developed for isolating total RNA from whole blood samples with relatively large starting volumes. Based on optimized MIDI Spin Filters, this kit can process up to 10 ml blood samples (frozen or fresh); whole blood stabilized both by EDTA and by citrate has already yielded positive test results. The first step is to selectively lyse erythrocytes and then collect the lymphocytes. This is followed by washing the cell pellet and starting homogenization and/or lysis. An initial MIDI Spin Filter is used to remove genomic DNA from the lysate and the resulting filtrate is applied to a second filter to bind RNA, allowing users to dispense with an additional, time-consuming DNase I digestion step altogether. Total RNA is then eluted into RNase-free water as the final step.

Procedure

1. Homogenize / lyse starting materials
2. Selectively remove genomic DNA
3. Bind total cellular RNA
4. Wash and elute



Product specifications

Starting material:

- 1.5 – 10 ml whole blood samples
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:
Approx. 65 minutes

Binding capacity:
Binding capacity der Säule: ca. 50 µg RNA

Average yield:

- Depends on the amount and quality of the initial sample
- From 5 ml whole blood: approx. 4 – 12 µg RNA
- From 10 ml whole blood: approx. 5 – 18 µg RNA

Average purity (A_{260}:A_{280}):
1,7 – 2,0

Kit components

Buffer (concentrate), Lysis Solution, Washing Solutions, RNase-free water, MIDI Spin Filter,15 ml tubes, user manual

Storage conditions and stability

The innuPREP Blood RNA MIDI Direct Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C).

Sample application

The innuPREP Blood RNA MIDI Direct Kit was used to isolate total RNA from a 5 ml whole blood sample. Analysis on the Agilent Bioanalyzer yielded an RNA integrity number of 9.1, demonstrating the high quality of the extracted RNA.

RIN 9.1

Order information

Order number	Quantity
845-KS-2100010	10 reactions
845-KS-2100025	25 reactions
845-KS-2100050	50 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plant RNA** Kit

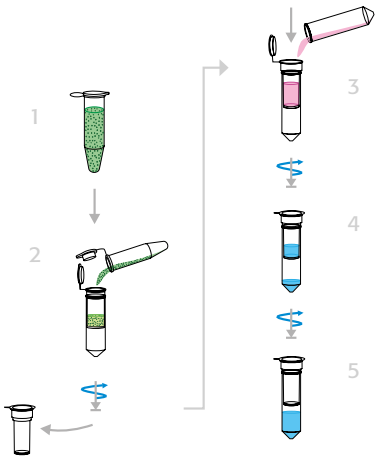
- Ready-to-use total plant RNA in just 30 minutes after homogenization
- Selection of two integrated Lysis Buffer systems for optimum adaptation to an extremely wide variety of plant species and components
- Selective prefiltration step to prevent DNase digestion
- Optimized extraction chemistry eliminates the need for toxic β-mercaptoethanol

Product description

The chemistry underlying the innuPREP Plant RNA Kit, which has been specially adapted for isolating plant materials (e.g. leaves, caulis, root, blossom), guarantees highly efficient lysis and effectively deactivates endogenous and exogenous RNases.
The innuPREP Plant RNA Kit contains two Lysis Buffers in order to process as wide a range as possible of different plant materials, particularly plant components with widely differing characteristics. The Lysis Buffer RL, by comparison, is an universal buffer and the Lysis Buffer PL has been specifically adapted to difficult plants such as roses or potatoes. The total extracted RNA is of excellent quality can be used directly in subsequent applications.

Procedure

1. Homogenize and lyse the plant material
2. Selectively remove genomic DNA
3. Bind total cellular RNA
4. Wash
5. Elute



Product specifications

Starting material:
- Various types of plant samples (100 mg = max.)
- Fresh or frozen plant material

Extraction time:
Approx. 30 minutes after homogenization

Binding capacity:
Column binding capacity: approx. 100 µg RNA

Average yield:
- Depends on the type and quantity of the sample
- Up to 70 µg

Average purity (A_{260}:A_{280}):
1.8 – 2.1

Kit components

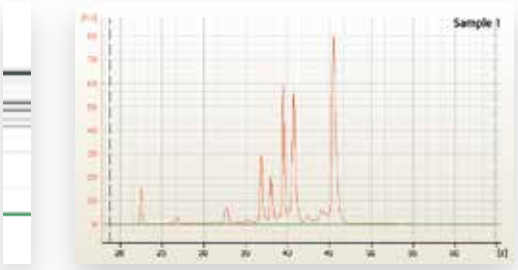
Lysis Solution, Washing Solutions, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

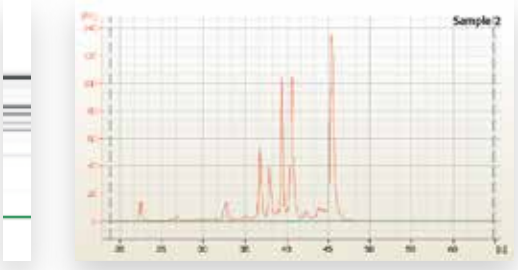
The innuPREP Plant RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

The innuPREP Plant RNA Kit was compared to innuSPEED Plant RNA Kit by extraction of total cellular RNA from a 50 mg leaf material. The subsequent analysis of the quality of the isolated nucleic acid was performed on an Agilent Bioanalyzer. Data indicate total plant RNA with intact ribosomal RNA, free of genomic DNA contamination and with no sign of degradation.



innuSPEED Plant RNA Kit with RIN 9.8



innuPREP Plant RNA Kit with RIN 9.5

Order information

Order number	Quantity
845-KS-2060010	10 reactions
845-KS-2060050	50 reactions
845-KS-2060250	250 reactions
844-MA205-2	Laboratory Notebook

Isolation of microbial RNA

Microbial RNA isolation is another area where Analytik Jena excels, thanks to the company's comprehensive line of kits for manually isolating high-quality total RNA. Completely eliminating the health hazards posed by the use of highly toxic β-mercaptoethanol makes Analytik Jena products all the more attractive.
Researchers can extract viral and bacterial RNA separately or together, working from an extremely wide variety of starting samples.

	Manual									
	innuPREP							blackPREP		innuSOLV
"x - Recommended (x) - Recommended with limitations"	innuPREP RNA Mini Kit	innuPREP RNA Midi Direct Kit	innuPREP Micro RNA Kit	innuPREP DNA / RNA Mini Kit	innuPREP Virus RNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	blackPREP Tick DNA/RNA Kit	blackPREP Powder DNA/RNA Kit	innuSOLV RNA Reagent
Cataloge page	64	65	66	67	73	74	75	50	51	87
Backing powder (Virus, Bacteria)									**x**	
Bacterial cells (gram+ & gram-)	**x**	**x**	**x**	**x**						**x**
5x 10^6										x
1x 10^9	x		x	x						
max. 5x 10^8 - 5x 10^9		x								
Cell culture supernatants (Virus)					**x**	**x**	**x**			
Up to 150 µl					x	x				
Up to 200 µl							x			
Cell cultures (Virus)					**x**	**x**	**x**			
5x 10^6					x	x	x			
Cell-free body fluids (Virus)					**x**	**x**	**x**			
Up to 150 µl					x	x				
Up to 200 µl							x			
Cerebrospinal fluid (Virus)							**x**			
Up to 200 µl							x			
Coffee powder (Virus, Bacteria)									**x**	
Dust (Virus, Bacteria)									x	
Flour (Virus, Bacteria)									x	
Paraffin embedded material (Virus)					**x**	**x**				
Pepper (Virus, Bacteria)									**x**	
Plasma (Virus)					**x**	**x**	**x**			
Up to 150 µl					x	x				
Up to 200 µl							x			
Powder (Virus, Bacteria)									**x**	
Salt (Virus, Bacteria)									**x**	

	Manual									
	innuPREP							blackPREP		innuSOLV
"x - Recommended (x) - Recommended with limitations"	innuPREP RNA Mini Kit	innuPREP RNA Midi Direct Kit	innuPREP Micro RNA Kit	innuPREP DNA / RNA Mini Kit	innuPREP Virus RNA Kit	innuPREP Virus DNA / RNA Kit	innuPREP MP Basic Kit A	blackPREP Tick DNA/RNA Kit	blackPREP Powder DNA/RNA Kit	innuSOLV RNA Reagent
Cataloge page	64	65	66	67	73	74	75	50	51	87
Sand (Virus, Bacteria)									**x**	
Serum (Virus)					**x**	**x**	**x**			
Up to 150 µl					x	x				
Up to 200 µl							x			
Soil (Virus, Bacteria)									**x**	
Spicery (Virus, Bacteria)									**x**	
Stool samples							**x**			
50 - 100 mg							x			
Sugar (Virus, Bacteria)									**x**	
Swabs (Virus)					**x**	**x**	**x**			
Swabs					**x**	**x**	**x**			
Nasopharyngeal							**x**			
Tea (Virus, Bacteria)									**x**	
Ticks								**x**		
Tissue samples	**x**	**x**	**x**	**x**	**x**	**x**	**x**			**x**
Biopsies (Virus)					**x**	**x**	**x**			
Up to 20 mg (Virus)					x	x				
Virus (various sources)					**x**	**x**			**x**	
Washing powder (Virus, Bacteria)									**x**	

innuPREP **Virus RNA** Kit

improved product
better performance

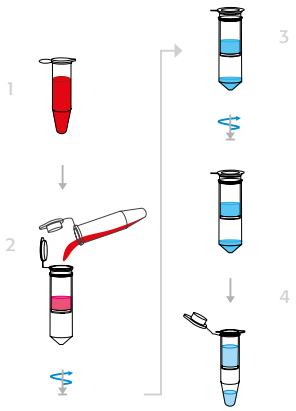
- Optimized for effective extraction and purification of viral RNA
- Excellent quality and high yields generated from an extremely wide variety of starting materials
- Easy-to-use kit; flexible setting option for elution volumes
- Includes Carrier Mix with internal RNA extraction control
- Two new protocols for sample volume up to 150 µl and 300 µl

Product description

The innuPREP Virus RNA Kit is a highly efficient tool for extracting viral ssRNA from serum, plasma or other cell-free bodily fluids, tissue samples, swab samples and supernatants from cell cultures. The novel extraction process is based on the use of Spin Filter columns with optimized binding membranes, thereby guaranteeing maximum yields and high-quality nucleic acids. In addition, users can easily vary the final elution volume between 60 µl and 100 µl. The isolated ssRNA have been successfully tested in a TaqMan® real-time PCR.

Procedure

1. Lyse the starting material
2. Bind the viral RNA to the Spin Filter
3. Wash the bound RNA
4. Elute the viral RNA



Product specifications

Starting material:

- Serum, plasma, other cell-free bodily fluids, supernatants from cell cultures (150 µl each)
- Tissues and biopsies, up to a maximum of 20 mg
- Swab samples

Extraction time:
Approx. 25 minutes

Quality of viral RNA:
Tested with positive results in cDNA synthesis and TaqMan® real-time PCR

Kit components

Lysis Solution, Binding Solution, Carrier Mix, Washing Solutions, RNase-free water, Spin Filter (purple), Receiver Tubes, Elution Tubes, user manual

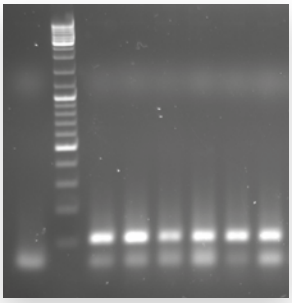
Storage conditions and stability

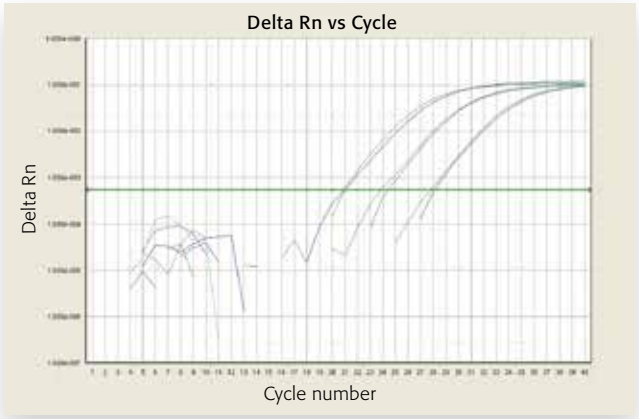
The innuPREP Virus RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilizedProteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

RNA viruses were first diluted in serum. This was followed by RNA extraction using the innuPREP Virus RNA Kit. After cDNA systhesis, a PCR specific to the RNA virus was performed. A TaqMan® real-time PCR was performed in parallel.

Lane 1: Negative control
Lane 2: DNA ladder
Lane 3–4: 1:10⁴ dilution
Lane 5–6: 1:10⁵ dilution
Lane 7–8: 1:10⁶ dilution





Amplification plot for the TaqMan® real-time PCR specific to the RNA virus; analogous to gel electrophoresis.

Detection system for internal control

innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KS-4700010	10 reactions
845-KS-4700050	50 reactions
845-KS-4700250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA/RNA** Kit

improved product
better performance

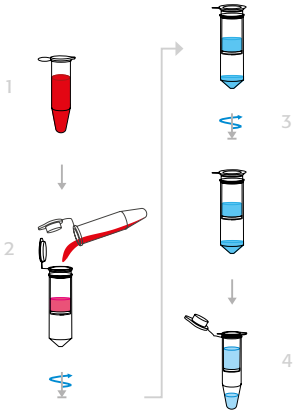
- Simultaneous isolation of viral DNA and RNA from a variety of starting materials
- Patented DC technology: rapid lysis and efficient binding
- Extraction method based on the use of Spin Filters
- Optimum removal of inhibitors ensures trouble-free use of nucleic acids in subsequent applications
- Recommended for samples with unknown virus
- Includes Carrier Mix with internal DNA and RNA extraction control

Product description

The innuPREP Virus DNA/RNA allows researchers to purify viral ssDNA or dsDNA and ssRNA simultaneously from serum, plasma or other cell-free bodily fluids, from tissue, paraffin or swab samples, or from cell cultures. A novel extraction chemistry known as "Dual Chemistry" (DC) technology guarantees researchers the ability to isolate highly pure viral nucleic acids of excellent quality. The use of a Spin Filter membrane maximizes DNA and RNA yields. In addition, having a number of different extraction protocols makes it possible to adapt the innuPREP Virus DNA/RNA Kit to the starting material used. One major advantage of this kit is the time saved by isolating nucleic acids simultaneously, particularly when using starting materials in which the viral contamination is not clear.

Procedure

1. Lyse the starting material
2. Bind the viral nucleic acids to the Spin Filter
3. Wash the bound nucleic acids
4. Elute the viral nucleic acids



Product specifications

Starting material:

- Serum, plasma, cell-free bodily fluids, supernatants from cell cultures (150 µl each)
- Tissues and biopsies of up to 20 mg
- Cell cultures (max. 5×10^6)
- Swab samples
- Paraffin samples (tissue)

Extraction time:
Approx. 25 minutes

Nucleic acid quality:
Positive PCR and TaqMan® real-time PCR testing results

Kit components

Lysis Solution, Binding Solution, Carrier Mix, Proteinase K, Washing Solutions, RNase-free water, Spin Filter (purple), Receiver Tubes, Elution Tubes, user manual

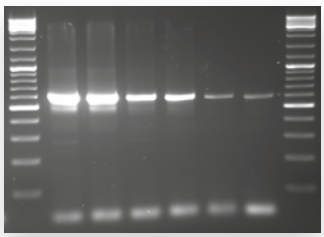
Storage conditions and stability

The innuPREP Virus DNA/RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

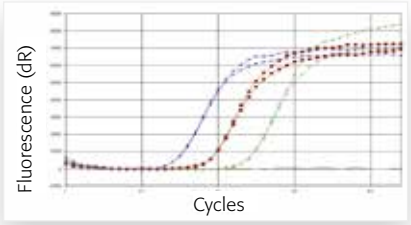
Various concentrations of a DNA virus were prepared in serum and processed with the innuPREP Virus DNA/RNA Kit (double determinations). The final nucleic acid elution was performed in 60 µl. 1.5 µl aliquots of this were added to a virus-specific PCR (total reaction volume = 15 µl). The reaction was then visualized in 10 µl aliquots on a TAE agarose gel.

Lane 1 and 8: DNA ladder
Lane 2 – 3: 1×10^5 genome equivalents per 150 µl starting material
Lane 4 – 5: 1×10^4 genome equivalents per 150 µl starting material
Lane 6 – 7: 1×10^3 genome equivalents per 150 µl starting material



The innuPREP DNA/RNA Virus Kit was used for extracting ssRNA from various RNA virus dilutions in a cell culture medium. The virus was identified after cDNA synthesis in a TaqMan® real-time PCR (double determination).

Dilution 1:
$1{:}10^3$ with Ct 18
Dilution 2:
$1{:}10^4$ with Ct 21
Dilution 3:
$1{:}10^5$ with Ct 24
and NTC



Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KS-4800010	10 reactions
845-KS-4800050	50 reactions
845-KS-4800250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **MP Basic** Kit A

- Fast, efficient isolation of DNA and RNA of either viral or bacterial origin
- Based on manual magnetic particle separation with various magnetic racks
- Optimized for a variety of different starting materials and quantities
- Positive test results for an extremely wide range of viruses and bacteria

Product description

The innuPREP MP Basic Kit A was developed for isolating viral/bacterial DNA and/or RNA from various cell-free bodily fluids. The separation technology involved is based on a novel extraction chemistry that allows users to simultaneously bind DNA and RNA to the surface of functionalized magnetic particles, thereby combining the steps of first lysing the starting material and then binding the nucleic acids to magnetic beads. These are then washed and the DNA/RNA is eluted in RNase-free water. The routine is extremely easy to carry out, yet universally applicable and highly efficient. Various magnetic racks (for 1.5 - 50 ml tubes) are available, accommodating an extremely wide variety of starting materials and, especially, volumes.

Product specifications

Starting material:

- Serum, plasma, synovial fluids, saliva, other cell-free bodily fluids and supernatants from cell cultures (200 µL each)
- Biopsies (1 – 5 mg)
- Cell cultures (max. 5 x 10^6)
- Nasopharyngeal swabs
- Stool samples (0.05 – 0.1 g)

Extraction time:

- Approx. 20 minutes after lysis

Positive test results obtained for the following targets:

- Rift valley fever virus (RNA virus model)
- Vaccinia virus (DNA virus model)
- *Yersinia pestis* (gram- bacteria)
- *Bacillus anthracis* spores (gram+ bacteria)
- Ebola virus
- Bovine viral diarrhea virus (BVDV)
- Marburg virus
- Yellow fever virus
- Norovirus
- Sigma virus
- Influenza A & influenza B virus
- *Francisella tularensis*
- *Bacillus cereus*
- *Bacillus thuringiensis*

Kit components

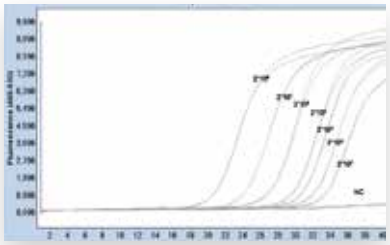
Lysis Solution, Binding Solution, Washing Solutions, RNase-free water, MAG Suspension, user manual

Storage conditions and stability

The innuPREP MP Basic Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for the MAG suspension is 4°C. The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

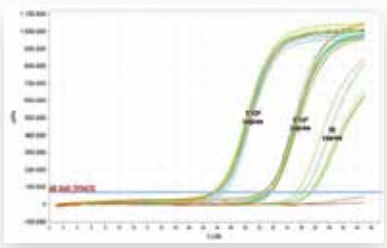
Sample application

Plasma was initially spiked with an RNA virus, after which the RNA could be extracted using the innuPREP MP Basic Kit A. Different numbers of copies were used in a virus-specific TaqMan® real-time PCR for final detection of the isolated viral RNA and for reviewing its quality.



Amplification plot of a negative control and of various viral RNA concentrations ranging from 2x 10^2 to 2x 10^8 copies.

After using the innuPREP MP Basic Kit A to extract the viral RNA, different numbers of starting copies were introduced in a virus-specific TaqMan® real-time PCR in order to assess the quality of the isolated RNA.



Amplification plot of various concentrations of an RNA virus (from 10 copies to 1 x 10^4 copies per batch).

Available magnetic racks

Small magnetic rack for 1.5 – 2.0 ml tubes	250
Medium magnetic rack for 15 ml tubes	250
Large magnetic rack for 50 ml tubes	250

Order information

Order number	Quantity
845-KS-4900100	100 reactions
845-KS-4900500	500 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Tick DNA/RNA** Kit

- Optimized for parallel extraction of DNA and RNA from ticks
- Application-specific Lysis Tubes with beads guarantee effective homogenization of the starting material
- Patented extraction chemistry with a stringent Lysis Buffer system and a novel Binding Buffer
- When combined with rapidSTRIPE assays, the kit serves as a highly sensitive tool for detecting tick-borne pathogens (including TBE and/or FSME)

Product description

The blackPREP Tick DNA/RNA Kit allows researchers to simultaneously isolate DNA and RNA from ticks. This is of particular interest when testing ticks for RNA viruses (such as TBE or FSME) in addition to bacterial pathogens. The kit contains application-specific Lysis Tubes, including beads that have been optimized (in terms of their characteristics and quantity) specifically for homogenizing ticks. Following a subsequent lysis process, the DNA is bound to one filter membrane and the RNA is bound to another. The nucleic acids are then washed and eluted into separate reaction vessels. Analytik Jena's rapidSTRIPE assays can then be used in later applications as fast, uncomplicated tools for detecting nucleic acids from tick-borne pathogens. These ready-to-use assays can be used as highly specific tools for detecting FSME, *Borrelia*, *Rickettsia*, *Anaplasma* and *Babesia*, among other pathogens.

Procedure

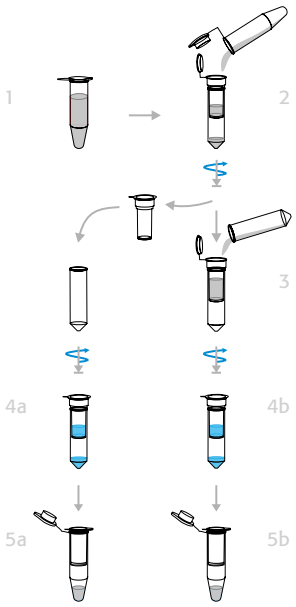
1. Homogenize and lyse the starting material
2. Bind the DNA to the first Spin Filter
3. Bind the total RNA to the second Spin Filter

4a. Wash the bound DNA

4b. Wash the bound RNA

5a. Elute the DNA

5b. Elute the RNA



Product specifications

Starting material:
Ticks

Extraction time:
Less than 1 hour (including lysis)

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

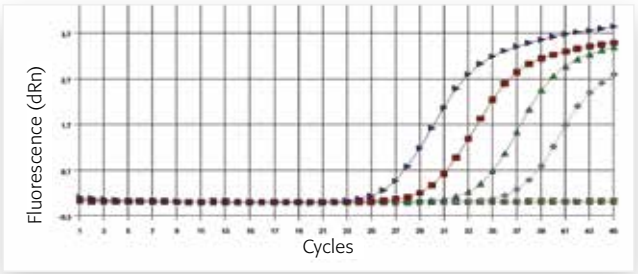
Lysis Tube, Lysis Solution, Washing Solutions, Spin Filter, Receiver Tubes, Elution Buffer, RNase-free water, Elution Tubes, user manual

Storage conditions and stability

The blackPREP Tick DNA/RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

The blackPREP Tick DNA/RNA Kit was used to isolate nucleic acids from ticks. This was followed by a TaqMan® real-time PCR specific to TBE or FSME and performed at different dilution levels.



Amplification plot of a TaqMan® real-time PCR specific to TBE/FSME.

Cell count/reaction	Ct value (average)
3×10^4	25.5
3×10^3	29.0
3×10^2	34.1
3×10	34.7

Ct values from the TaqMan® real-time PCR as a function of cell count

Reference: „Rickettsia aeschlimannii in Hyalomma marginatum Ticks, Germany"; Rumer L, Graser E, Hillebrand T, Talaska T, Dautel H, Mediannikov O, et al.; Emerg Infect Dis [serial on the Internet].; February 2011; Vol. 17; No. 2

Other products for Tick Born Diseases

innuAMP Tick DNA Test 168
rapidSTRIPE Rickettsia Assay 219
rapidSTRIPE Borrelia Assay 220
rapidSTRIPE Anaplasma Assay 222
rapidSTRIPE TBE Assay 221
rapidSTRIPE Babesia Assay 223

Order information

Order number	Quantity
845-BP-5100010	10 reactions
845-BP-5100025	25 reactions
845-BP-5100050	50 reactions
844-MA205-2	Laboratory Notebook

blackPREP **Powder DNA/RNA** Kit

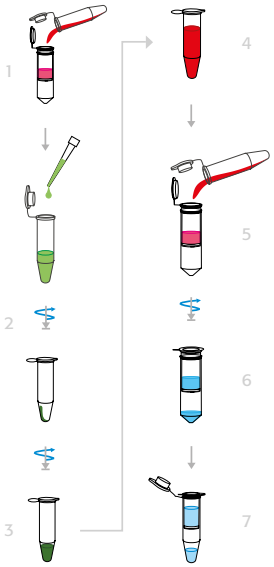
- Optimized for the simultaneous extraction of viral and bacterial nucleic acids from difficult samples in powder form of unknown origin
- Optimal removal of inhibitors followed by use of the highly pure nucleic acids in a broad spectrum of subsequent applications
- Use of innovative polymers in the sample preparation for maximal nucleic acid yield from solid starting material
- Processing in the "mini-Spin Filter format"

Product description

The blackPREP Powder DNA/RNA Kit is particularly ideal for the extraction of viral and bacterial nucleic acids from difficult starting materials, such as soaps, tea, soil, milk and powdery solids of unknown origin. The purification is based on an effective prefiltration to eliminate insoluble materials and inhibitors. Through the use of a novel filter membrane, nucleic acids can be optimally collected and enriched. Ultracentrifugation and special laboratory equipment are not necessary for the purification. The unique extraction routine is shown in only one protocol and can be used for all materials tested previously. The isolated highly pure nucleic acids are directly available for a variety of downstream reactions.

Procedure

1. Dissolution of the sample and removal of insoluble components through prefiltration
2. Complexation of the target molecules, precipitation and collection
3. Release of the target molecules in solution
4. Lysis of the target molecules
5. Binding of the viral and/or bacterial DNA and/or RNA to the Spin Filter (black)
6. Washing of the bound nucleic acids
7. Elution of the DNA and/or RNA



Product specifications

Starting material:

- Liquid or solid samples
- Liquid samples max. 1.2 ml
- Solid samples max. 0.02 – 0.05 g

Extraction time:

- Sample preparation: approx. 35 minutes
- Purification: approx. 25 minutes

Average quality and yield:

- Depends on the type and quantity of the starting material
- Successfully tested using a wide variety of RNA and DNA viruses (ss, ds, enveloped, non-enveloped) and bacteria
- Positively tested in a variety of different downstream applications
- Positively tested in PCR and TaqMan® real-time PCR

Kit components

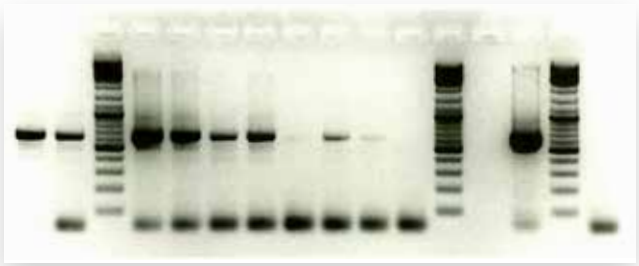
Reagent 1-3, PBS, lysis solution, binding solution, proteinase K, washing solution, elution buffer, RNase-free water, Spin Filter (black), receiver tubes, user manual

Storage conditions and stability

The blackPREP Powder DNA/RNA Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14°C to 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

To use the blackPREP Powder DNA/RNA Kit, different virus concentrations of a DNA virus were produced which were then used in the extraction as described below. 1.5 µL aliquots of the eluted nucleic acid were amplified in a virus-specific fashion and the resultant product including positive and negative control was applied to TAE agarose gel.



Lane 1 and 2: Amplification product Standard 10 µL virus/ml (150 µl)
Lane 3, 21 and 16: DNA controls
Lane 4 and 5: Amplification product dilution series 10 µL virus/ml (1 ml)
Lane 6 and 7: Amplification product dilution series 1 µL virus/ml (1 ml)
Lane 8 and 9: Amplification product dilution series 0.1 µL virus/ml (1 ml)
Lane 10 and 11: Amplification product dilution series 0.01 µL virus/ml (1 ml)
Lane 13: Empty
Lane 14: Amplification product positive control
Lane 16: Amplification product negative control

Order information

Order number	Quantity
845-BP-0040010	10 reactions
845-BP-0040050	50 reactions
844-MA205-2	Laboratory Notebook

Einrichment

More than any other issue, identifying diagnostic targets often goes hand in hand with concerns about the limits of detection. Various technologies are now available in the Enrichment product area that allow users to recover even the tiniest amounts of nucleic acids. In addition to enriching nucleic acids from a large volume of starting materials, the following products also simultaneously reduce any potential inhibitors and contaminants.

The performance, speed and results of these kits are unrivaled.

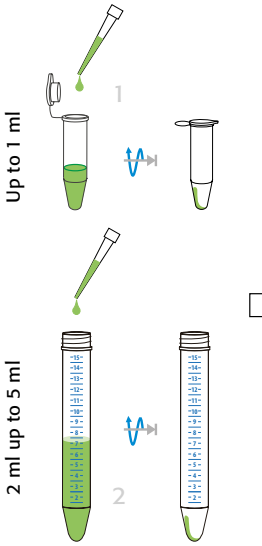
PME **free-circulating DNA Extraction** Kit

- Easy handling, high efficiency and extremely time saving
- Processing of starting sample volumes up to 5 ml
- Proven for serum and plasma from different blood collection systems
- Novel, patent pending technology: Polymer Mediated Enrichment (PME)
- Enrichment & extraction in approx. 30 min from 1 ml or approx. 1 h from 5 ml of serum or plasma and up to 10 ml from urine

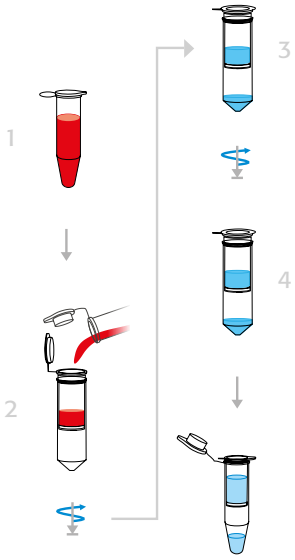
Product description

Circulating cell-free DNA is a very interesting diagnostic target, but the amount of free-circulating DNA is usually very low and varies among different individuals. Further, these nucleic acids are present as short fragments, typically smaller than 1000 nt, making the efficient extraction process challenging. Because of the high sample volumes the protocols of commercially available kits are very labor-intensive as well as time consuming and need a lot of reagents. The PME free-circulating DNA Extraction Kit is based on a new, patent-pending technology called **PME** – **P**olymer **M**ediated **E**nrichment. As first step cell-free DNA in the entire sample is captured by a polymer. Afterwards this complex is collected as a pellet by centrifugation. Subsequently the captured nucleic acid is dissolved in a special buffer thus reducing the sample volume in the following extraction significantly.

Enrichment of free-circulating DNA



Sample preparation of free-circulating DNA



Procedure

1. Capturing of cell-free DNA in the polymer
2. Spin down of the Polymer/DNA complex

1. Lysis of the Polymer/DNA complex
2. Binding of cell-free DNA to the Spin Filter
3. Washing of bound cell-free DNA
4. Eluting of the cell-free DNA

Product specifications

Starting material:

- Serum, plasma and urine
- Cell culture supernatants or mediums
- Other cell-free body fluids (except urine)
- From up to 5 ml (plasma) or 10 ml (urine)

Time of preparation:

- From 1 ml starting sample: approx. 30 min
- From 5 ml starting sample: approx. 1 h
- From 5 ml and 10 ml starting sample: approx 1 h

Field of applications:

- Tumor and prenatal diagnosis
- Pathological states, including trauma, sepsis, myocardial infarction, stroke, transplantation, diabetes mellitus, and hematologic disorders

Validation

Positive tested for following blood collection systems

No.	Blood sampling system from Sarstedt
1.	S-Monovette® 9 ml Silicat
2.	S-Monovette® 9 ml Polyacrylester Gel
3.	S-Monovette® 8,5 ml CPDA
4.	S-Monovette® 9 ml K3E (EDTA K3)
5.	S-Monovette® 10 ml 9NC (Trisodium Citrate Solution, Citrate Solution)
6.	S-Monovette® 7,5 ml NH (Natrium-Heparin)
7.	S-Monovette® 7,5 ml LH-Gel (Lithium-Heparin)
8.	S-Monovette® 9 ml LH (Lithium-Heparin)

Kit components

Enrichment Reagents, Lysis Solution, Binding Solution, Carrier Mix, RNase-free Water, Proteinase K, Precipitation Buffer, Washing Solutions, Spin Filter (bordeaux), Receiver Tubes, Elution Tubes, Manual

Storage conditions and stability

The PME free-circulating DNA Extraction Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Validation results/Sample application

1.) Different blood collecting systems for extraction of free-circulating DNA:

Besides of the variability amongst different specimens, also the blood collection system used, has a big influence on the recovery of free-circulating DNA. Therefore the following blood collection systems were tested.

Testing the suitability of the PME free-circulating DNA Kit for eight different blood collection systems (listed above), at two different starting amounts of sera or plasma (1 ml and 5 ml, respectively).
Extracted free-circulating DNA has been tested by amplification of a human specific target gene:

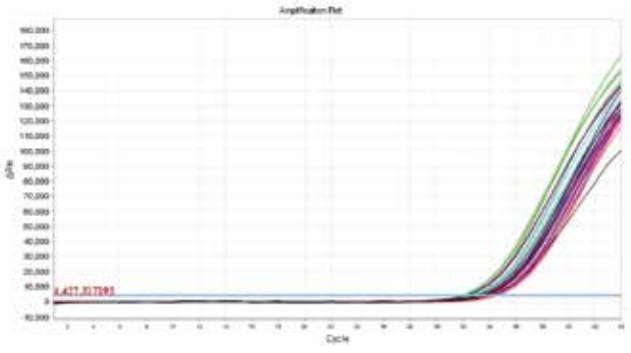
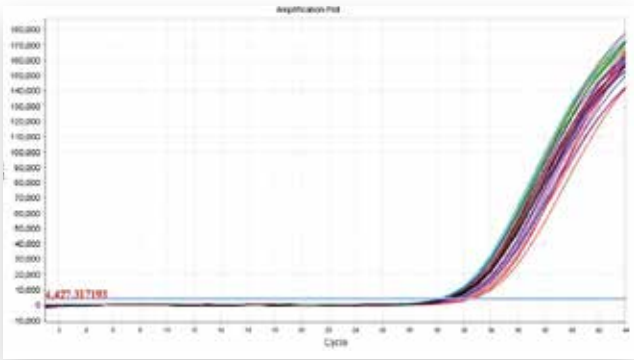


Figure 1: Resultant amplification plots after preparation of 1 ml starting sample volume



LFigure 2: Resultant amplification plots after preparation of 5 ml starting sample volume

The amplification plots show differences in dependence on type of blood collection systems. Best results can be achieved using S-Monovette® 9 ml LH (Lithium-Heparin, Sarstedt) or S-Monovette® 7,5 ml NH (Natrium-Heparin, Sarstedt) and S-Monovette® 7,5 ml LH-Gel (Lithium-Heparin, Sarstedt).

2.) Isolation of free-circulating DNA using PME free-circulating DNA Extraction Kit in comparison to standard purification kit for cell-free DNA:

Next to the speed of performance and efficiency of the PME free-circulating DNA Extraction Kit, the whole procedure also convince in relation to the market leader product, as shown in the following.

Comparison or cell-free DNA extraction from 1 ml and 5 ml serum respectively by using PME technology versus a commercially standard extraction kit for free-circulating nucleic acids. After isolation, the DNA has been tested for amplification of a gene coding for the human estrogen receptor 1.

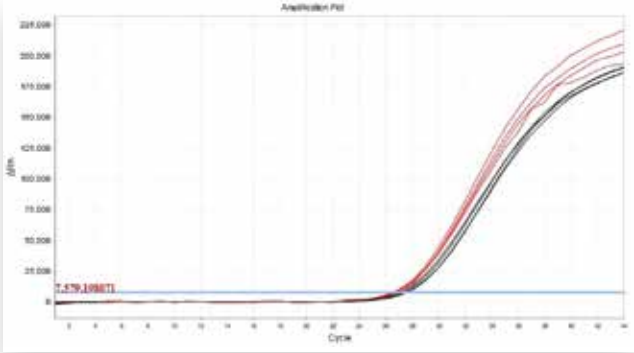


Figure 3: Resultant amplification plots after preparation of 1 ml starting sample volume

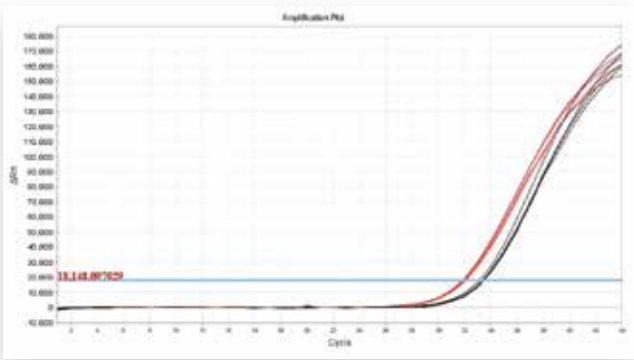


Figure 4: Resultant amplification plots after preparation of 5 ml starting sample volume

The red graphs correspond to the extraction based on PME technology and the black graphs correspond to the competitor's kit (market leader).

Related products

innuCONVERT Bisulfite Basic Kit 143
innuCONVERT Bisulfite All-in-One Kit 144

Order information

Order number	Quantity
845-IR-0003010	10 reactions
845-IR-0003050	50 reactions
844-MA205-2	Laboratory Notebook

LOOXSTER® **Enrichment** Kit

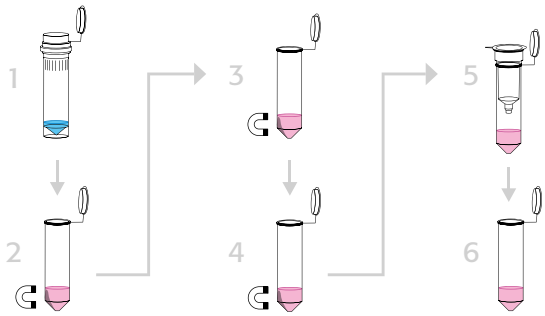
- Enriches bacterial and fungal DNA from predominantly eucaryotic DNA isolates
- Suitable for up to 300 µg of input DNA
- Removes over 95% of eucaryotic DNA
- Includes DNA cleanup

Product description

The LOOXSTER® Enrichment Kit is a sample preparation system for enriching bacterial and fungal deoxyribonucleic acids (DNA) in a DNA isolate of predominantly eucaryotic origin. The specific affinity of the LOOXSTER® protein for non-methylated CpG dinucleotides is what produces the LOOXSTER® enrichment effect. DNA extracts containing a mixture of methylated host DNA and small quantities of double-stranded genomic bacterial or fungal DNA, are incubated with LOOXSTER® in the presence of a stringent buffer. A subsequent wash step can be used for removing unbound DNA. The enriched bacterial DNA is then eluted with the aid of an elution buffer. The PureProve® concept: following suitable processes for reducing contamination with DNA, all system components are filled and packaged under clean-room conditions.

Process sequence

1. Reconstitution of LOOXSTER® Magnetic Particles
2. Add LOOXSTER® Magnetic Particles to DNA sample, BINDING and magnetic separation
3. WASHING and magnetic separation
4. ELUTION and magnetic separation
5. Transfer of supernatant (Eluate) to Cleanup
6. Eluate now ready for downstream application



Product specifications

Starting material:
Up to 300 µg of predominantly eucaryotic DNA

Extraction time:
Approx. 75 minutes

Yield:
- No more than 3 µg of enriched DNA
- The concentration of bacterial DNA in the enriched DNA depends on the ratio of eucaryotic DNA to procaryotic DNA.
- **Example:** Less than 5% of the human DNA and approx. 50% of the bacterial DNA (E. coli) were isolated from a 100,000-fold excess of human DNA in the starting sample.

Average purity (A_{260}:A_{280}):
1.7 - 2.0

Kit components

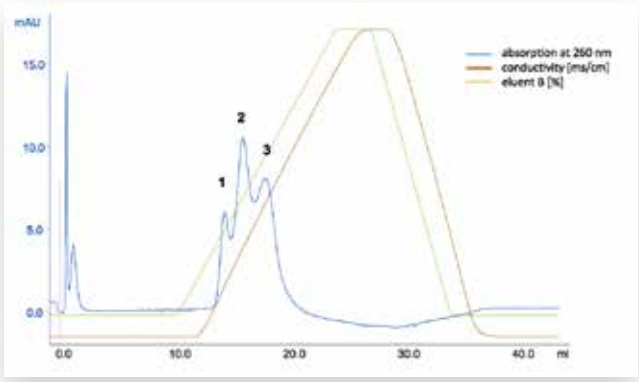
Lyophilized LOOXSTER® Magnetic Particles, LOOXSTER® Binding Buffer, LOOXSTER® Wash Buffer, LOOXSTER® Elution Buffer; tubes with caps, desalting spin columns, collection tubes, desalting binding buffer, desalting wash buffer, desalting elution buffer, water, user manual

Storage conditions and stability

A storage temperature between 2°C and 8°C is recommended for lyophilized LOOXSTER® Magnetic Particles. All other components can be stored at room temperature (15°C to 30°C). The kit will remain stable under these conditions for at least 6 months. Reconstituted LOOXSTER® Magnetic Particles will remain stable for 1 week at 2°C to 8°C.

Sample application

Separation of genomic DNA based on GC-content and cystein-methylation. To demonstrate the selective affinity of LOOXSTER® for non-methylated CpG dinucleotides 1.25 µg of each human, Staphylococcus aureus and Escherichia coli genomic DNA was mixed and applied to a 1 ml LOOXSTER® chromatography column. Chromatography was carried out with a 50-800 mM NaCl gradient. DNA was eluted at conductivities of 19,615 mS/cm (human; **1**), 28,465 mS/cm (S.aureus; **2**) and 39,459 mS/cm (*E.coli*; **3**).



Related products

Magnetrack small for 1.5 ml tubes
MobiLab Order Information 250

Order information

Order number	Quantity
203-001-0010	10 reactions
844-MA205-2	Laboratory Notebook

Additional reagents for nucleic acid extraction

Supplemental extraction solutions include more than just products offering effective DNA digestion for RNA extraction. Chemistry based on time-honored phenol-chloroform precipitation and kits for fast, uncomplicated, quick and dirty preps may be found here as well.

innuEASY **Direct Amplification** Kit A

- Combines fast, simple isolation of genomic DNA followed by direct *rapid*PCR
- Efficient lysis thanks to a solid formulation of a two-component reagent system
- Extraction and amplification take no more than 1 hour
- Includes all of the reagents required for the entire process

Product description

The innuEASY Direct Amplification Kit A is a fast, simple tool for lysing samples and then directly amplifying genomic DNA from whole blood, saliva samples or buccal swabs. The process is based on lysing the starting sample using a stable, solid Reagent formulation of a two-component system. The eluate is introduced directly into the amplification reaction after the sample has been lysed. All of the Reagents involved have been optimized for amplification using *rapid*PCR technology from Analytik Jena AG. The method eliminates the need for a complex DNA isolation step and requires roughly 1 hour for sample digestion followed by *rapid*PCR amplification. The innuEASY Direct Amplification Kit A contains all of the Reagents needed.

Procedure

1. Transfer starting material and water to the Prep A Tube
2. Transfer the reaction volume from the Prep A Tube to the Prep B Tube
3. Prepare the master mix and *rapid*PCR

Product specifications

Starting material:

- Whole blood (1 – 5 µl)
- Saliva (1 – 5 µl)
- Buccal swabs

Processing time:

- Sample lysis: approx. 25 minutes
- *rapid*PCR (e.g. SpeedCycler²): up to 40 minutes
- Standard PCR: depends on the thermal cycler used

Kit components

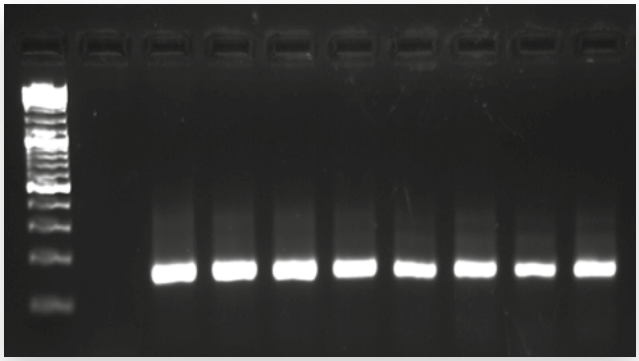
Prep A Tube (green cap), Prep B Tube (yellow cap), innuTaq HOT-A DNA Polymerase, Speed ready mix

Storage conditions and stability

Store the innuEASY Direct Amplification Kit A in a dry place; lysis components should be kept at room temperature (14 °C to 25 °C) and PCR Reagents at –20 °C. The kit will remain stable under these conditions for at least 12 months.

Sample application

Direct amplification was performed on a human GAPDH-specific sequence from 3 µl saliva samples, 1 µl buccal swabs, 5 µl whole blood samples and 1 µl whole blood samples. The master mix also contained (in addition to the lysed sample) the Speed ready mix and innuTaq HOT-A DNA Polymerase. 25 µl reaction aliquots were then placed in the AlphaSC® and, in the final step, the PCR products were loaded onto a 2 % agarose gel.



Amplification products of different starting materials after GAPDH-specific PCR:
Lane 1: DNA ladder
Lane 2: Negative control
Lane 3 – 4: Saliva sample (3 µl starting material)
Lane 5 – 6: Buccal swabs (1 µl starting material)
Lane 7 – 8: Whole blood (5 µl starting material)
Lane 9 – 10: Whole blood (1 µl starting material)

Order information

Order number	Quantity
845-EP-1000010	10 reactions
845-EP-1000050	50 reactions
845-EP-1000200	200 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNase I Digest** Kit

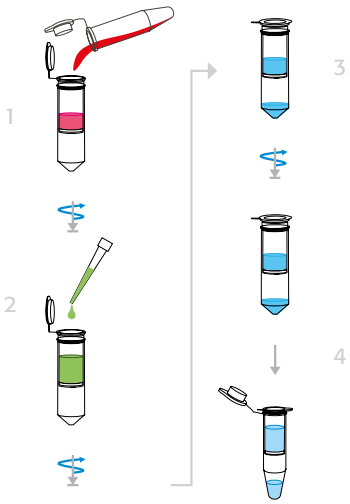
- Can be integrated quickly and easily into the RNA isolation process
- Direct DNase I digestion on the column makes the kit easy to use
- Efficient DNA digestion yields eluted RNA of excellent purity
- Free of RNases and other interfering factors

Product description

The innuPREP DNase I Digest Kit is a highly efficient tool for removing DNA from RNA samples that have been contaminated with DNA. Enzymatic DNA digestion has been designed in such a way that it can be conveniently run during the RNA isolation process. This is accomplished by diluting the DNase I in the buffer provided and then introducing it directly onto the Spin Filter column previously used for binding the nucleic acids. Digestion is followed by additional wash steps before highly pure RNA is eluted. The Reagents provided are free of RNase and, as such, also contribute to the quality of the RNA. Efficient DNA removal makes the innuPREP DNase I Digest Kit suitable for applications in which even the tiniest amounts of DNA could distort the results. Potential applications include preparing DNA-free RNA, DNase footprinting, Nick translation or breaking down the DNA template when transcribing to cDNA.

Procedure

1. Bind the nucleic acids to the Spin Filter
2. Perform DNase I digestion
3. Wash
4. Elute the RNA (DNA-free)



Product specifications

Concentration:
DNase I, 20 KU/µL

Starting material:
RNA samples contaminated with DNA

Required prep time:
20 minutes (digestion only)

Quality of viral RNA:
Positive TaqMan® real-time PCR testing results

Kit components (RNase-free)

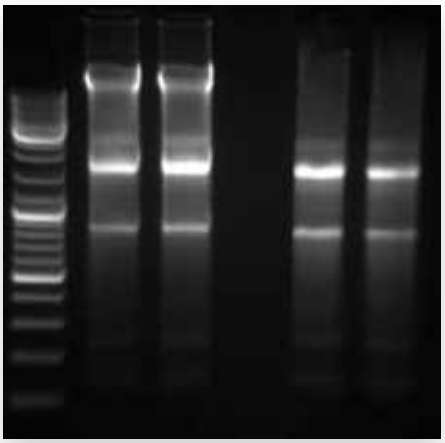
DNase I, Digestion Buffer, user manual

Storage conditions and stability

The innuPREP DNase I Digest Kit will remain stable for at least 12 months if stored in a dry place at room temperature (–20 °C).

Sample application

The innuPREP DNase I Digest Kit was used for on-column DNA digestion during RNA isolation. Therefore the sample was incubated for 30 min at 37 °C.



Lane 1: DNA ladder
Lane. 2 - 3: Preperation of 2.5 x 10^6 3T3 Zellen without DNase digest
Lane. 4: Empty
Lane 5 - 6: Preperation of 2.5 x 10^6 3T3 Zellen with DNase digest

Order information

Order number	Quantity
845-KS-5200010	10 reactions
845-KS-5200050	50 reactions
845-KS-5200250	250 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNase I**

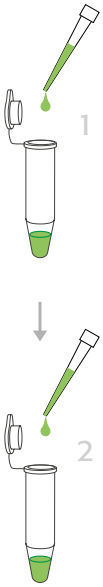
- Efficient DNA digestion in RNA samples
- Excellent yields of high-quality RNA
- Free of RNases and other interfering/inhibiting substances
- Ideal for use following RNA isolation

Product description

innuPREP DNase I reliably and efficiently digests even the tiniest amounts of DNA that could potentially contaminate extracted RNA samples. After using a non-sequence-specific DNA endonuclease to cleave the DNA, the reaction is inactivated through the addition of the EDTA solution provided. Depending on the desired RNA purity level, a final ethanol precipitation is recommended in order to remove process-related impurities. All reagents are free of RNases and, as such, also contribute to the quality of the RNA. innuPREP DNase I is used for preparing DNA-free RNA, for breaking down the DNA template before transcription to cDNA, for DNase footprinting, and for Nick translation.
The innuPREP DNase I Digest kit (page 84) is recommended for removing DNA during column-based RNA isolation.

Process sequence

1. DNase I digestion following RNA extraction
2. EDTA addition to inactivate reaction



Kit components (RNase-free)

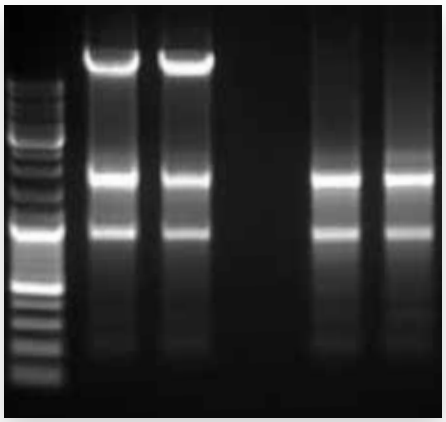
DNase I, 10x reaction buffer, EDTA, manual

Storage conditions and stability

innuPREP DNase I will remain stable for at least 12 months if stored at –20°C

Sample application

The innuPREP DNase I was used for DNA digestion during RNA isolation. Therefore the sample was incubated for 30 min at 37 °C.



Lane 1: DNA ladder
Lane. 2 - 3: Preperation of 2.5 x 10^6 3T3 Zellen without DNase digest
Lane. 4: Empty,
Lane 5 - 6: Preperation of 2.5 x 10^6 3T3 Zellen with DNase digest

Product specifications

Concentration:
DNase I, 1 KU/µL

Starting material:
RNA samples contaminated with DNA

Required prep time:
30 min. for digestion, 10 min. for inactivation

Quality of viral RNA:
Positive TaqMan® Real-Time PCR testing results

Order information

Order number	Quantity
845-KS-5210005	5,000 Kunitz units
845-KS-5210010	10,000 Kunitz units
844-MA205-2	Laboratory Notebook

innuPREP **Proteinase K**

- Highly active recombinant protease from *Pichia pastoris* with endo- and exoproteolytic activity
- Contains no RNases or DNases, and virtually no DNA
- Consistent quality and performance
- Robust enzyme: stable over a broad pH range
- Ideal for a diverse array of applications, such as preparing cell lysates for subsequent nucleic acid isolation

Product description

Proteinase K is one of the most active endopeptidases known. The enzyme is extraordinarily effective against native proteins and can be used for quickly inactivating endogenous RNases and DNases. Proteinase K is particularly suitable for isolating nucleic acids for use in amplification reactions, for isolating native RNA and DNA from tissues and cell lines, for promoting cell lysis by activating a bacterial autolysis factor, and for modifying proteins and/or glycoproteins on cell surfaces (for membrane structure analyses).

Inhibitors: None of the following inactivate the enzyme: metal ions, chelating agents (such as EDTA), sulfhydryl reagents, or trypsin and chymotrypsin inhibitors.

Activators: Proteinase K activity is stimulated by the presence of denaturing agents (SDS and urea).

Note: SDS can produce a seven-fold increase in Proteinase K activity.

Optimum pH: Proteinase K is stable over a broad pH range (4 to 12.5), and retains its full activity for several hours if incubated at a pH between 6.5 and 9.5.

The enzyme can reduce proteins to free amino acids if a large excess of protein is present and if incubated for long periods of time.

Concentration (after reconstituting)

20 mg/mL at an activity of 20 U/mg

Activity

> 30 units/mg protein (hemoglobin, pH 7.5, 37°C).

Unit definition

a unit is the enzyme activity that releases the same amount of Folin-positive amino acids and peptides from hemoglobin as released by 1 µmol tyrosine over the course of 1 min. at 37°C.

Quality control

Proteinase K is lyophilized and purified via chromatography, after which it is tested to ensure that no RNases, DNases and exonucleases are present. These should not be detectable.

Storage conditions and stability

The recommended storage temperature for lyophilized Proteinase K is 4°C. Once the Proteinase K has been reconstituted, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Proteinase K will remain stable for at least 12 months if stored under these conditions.

Order information

Order number	Quantity
845-CH-0010006	6.0 mg (add 0.3 mL ddH_2O)
845-CH-0010030	30.0 mg (add 1.5 mL ddH_2O)
844-MA205-2	Laboratory Notebook

innuSOLV **RNA Reagent**

- Modified guanidine isothiocyanate/phenol method for extracting RNA
- High-quality RNA with no degradation after just approx. 1 hour of prep time
- Suitable for a variety of different starting materials

Product description

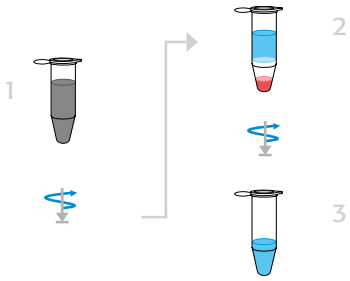
The innuSOLV RNA Reagent is a solution for efficiently isolating total RNA from various quantities of different starting materials (such as tissue samples, cells, bacterial cells, plants, etc.). The extraction method is based on a single-step, liquid-phase separation that saves a significant amount of time. The innuSOLV RNA Reagent contains a mixture of phenol and guanidine isothiocyanate in a monophasic solution. After adding chloroform and centrifuging, the homogenization product separates into three phases:

- A reddish, organic phase on the bottom
- A whitish intermediate phase
- A colorless liquid phase on top containing the RNA

The RNA is then precipitated by adding an alcohol. Extraction with the innuSOLV RNA Reagent produces high-quality nucleic acids with no degradation that are available for a variety of different applications after just 1 hour of prep time.

Procedure

1. Add innuSOLV RNA Reagent and chloroform to the starting material
2. Phase separation
3. Precipitate the RNA using isopropanol. Wash RNA and dissolve



Product specifications

Starting material:

- Tissue samples (100 mg)
- Monolayer cells
- Cell suspensions (of animal or plant origin; yeast or bacterial cells; max. 5×10^6)

Required prep time:
Approx. 60 minutes

RNA quality:
Depends on the type and quantity of the starting material

Kit components

innuSOLV RNA Reagent

Storage conditions and stability

The innuSOLV RNA Reagent will remain stable for 6 months if stored in a dry, dark place at 4 °C.

Order information

Order number	Quantity
845-SB-2090010	10 ml
845-SB-2090100	100 ml
844-MA205-2	Laboratory Notebook

Isolation of DNA

Especially hard and/or compact starting materials often represent a DNA extraction challenge. The chemical and thermal efficiency of the lysis process is relatively poor in these cases, and very unevenly distributed throughout the starting sample.

innuSPEED DNA Kits include optimized lysis tubes that address this issue. These tubes contain specially designed beads that break down the starting sample, perfectly preparing it for subsequent nucleic acid extraction. SpeedMill and other commercially available homogenizers can be combined with innuSPEED kits.

	Manual using homogenizer				
	innuSPEED				
x - Recommended (x) - Recommended with limitations	innuSPEED Tissue DNA Kit	innuSPEED Plant DNA Kit	innuSPEED Soil DNA Kit	innuSPEED Bacteria/Fungi DNA Kit	innuSPEED Stool DNA Kit
Cataloge page	89	90	91	92	93
Bacterial cell pellets (gram+ & gram-)				**x**	
1x 10^9 cells				x	
Cartilage material	**x**				
Fungi		**x**			
Fungi spores				**x**	
Plant material		**x**			
Up to 100 mg		x			
Fresh		x			
Frozen		x			
Dried		x			
Rodent tails	**x**				
0.5 - 1 cm	x				
Soil			**x**		
Up to 100 mg			x		
Stool					**x**
200 - 400 mg					x
200 - 400 µl					x
Bacterial DNA					**x**
Tissue samples	**x**				
Up to 50 mg	x				
Yeast				**x**	

innuSPEED **Tissue DNA** Kit

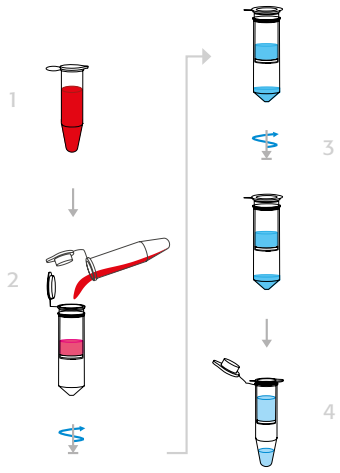
- Optimized for fast, efficient extraction of genomic DNA from a variety of different starting materials
- For tissue samples, bioptates, specimens from museums and archives, dried samples, insects and rodent tails, or other cartilaginous material
- Includes a homogenization step using Lysis Tubes (included in kit) with specialized beads
- Optimized for use with homogenizers (such as the SpeedMill)

Product description

The innuSPEED Tissue DNA Kit has been specially designed for using homogenizers in the process of isolating genomic DNA from an exceptionally wide variety of starting materials. The SpeedMill from Analytik Jena (or other homogenizer) serves as an efficient tool for disrupting various materials using the Lysis Tubes contained in the kit, as well as rapidly accelerated beads that have been adapted to this purpose. A precipitation step is then performed to remove all tissue proteins in the lysate, after which the genomic DNA is bound to a Spin Filter column. Samples are then washed to remove residual inhibitors; the final DNA elution is performed in up to 200 µl Elution Buffer.

Procedure

1. Homogenize and lyse the tissue sample
2. Bind the gDNA to the Spin Filter column
3. Wash the bound DNA
4. Perform final elution



Product specifications

Starting material:

- Tissue samples of up to 50 mg
- Rodent tails or other cartilaginous material
- Samples from museums or archives; dried samples
- Bioptates
- Insects

Extraction time:

- Homogenization and lysis: 35 minutes
- Purification: approx. 10 minutes

Binding capacity:

Column binding capacity: > 100 µg DNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 100 µg

Average purity (A_{260}:A_{280}):

1.7 – 2.0

Kit components

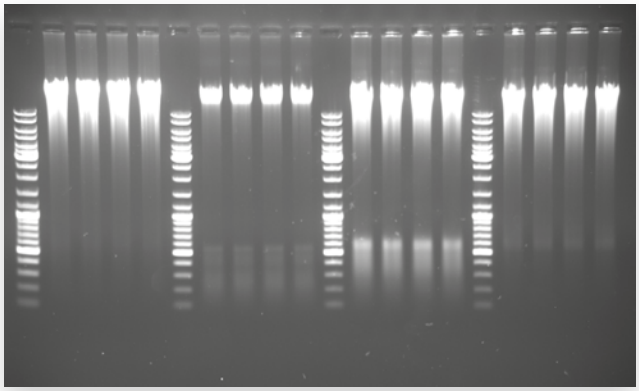
Lysis Tubes P, Lysis Solution, Precipitation Buffer, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (blue), Receiver Tubes, user manual

Storage conditions and stability

The innuSPEED Tissue DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Extraction of genomic DNA from a variety of different tissue samples. The nucleic acids were then visualized on an 0.8 % TAE agarose gel.



Lane 1, 6, 11 and 16: DNA ladder
Lane 2 – 5: DNA from 0.5 cm of mouse tail
Lane 7 – 10: DNA from 20 mg lung
Lane 12 – 15: DNA from 20 mg liver
Lane 17 – 20: DNA from 20 mg kidney

Order information

Order number	Quantity
845-KS-1540010	10 reactions
845-KS-1540050	50 reactions
845-KS-1540250	250 reactions
844-MA205-2	Laboratory Notebook

innuSPEED **Plant DNA** Kit

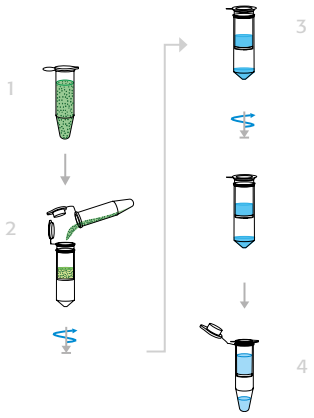
- Isolation of genomic DNA from a variety of plant materials
- Application-specific lysis beads for effective homogenization
- Optimized for the SpeedMill; may also be used with other homogenizers
- Selective removal of plant metabolic products and other contaminants

Product description

The innuSPEED Plant DNA Kit is a tool for quickly and efficiently isolating genomic DNA from various amounts of a wide variety of plant materials (such as leaves, stems, roots, flowers, etc.). To this end, the kit contains Lysis Tubes with application-specific beads for selectively homogenizing plant tissue. When used together with the SpeedMill (Analytik Jena) and optimized extraction chemistry, this maximizes DNA yields thanks to effective digestion of plant cell walls. A prefiltration step is also performed to remove residual cell components. Genomic DNA are then bound to a Spin Filter and washed; the nucleic acids are eluted in a final step.

Procedure

1. Homogenize and lyse the plant material; follow with a prefiltration step
2. Bind the plant DNA to the Spin Filter
3. Wash the bound DNA
4. Elute



Product specifications

Starting material:
Up to 100 mg of plant material

Extraction time:
- Homogenization and lysis: approx. 15–30 minutes
- Purification: approx. 10 minutes

Binding capacity:
Column binding capacity: > 100 µg DNA

Average yield:
- Depends on the type and quantity of the plant material
- Up to 100 µg

Average purity (A_{260}:A_{280}):
1.7–2.0

Kit components

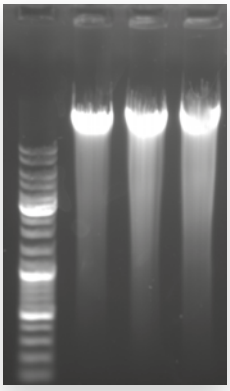
Lysis Tubes P, Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Prefilter (lavender), Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

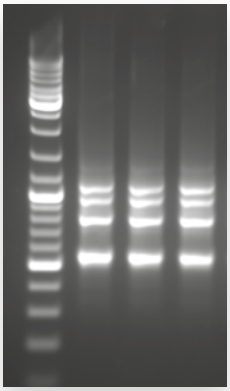
The innuSPEED Plant DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Plant DNA was isolated from 50 mg parsley samples, after which the extracted DNA was first loaded onto an 0.8 % TBE agarose gel and added in parallel to an arbitrary primed (AP) PCR.



Lane 1: DNA ladder
Lane 2–4: Plant DNA from 50 mg parsley



Lane 1: DNA ladder
Lane 2–4: AP PCR with isolated plant DNA

Order information

Order number	Quantity
845-KS-1560010	10 reactions
845-KS-1560050	50 reactions
845-KS-1560250	250 reactions
844-MA205-2	Laboratory Notebook

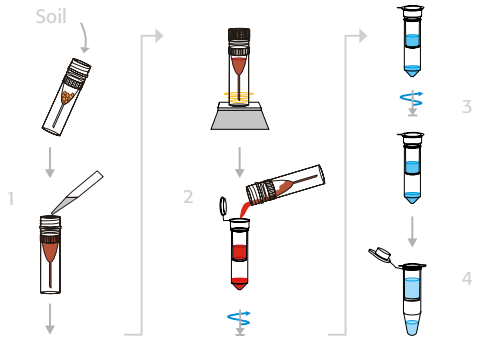
innuSPEED **Soil DNA** Kit

- Isolation of microbial DNA from soil samples
- Includes homogenization (SpeedMill, for instance) using Lysis Tubes specific to the application
- High-quality DNA free of any inhibitors (such as humic acids)
- Suitable for use with homogenizers (such as the SpeedMill or others)

Product description

The innuSPEED Soil DNA Kit is a tool for extracting microbial DNA from soil samples. The extraction combines rapid homogenization of extremely complex starting material with efficient digestion of microbial cell walls in specially developed Lysis Tubes (using a SpeedMill or other homogenizer). After breaking down the material mechanically followed by a thermal lysis step, the DNA is selectively bound to the surface of a Spin Filter membrane. A novel wash buffer efficiently removes inhibitors such as humic acids. Finally, DNA is desorbed from the membrane through the addition of a low-salt buffer.

Procedure



1. Homogenize and lyse the soil sample
2. Perform preliminary and final binding steps to bind DNA to the Spin Filter
3. Perform preliminary and final washing steps on the bound DNA
4. Perform preliminary and final DNA elution steps

Product specifications

Starting material:
Soil samples (100 – 250 mg)

Extraction time:
- Homogenization and lysis: 30 minutes
- Purification: approx. 16 minutes

Binding capacity:
Column binding capacity: > 30 µg DNA

Average yield:
- Depends on the type and quantity of microorganisms in the soil
- Up to 30 µg

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

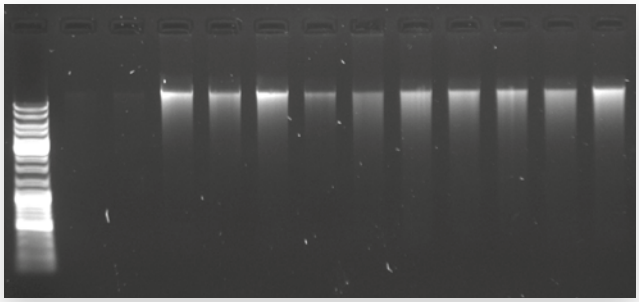
Lysis Tubes B, Lysis Solution, Binding Solutions, Washing Solutions, Elution Buffer, Spin Filter (vanilla), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

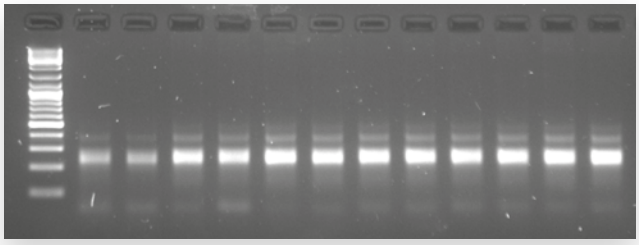
The innuSPEED Soil DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Isolation (double determination) of microbial DNA from 6 different soil samples (Amazon rain forest). The isolated DNA was first applied to an 0.8 % TAE agarose gel and then introduced into a PCR specific to the microorganisms in question.



Microbial DNA after purification



PCR product specific to microorganisms
Lane 1: DNA ladder, **lane 2 – 3:** soil sample I, **lane 4 – 5:** Soil sample II, **lane 6 – 7:** Soil sample III, **lane 8 – 9:** soil sample IV, **lane 10 – 11:** Soil sample V, **lane 12 – 13:** soil sample VI

Order information

Order number	Quantity
845-KS-1580010	10 reactions
845-KS-1580050	50 reactions
845-KS-1580250	250 reactions
844-MA205-2	Laboratory Notebook

innuSPEED **Bacteria/Fungi DNA** Kit

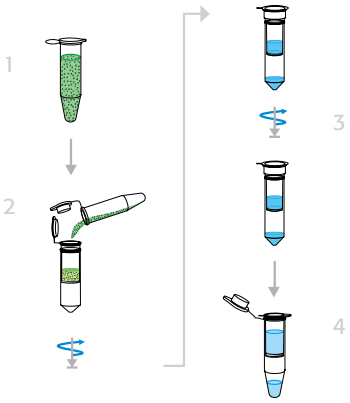
- Optimum isolation of genomic DNA from gram+ bacteria, yeast and fungal spores
- Includes Lysis Tubes with application-specific beads for highly efficient homogenization with a SpeedMill (or other homogenizers)
- Effective sample disruption for extremely high DNA yields
- High-quality DNA; free of inhibitors

Product description

The innuSPEED Bacteria/Fungi DNA Kit has been specially developed for isolating genomic DNA from gram+ bacteria, fungal spores and yeasts. The extraction protocol combines two steps: rapid homogenization of these hard-to-access starting materials, and efficient digestion of microbial cell walls in specially developed Lysis Tubes (using a SpeedMill or other homogenizer). The material is first broken down mechanically and then subjected to thermal and enzymatic lysis. The DNA is then selectively bound to the surface of a Spin Filter membrane, a step that is followed first by wash steps to remove inhibitors, and then by addition of a low-salt buffer to separate bound DNA from the membrane.

Procedure

1. Homogenize and lyse the starting material
2. Bind the DNA to the Spin Filter
3. Wash the bound DNA
4. Perform final elution



Product specifications

Starting material:

- Gram+ bacteria (max. 1×10^9)
- Fungal spores
- Yeasts (max. 1×10^9)

Extraction time:

- Homogenization and lysis: approx. 30–45 minutes
- Purification: approx. 12 minutes

Binding capacity:

Column binding capacity: > 30 µg DNA

Average yield:

- Depends on the type and quantity of the starting material used
- Up to 30 µg

Average purity (A_{260}:A_{280}):

1.7–2.0

Kit components

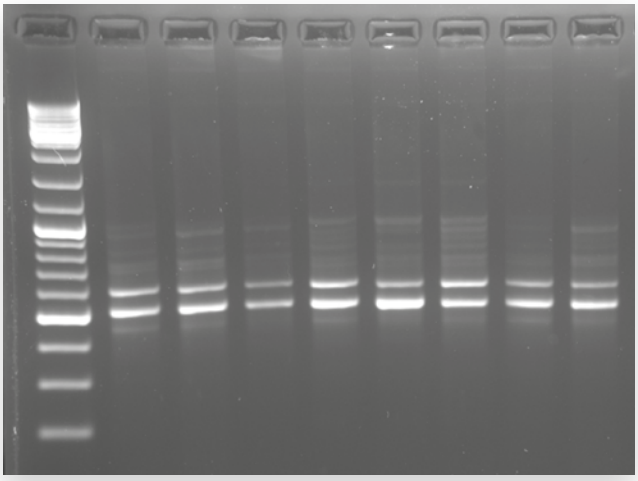
Lysis Tubes S, Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter (vanilla), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuSPEED Bacteria/Fungi DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

DNA extraction from various samples carrying spores followed by an arbitrary primed (AP) PCR. PCR products were then visualized on a TAE agarose gel as the final step.



Lane 1: DNA ladder
Lane 2–9: Fragment sample of an AP PCR using a variety of different target DNA

Order information

Order number	Quantity
845-KS-1510010	10 reactions
845-KS-1510050	50 reactions
845-KS-1510250	250 reactions
844-MA205-2	Laboratory Notebook

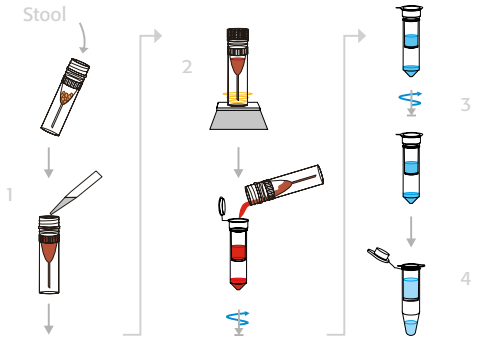
innuSPEED **Stool DNA** Kit

- Isolation of bacterial DNA from solid or liquid stool samples
- Includes prefiltration for removing undissolved sample components
- Lysis Tubes and adapted beads for optimum sample homogenization
- Suitable for use with homogenizers (such as the SpeedMill or others)

Product description

The innuSPEED Stool DNA Kit provides an effective means of extracting microbial DNA from stool samples. The first step in the process is homogenization (e.g. with a SpeedMill) of the solid or liquid samples in a Lysis Tube using rapidly accelerated beads. This step is then followed by thermal lysis. This highly efficient homogenization process is followed by a prefiltration step, which serves as an optimum method for removing undissolved sample components. Microbial DNA are then selectively bound to the surface of a Spin Filter membrane, this is followed first by wash steps to remove inhibitors, and then by addition of a low-salt buffer to separate bound DNA from the membrane. The DNA is then ready for use in all subsequent applications.

Procedure



1. Lyse and homogenize stool sample
2. Prefiltration and perform final binding step (binding DNA to the Spin Filter)
3. Wash DNA
4. Elute the bound DNA

Product specifications

Starting material:

- 200 – 400 µg of solid stool samples
- 200 – 400 µl of liquid stool samples
- Fresh or frozen samples

Extraction time:

- Homogenization and lysis: 25 minutes
- Purification: approx. 15 minutes

Binding capacity:
Column binding capacity: > 50 µg DNA

Average yield:
Depends on the quantity and condition of the starting material

Kit components

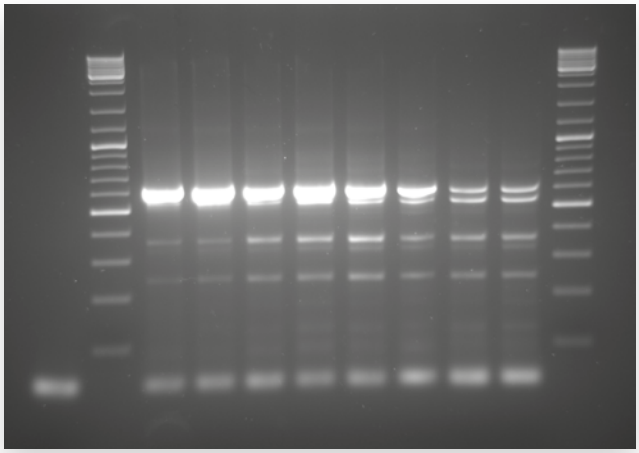
Lysis Tubes S, Lysis Solution, Binding Solution, Washing Solutions, Elution Buffer, Prefilter (lavender), Spin Filter (blue), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuSPEED Stool DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

Isolation of DNA from stool samples from different subjects. Isolated DNA was immediately introduced in an arbitrary primed (AP) PCR and the amplification products were analyzed on a 1.5 % TAE agarose gel.



Lane 1: Negative control
Lane 2 and 11: DNA ladder
Lane 3 – 10: Amplification products of AP PCR

Order information

Order number	Quantity
845-KS-1570010	10 reactions
845-KS-1570050	50 reactions
845-KS-1570250	250 reactions
844-MA205-2	Laboratory Notebook

Isolation of RNA

Successful RNA isolation: innuSPEED RNA kits contain lysis tubes with application-specific beads for mechanically homogenizing the starting sample. Using a SpeedMill or other ball mill tremendously increases the lysis efficiency during subsequent nucleic acid extraction. Treatment is gentler on the sample material, and the extracted RNA yields impressively high RIN values of up to 9.8.

In addition, innuSPEED RNA kits completely eliminate the use of highly toxic β-mercaptoethanol, which is otherwise common.

	Manual using homogenizer		
	innuSPEED		
"x - Recommended (x) - Recommended with limitations"	innuSPEED Tissue RNA Kit	innuSPEED Plant RNA Kit	innuSPEED Bacteria/Fungi RNA Kit
Cataloge page	95	96	97
Bacterial cells (gram+ & gram-)			**x**
1x 10^9			x
Fungi		**x**	
Fungi spores			**x**
Plant material		**x**	
Up to 50 mg		x	
Tissue samples	**x**		
Up to 20 mg	**x**		

innuSPEED **Tissue RNA** Kit

- Isolation of total cellular RNA from a variety of tissues
- Kit contains Lysis Tubes with beads for homogenization
- Optimized for using the SpeedMill
- May also be used with other homogenizers
- Improved extraction without the use of toxic β-mercapto-ethanol

Product description

The innuSPEED Tissue RNA Kit allows users to isolate total RNA from a variety of tissue samples quickly and efficiently through the use of a homogenizer. A SpeedMill (or other homogenizer) is used as an effective means of digesting the starting material within the Lysis Tubes contained in the kit. Lysis is performed without the use of highly toxic β-mercaptoethanol, after which the genomic DNA is removed through an initial Spin Filter column. The RNA is then bound to a second Spin Filter membrane, washed and finally eluted in 30–80 µl of RNase-free water.

Kit components

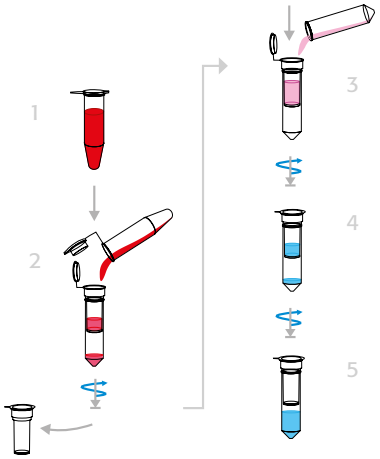
Lysis Tubes P, Lysis Solution, Washing Solutions, RNase-free water, Spin Filter D (blue), Spin Filter R (purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuSPEED Tissue RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

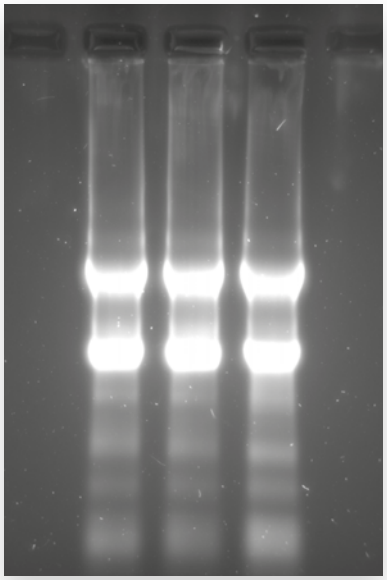
Procedure

1. Homogenize and lyse the tissue sample
2. Use an initial Spin Filter column to selectively remove the gDNA
3. Bind the RNA to a second Spin Filter
4. Wash the bound RNA
5. Perform final elution



Sample application

Extraction of total RNA from 20 mg tissue samples followed by visualization on a denaturing formaldehyde gel.



Lane 1–3:
Total RNA isolated from 20 mg tissue samples

Product specifications

Starting material:

- Tissue samples of up to 20 mg
- Bioptates

Extraction time:

- Homogenization and lysis: approx. 20 minutes
- Purification: approx. 11 minutes

Binding capacity:

Column binding capacity: > 100 µg RNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 100 µg

Average purity (A_{260}:A_{280}):

1.7–2.0

Order information

Order number	Quantity
845-KS-2540010	10 reactions
845-KS-2540050	50 reactions
845-KS-2540250	250 reactions
844-MA205-2	Laboratory Notebook

innuSPEED **Plant RNA** Kit

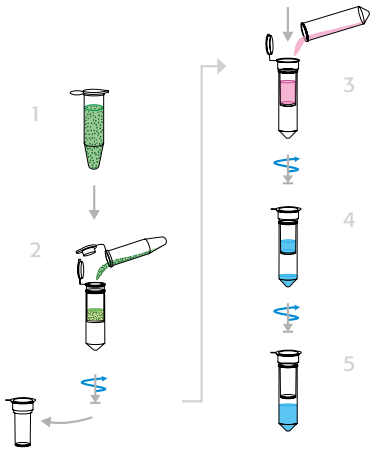
- Efficient extraction of total plant RNA from a wide variety of plant materials
- Optimized Lysis Tubes with beads guarantee optimum homogenization results when using the SpeedMill or other homogenizers
- Optimum sample digestion generates extremely high yields
- No need for toxic β-mercaptoethanol

Product description

The innuSPEED Plant RNA Kit allows researchers to extract total cellular RNA from an extremely wide variety of fresh or frozen plant tissue (such as leaves, stems, roots, flowers, etc.) The Lysis Tubes in the kit contain beads that are specially tailored to plant tissue and that optimize the ability of a homogenizer (such as the SpeedMill from Analytik Jena) to break down the material. The genomic DNA is then selectively removed by binding it to an initial Spin Filter column. The total plant RNA is then bound to the filter membrane on a second column, washed and finally eluted in 30–80 µl of RNase-free water. Rapidly accelerated beads are used to solubilize plant cell walls efficiently, which, in turn, maximizes RNA yields.

Procedure

1. Homogenize and lyse the plant material
2. Use an initial Spin Filter to selectively remove the DNA
3. Bind the RNA to a second Spin Filter
4. Wash the bound RNA
5. Elute the plant DNA



Product specifications

Starting material:
Up to 50 mg of plant material

Extraction time:
- Homogenization and lysis: 15 minutes
- Purification: approx. 12 minutes

Binding capacity:
Column binding capacity: > 100 µg RNA

Average yield:
- Depends on the type and quantity of the plant material used
- Up to 100 µg

Average purity (A_{260}:A_{280}):
1.8–2.1

Kit components

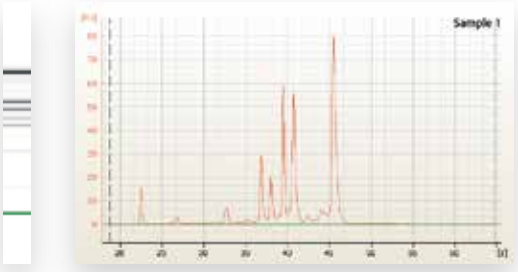
Lysis Tubes P, Lysis Solution, Washing Solutions, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

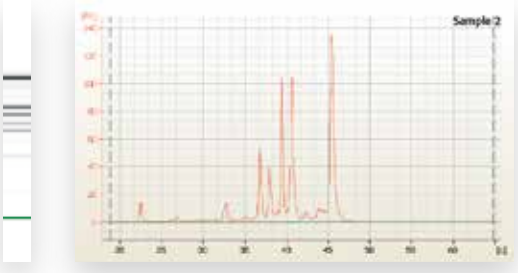
The innuSPEED Plant RNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

The innuPREP Plant RNA Kit was used to extract total cellular RNA from 50 mg leaf material and compared to the innuSPEED Plant RNA Kit. Subsequent analysis of the quality of the isolated nucleic acids was performed on an Agilent Bioanalyzer. Data indicate total plant RNA with intact ribosomal RNA, free of genomic DNA contamination and with no sign of degradation.



innuSPEED Plant RNA Kit, RIN = 9.8



innuPREP Plant RNA Kit, RIN = 9.5

Order information

Order number	Quantity
845-KS-2560010	10 reactions
845-KS-2560050	50 reactions
845-KS-2560250	250 reactions
844-MA205-2	Laboratory Notebook

innuSPEED **Bacteria/Fungi RNA** Kit

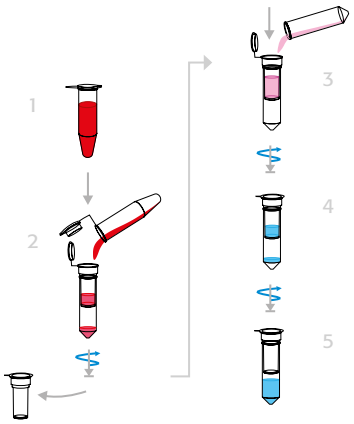
- Extraction of total cellular RNA from fungal spores and gram+ bacteria
- No DNase I digestion: filter membrane for fast, selective removal of genomic DNA
- Integrated inactivation of endogenous and exogenous RNases
- Improved extraction without the use of toxic β-mercaptoethanol
- Optimized for use with homogenizers (such as the SpeedMill)

Product description

The innuSPEED Bacteria/Fungi RNA Kit has been designed for rapid homogenization and includes an efficient process for digesting the cell walls of fungal spores and gram+ bacteria in specially developed Lysis Tubes, the process utilizes the SpeedMill (or other homogenizers). The starting sample is then denatured; the unique Lysis Buffer deactivates endogenous and exogenous RNases. Once the genomic DNA has been selectively removed, the RNA is bound to the surface of a Spin Filter membrane, washed and then finally eluted from the membrane. The isolated RNA is immediately available for downstream applications.

Procedure

1. Homogenize and lyse the starting material; deactivate RNases
2. Perform filtration step to selectively remove genomic DNA
3. Bind the RNA to the Spin Filter
4. Wash the bound RNA
5. Elute



Product specifications

Starting material:

- Gram+ bacteria (max. 1×10^9)
- Fungal spores

Extraction time:

- Homogenization and lysis: approx. 40 minutes
- Purification: approx. 10 minutes

Binding capacity:

Column binding capacity: > 30 µg RNA

Average yield:

- Depends on the type and quantity of the starting material
- Up to 30 µg

Average purity (A_{260}:A_{280}):

1.7 – 2.0

Kit components

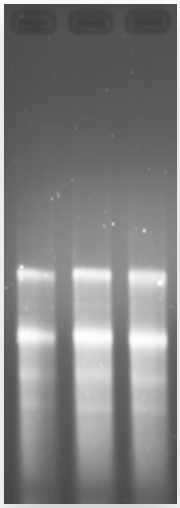
Lysis Tubes S, Lysis Solution, Washing Solution, RNase-free water, Spin Filter (blue and purple), Receiver Tubes, Elution Tubes, user manual

Storage conditions and stability

The innuSPEED Bacteria/Fungi DNA Kit will remain stable for at least 12 months if stored in a dry place at room temperature (14 °C to 25 °C).

Sample application

RNA was extracted from gram+ bacteria, which are not carrying spores using the innuSPEED Bacteria/Fungi RNA Kit (triple determination). Isolated bacterial RNA was visualized on a denaturing formaldehyde gel.



Lane 1 – 3:
Extracted RNA from gram+ bacteria

Order information

Order number	Quantity
845-KS-2510010	10 reactions
845-KS-2510050	50 reactions
845-KS-2510250	250 reactions
844-MA205-2	Laboratory Notebook

Lysis Tubes

- Ideal for mechanically disruption of a very large variety of starting materials
- Fast, efficient preparation of robust samples for isolating nucleic acids or proteins
- 0.5 or 2.0 mL reaction vessels with beads
- Flexibility thanks to a variety of bead materials and sizes
- Ideal for use with the SpeedMill or other commercially available homogenizers

innuSPEED lysis tubes include a variety of 0.5 and 2.0 mL reaction vessels with skirted bases and screw caps. Prefilled with beads in various sizes, materials and quantities, innuSPEED lysis tubes are ideally suited for homogenizing an exceptionally wide variety of starting materials (e.g., plants, tissues, cells, etc.)

As a general rule of thumb: the smaller the sample, the smaller the beads.

Bead material and Size				
Tube size	Glass	Ceramics	Steel	Description
0.5 ml	90 – 150 µm	-	-	innuSPEED Lysis Tube D
0.5 ml	-	0.4 – 0.6 mm	-	innuSPEED Lysis Tube C
0.5 ml	-	2.4 – 2.8 mm	-	innuSPEED Lysis Tube P
0.5 ml	-	-	5x 3.5 mm	innuSPEED Lysis Tube I
0.5 ml	-	-	8x 3.5 mm	innuSPEED Lysis Tube H
0.5 ml	-	-	4.7 mm	innuSPEED Lysis Tube F
2.0 ml	90 – 150 µm	-	-	innuSPEED Lysis Tube B
2.0 ml	90 – 150 µm	-	-	innuSPEED Lysis Tube G
2.0 ml	-	0.4 – 0.6 mm	-	innuSPEED Lysis Tube S
2.0 ml	-	1.4 – 1.6 mm	-	innuSPEED Lysis Tube A
2.0 ml	-	0.4 – 0.6 mm 1.4 – 1.6 mm	-	innuSPEED Lysis Tube X
2.0 ml	-	2.4 – 2.8 mm	-	innuSPEED Lysis Tube E
2.0 ml	90 – 150 µm	-	3.5 mm	innuSPEED Lysis Tube Z
2.0 ml	90 – 150 µm	-	4.7 mm	innuSPEED Lysis Tube Y
2.0 ml	-	1.4 – 1.6 mm	3.5 mm	innuSPEED Lysis Tube W
2.0 ml	-	-	4.7 mm	innuSPEED Lysis Tube J
2.0 ml	-	-	Mandrel	innuSPEED Lysis Tube Q

Take advantage of our comprehensive homogenization support by calling +49 (0) 3641 / 77 9460, and learn more about our high-performance homogenizer on pages 280–284.

innuSPEED Lysis Tube A

Order number	Quantity
845-CS-1010050	50 tubes
845-CS-1010100	100 tubes
845-CS-1010250	250 tubes

Lysis Tube A is a 2.0 ml tube with a screwing cap (colourless) containing optimized ceramic beads (1.4 - 1.6 mm) for efficient disruption of plant or animal tissue samples using SpeedMill or other homogenizers.

innuSPEED Lysis Tube B

Order number	Quantity
845-CS-1030050	50 tubes
845-CS-1030100	100 tubes
845-CS-1030250	250 tubes

Lysis Tube B is a 2.0 ml tube with a screwing cap (blue) containing optimized glass (90 - 150 µm) beads for efficient disruption of bacteria and fungi samples using SpeedMill or other homogenizers.

innuSPEED Lysis Tube C

Order number	Quantity
845-CS-1040050	50 tubes
845-CS-1040100	100 tubes
845-CS-1040250	250 tubes

Lysis Tube C is a 0.5 ml tube with a screwing cap (violet) containing optimized ceramic (0.4 - 0.6 mm) beads for efficient disruption of plant or tissue samples using SpeedMill or other homogenizers.

innuSPEED Lysis Tube D

Order number	Quantity
845-CS-1050050	50 tubes
845-CS-1050100	100 tubes
845-CS-1050250	250 tubes

Lysis Tube D is a 0.5 ml tube with a screwing cap (colourless) containing optimized glass (90 - 150 µm) beads for efficient disruption of bacteria and fungi samples using SpeedMill or other homogenizers.

innuSPEED Lysis Tube E

Order number	Quantity
845-CS-1070050	50 tubes
845-CS-1070100	100 tubes
845-CS-1070250	250 tubes

Lysis Tube E is a 2.0 ml tube with screwing cap (orange) containing optimized ceramic beads (2.4 - 2.6 mm) for efficient disruption of difficult samples as insects, dried tissues or plants using SpeedMill or other homogenizers.

innuSPEED Lysis Tube F

Order number	Quantity
845-CS-1090050	50 tubes
845-CS-1090100	100 tubes
845-CS-1090250	250 tubes

Lysis Tube F is a 0.5 ml tube with screwing cap (yellow) containing optimized steel beads (4.7 mm) for efficient disruption of resistant samples as wood, seed or rice grain using SpeedMill or other homogenizers.

innuSPEED Lysis Tube G

Order number	Quantity
845-CS-1130050	50 tubes
845-CS-1130100	100 tubes
845-CS-1130250	250 tubes

Lysis Tube G is a 2.0 ml tube with a screwing cap (colourless) containing optimized glass beads (90 - 150 µm) for efficient disruption of bacteria and fungi samples using SpeedMill or other homogenizers.

innuSPEED Lysis Tube H

Order number	Quantity
845-CS-1100050	50 tubes
845-CS-1100100	100 tubes
845-CS-1100250	250 tubes

Lysis Tube H is a 0.5 ml tube with screwing cap (violet) containing optimized steel beads (8x 3.5 mm) for efficient disruption of resistant samples as wood, seed or rice grain using SpeedMill or other homogenizers.

innuSPEED Lysis Tube I

Order number	Quantity
845-CS-1110050	50 tubes
845-CS-1110100	100 tubes
845-CS-1110250	250 tubes

Lysis Tube I is a 0.5 ml tube with screwing cap (red) containing optimized steel beads (5x 3.5 mm) for efficient disruption of resistant samples as wood, seed or rice grain using SpeedMill or other homogenizers.

innuSPEED Lysis Tube J

Order number	Quantity
845-CS-1120050	50 tubes
845-CS-1120100	100 tubes
845-CS-1120250	250 tubes

Lysis Tube J is a 2.0 ml tube with screwing cap (blue) containing optimized steel beads (4.7 mm) for efficient disruption of resistant samples as wood, seed or rice grain using SpeedMill or other homogenizers.

innuSPEED Lysis Tube P

Order number	Quantity
845-CS-1020050	50 tubes
845-CS-1020100	100 tubes
845-CS-1020250	250 tubes

Lysis Tube P is a 0.5 ml tube with screwing cap (green) containing optimized ceramic beads (2.4 - 2.8 mm) for efficient disruption for difficult samples as insects, dried tissues or plants using SpeedMill or other homogenizers.

innuSPEED Lysis Tube Q

Order number	Quantity
845-CS-1180006	6 tubes
845-CS-1180012	12 tubes
845-CS-1180024	24 tubes

The Lysis Tube Q consist of a 2.0 mL tube with a screwing cap (red) and a metal mandrel. The tube has been specially developed for homogenizing extremely tough starting materials, such as rice, bones and wood. The use of a tube fixation is recommended if using the Lysis Tube Q with the SpeedMill PLUS. The mandrel is a reusable homogenization element. Sterilizing or autoclaving the mandrel after use is recommended.

innuSPEED Lysis Tube S

Order number	Quantity
845-CS-1060050	50 tubes
845-CS-1060100	100 tubes
845-CS-1060250	250 tubes

Lysis Tube S is a 2.0 ml tube with screwing cap (yellow) containing special small ceramic beads (0.4 - 0.6 mm) for efficient disruption of stool, bacteria and fungi samples using SpeedMill and other homogenizers.

innuSPEED Lysis Tube W

Order number	Quantity
845-CS-1140050	50 tubes
845-CS-1140100	100 tubes
845-CS-1140250	250 tubes

Lysis Tube W is a 2.0 ml tube with screwing cap (red) containing a mixture of ceramic and steel beads (1.4 - 1.6 mm and 3.5 mm) for efficient disruption of stool, bacteria, fungi and soil samples as well as cell cultures and spores using SpeedMill or other homogenizers.

innuSPEED Lysis Tube X

Order number	Quantity
845-CS-1150050	50 tubes
845-CS-1150100	100 tubes
845-CS-1150250	250 tubes

Lysis Tube X is a 2.0 ml tube with screwing cap (withe) containing a mixture of ceramic beads (0.4 - 0.6 mm und 1.4 - 1.6 mm) different in size for efficient disruption of stool, bacteria, fungi and soil samples as well as cell cultures and spores using SpeedMill or other homogenizers.

innuSPEED Lysis Tube Y

Order number	Quantity
845-CS-1160050	50 tubes
845-CS-1160100	100 tubes
845-CS-1160250	250 tubes

Lysis Tube Y is a 2.0 ml tube with screwing cap (brown) containing a mixture of glass and steel beads (90 - 150 µm und 4.7 mm) for efficient disruption of stool, bacteria, fungi and soil samples as well as cell cultures and spores using SpeedMill or other homogenizers.

innuSPEED Lysis Tube Z

Order number	Quantity
845-CS-1170050	50 tubes
845-CS-1170100	100 tubes
845-CS-1170250	250 tubes

Lysis Tube Z is a 2.0 ml tube with screwing cap (black) containing a mixture of glass and steel beads (90 - 150 µm und 3.5 mm) for efficient disruption of stool, bacteria, fungi and soil samples as well as cell cultures and spores using SpeedMill or other homogenizers.

PureProve® **Lysis Tubes LV**

- Mechanical lysis of cells taken from bodily fluids and tissues, and from bacteria and fungi
- Highly efficient lysis in gram+ and gram- bacteria
- Suitable for up to 5 mL of whole blood and/or 1 g of tissue
- Recommended for use with the FastPrep-24® (MP Biomedicals)

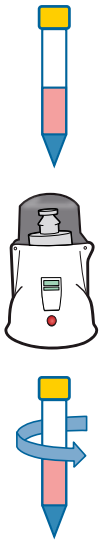
Product description

Optimal lyses of cellular material is the essential basis for efficient DNA extraction and sensitive nucleic acid detection.
An ideal combination of multiple types of glass beads ensures efficient lysis of bacterial and fungal cells for sample volumes of up to 5 mL. For tissues or smaller amounts of sample, customers can make up the difference in volume using the buffer provided. An antifoam agent prevents excessive foam from forming, making the lysate easy to remove after a brief centrifugation step.

The PureProve® concept: following suitable processes for reducing contamination with all system components are filled and packaged under clean-room conditions.

Procedure

1. Lysis tube filling
2. Homogenizer loading
3. The 2 lysis intervals begin (45 sec. each with a 5 minutes pause in between)
4. Cell debris centrifugation and lysate removal



Product specifications

Starting material:

- Whole blood or other bodily fluids (cerebrospinal fluid, synovial fluid), up to 5 mL
- Tissues (liver, kidney, muscle), up to 1 g
- The protocol may need to be optimized if using other samples or alternative homogenizers.

Lysis time:
Approx. 10 minutes

Kit components

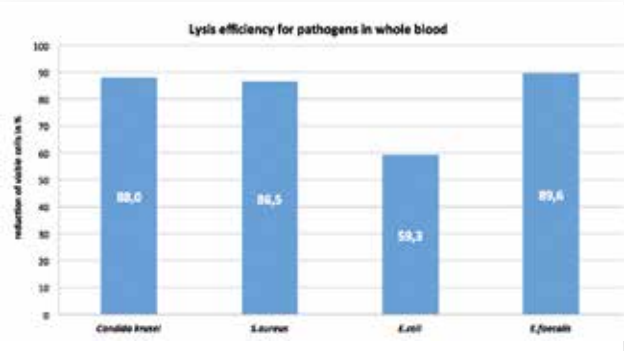
10 lysis tubes, prefilled with glass beads and antifoam agent, 50 mL sample buffer, user manual

Storage conditions and stability

The lysis tubes and buffer can be stored at room temperature and will remain stable for 12 months.

Sample application

Mechanical lysis was performed on pathogens in 5 mL whole blood samples and the efficiency was determined. Whole blood was spiked with pathogens from exponentially growing cultures. Aliquots of the spiked blood—some undergoing mechanical lysis and some not—were diluted, plated onto a suitable substrate and incubated overnight. The number of colonies was counted on the following day.
Data indicate excellent efficiency for fungal cells and for gram+ and gram- pathogens.



Order information

Order number	Quantity
850-301-001-0010	10 reactions
844-MA205-2	Laboratory Notebook

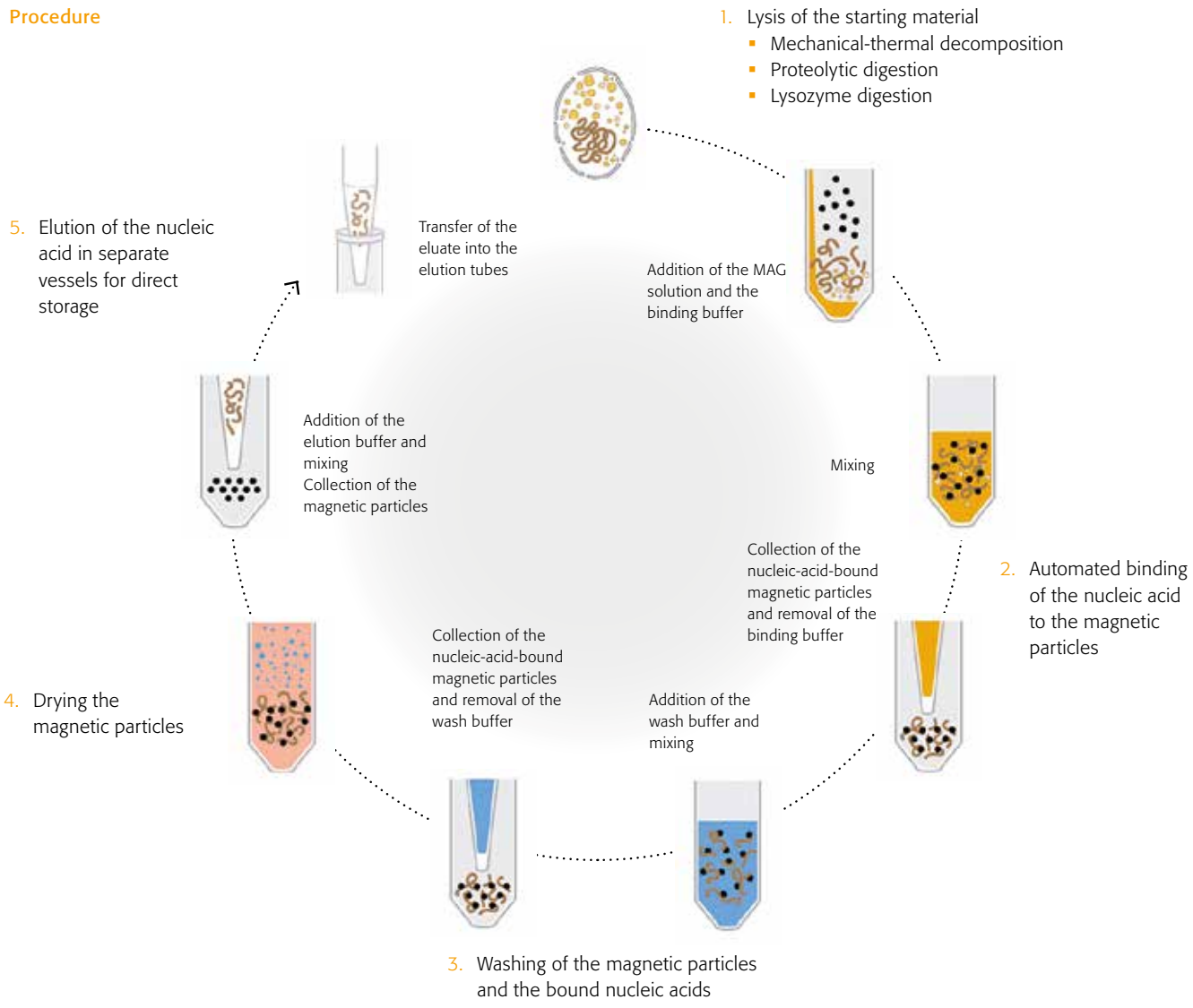
Isolation kits for InnuPure® C16

- Automated DNA and/or RNA isolation from a wide variety of different starting materials
- Highly efficient extraction using optimized magnetic and/or paramagnetic particles
- Processes up to 16 samples in parallel
- Prefilled, sealed Reagent Strips for individual sample handling and/or Reagent Plates for processing groups of 8 samples
- Any potential cross-contamination is kept to an absolute minimum
- Adjustable elution volume

innuPREP Kits – IPC16: Automated nucleic acid isolation using an optimized, universal extraction chemistry

A wide variety of different kits is available for fast, automated nucleic acid isolation on the InnuPure® C16 automated extraction system. Prefilled, sealed reagent plastics make this unit very easy to use, allowing operators to prepare for extraction in just a few manual steps, while the piercing feature of the InnuPure® C16 eliminates the need for opening Reagent Strips/Plates. The result is the nearly complete eradication of any conceivable cross-contamination. All kits make use of the magnetic particle separation principle and are based on Analytik Jena's patented extraction chemistry (DC technology), which unites a stringent lysis buffer with a novel binding buffer system. Extraction produces excellent yields of high-quality RNA and DNA alike. In addition, ultramodern instrument technology provides for highly efficient magnetic bead collection, reducing particle transfer to the final eluate to an absolute minimum. Isolated nucleic acids can then be used in subsequent applications (such as PCR, qPCR, cDNA synthesis, etc.) with no additional purification steps.

Procedure



innuPREP **DNA** Kit-IPC16

- Flexible use: Isolation of genomic DNA from different starting materials
- Automated purification of up to 16 samples when used in conjunction with the InnuPure® C16
- Based on magnetic particle extraction
- Utilizes prefilled, sealed Reagent Plates and/or Strips
- Effectively prevents any potential cross-contamination

Product description

The innuPREP DNA Kit-IPC16 is the universal solution for using the InnuPure® C16 to automate DNA extraction from a wide variety of starting materials. Pre-filled, sealed Reagent Strips and/or Plates make the instrument extremely easy to load—just a few manual steps is all it takes. Using a process based on the magnetic particle separation principle, the nucleic acids are then separated, washed and, finally, eluted. In addition, an optimum combination of novel chemistry and ultramodern instrumentation all but eliminates the risk of transferring magnetic particles to the eluate. High quality and excellent yields characterize the resulting DNA, which is immediately available for subsequent applications such as real-time PCR.

Product specifications

Starting material:

- Tissue samples of up to 20 mg
- Rodent tails up to 1.0 cm in length
- Eucaryotic cells (max. = 5 x 10^6)

Extraction time:

- Lysis: 10–75 minutes (external)
- InnuPure® C16 protcol: 45 minutes

Average yield:

- Depends on the type and quantity of the starting material
- Tissues and rodent tails: up to 50 µg
- Eucaryotic cells: up to 25 µg

Average purity (A_{260}:A_{280}):

1.8 - 2.0

Kit components

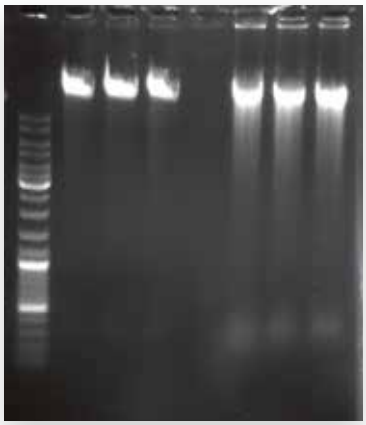
Proteinase K, Lysis Solution, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C–25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Automated purification of genomic DNA from a variety of different tissue samples, 3T3 cells and segments of mouse tail. The isolated DNA was visualized directly on a 0.8% TAE agarose gel.



Lane 1: DNA control;
lanes 2 - 4: DNA from 5 x 10^6 3T3 cells;
lanes: 6 - 8: gDNA from 10 mg heart

Lane 1: DNA control;
lanes 2 - 6: DNA from 0.5 cm segments of mouse tail

Order information

Order number	Quantity
845-IPS-2016016	16 reactions
845-IPS-2016096	96 reactions
845-IPP-2016016	16 reactions
845-IPP-2016096	96 reactions
845-IPP-2016480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel with the InnuPure® C16.

innuPREP **Forensic DNA** Kit-IPC16

- Automized extraction of genomic DNA
- Optimal for smallest forensic or highly contaminated samples
- Successful processing of a large range of different starting materials
- Extraction of high quality DNA for immediate downstream applications
- For usage of InnuPure® C16 and up to 16 samples in parallel

Product description

The innuPREP Forensic DNA Kit-IPC16 is an ideal solution to handle smallest forensic samples in an automized process. Thereby the purification of genomic DNA from up to 16 samples in parallel takes place within InnuPure® C16. The kit has already been proven with positive result using a large number of starting materials. Those are blood and traces of blood, hair, hair roots and beard stubble, cigarette butts, chewing gum, traces of sperm, swab samples e. g. from ear, as well as finger prints on a variety of surfaces and DNA on tooth brush. Based on patented DC-Technology and the principle of magnetic particle separation, even highly degraded nucleic acids can be recovered. Prefilled, sealed reagent plastic allows a fast, uncomplicated preparation of the device and isolation of very pure DNA for direct downstream applications.

Process sequence

1. External lysis
2. DNA is automatically bound to magnetic particles
3. DNA is washed automatically
4. DNA is automatically eluted

Product specifications

Starting material:

- Blood and traces of blood
- Hair, hair roots and beard stubble
- Finger nails
- Stamps and envelopes
- Cigarette butts, chewing gum
- Swab samples and fingerprints taken from surfaces, ear swab, tooth brush
- Traces of sperm, bone meal

Average yield:

- Lysis: approx. 120 minutes (external)
- InnuPure® C16 protocol: approx. 38 - 47 minutes

Durchschnittliche Ausbeute:

- Depends on the sample and the amount used

Average purity (A_{260}:A_{280}):
1,8 - 2,0

Kit components

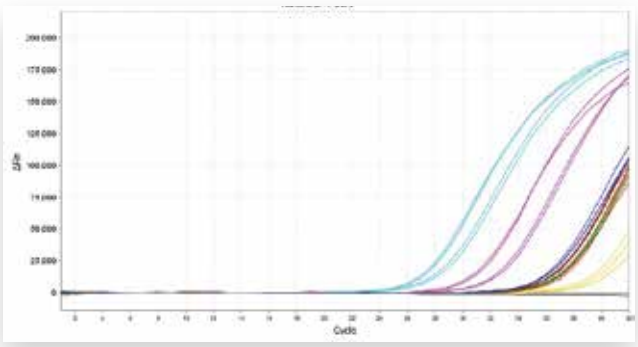
Proteinase K, Lysis Solution, Carrier Mix, prefilled Reagent Strips and/or Plates, tips, Elution Tubes, user manual

Storage conditions and stability

The innuPREP Forensic DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C – 25 °C). The recommended storage temperature for lyophilized proteinase K is 4 °C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The innuPREP Forensic DNA Kit-IPC16 was used to isolate DNA from different forensic material. Afterwards the extracted nucleic acids were amplified in a TaqMan® real-time PCR to assure quality.



TaqMan® real-time PCR amplification plot of GAPDH-gene using genomic DNA of different forensic samples in quadruplicate (turquoise: swab, violet: blood drive, blue: ear swab, brown: tooth brush, green: cigarette, red: chewing gum, yellow: hairs) including NTC (grey).

Order information

Order number	Quantity
845-IPS-2416016	16 reactions
845-IPS-2416096	96 reactions
845-IPP-2416016	16 reactions
845-IPP-2416096	96 reactions
845-IPP-2416480	480 reactions
844-MA205-3	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Blood DNA Mini** Kit-IPC16

- Fully automated DNA extraction from up to 200 µL of whole blood (fresh or frozen)
- Up to 16 samples can be processed in parallel using the InnuPure® C16
- Prevents potential cross-contamination thanks to prefilled, sealed Reagent Strips/Plates
- DNA isolation based on well-established magnetic particle separation principle

Product description

The innuPREP Blood DNA Mini Kit-IPC16 can be used for isolating genomic DNA from up to 200 µL of whole blood. The samples used can be fresh or frozen, and stabilized in either EDTA or citrate. When performed on the InnuPure® C16, extraction is fully automated, yielding highly reproducible results for all 16 samples. The InnuPure® C16 performs all of the processing for lysis, for subsequent isolation steps and for final elution. In addition to pre-filled, sealed Reagent Strips/Plates that reduce manual pipetting steps, the InnuPure® C16 also includes a piercing feature and intelligent tip ejection system that minimize the risk of cross-contamination. The resulting, high-quality DNA is immediately available for additional applications or for storage.

Process sequence

1. Starting material is automatically lysed
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. DNA is automatically eluted

Product specifications

Starting material

- Fresh or frozen whole blood (up to 200 µL)
- Stabilized in EDTA or citrate

Extraction time

- Lysis: internal
- InnuPure® C16 protocol: approx. 75 minutes

Average yield

- Depends on the type and quality of the starting material
- Whole blood samples: up to 10 µg

Average purity (A_{260}:A_{280}):
1.8 - 2.0

Kit components

Proteinase K, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Blood DNA Mini Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C–25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The InnuPure® C16 and innuPREP Blood DNA Mini Kit-IPC16 were used for isolating genomic DNA from 16 whole blood samples. Two Reagent Plates were processed in parallel for this experiment. The extracted DNA was then visualized on a 1.5% TBE agarose gel.

Lanes 1 and 10: DNA control;
lanes 2 - 9: gDNA from whole-blood samples in Reagent plate 1 (200 µL each);
lanes 11 - 18: gDNA from whole-blood samples in Reagent plate 2 (200 µL each)

Order information

Order number	Quantity
845-IPS-1016016	16 reactions
845-IPS-1016096	96 reactions
845-IPP-1016016	16 reactions
845-IPP-1016096	96 reactions
845-IPP-1016480	480 reactions
844-MA205-3	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Blood DNA Midi** Kit-IPC16

- Automated DNA extraction from up to 2 mL whole blood samples using the InnuPure® C16
- Highly reproducible results for the up to 16 samples that can be run
- No measureable cross-contamination thanks to optimized process sequences and pre-filled Strips/Plates
- Optimized magnetic particles with no bleeding

Product description

The innuPREP Blood DNA Midi Kit-IPC16 can be used for automated DNA isolation from 0.5 – 2.0 mL whole blood samples on the InnuPure® C16. The initial work (solubilizing the erythrocytes and pelletizing the nucleated blood cells) are followed by an additional lysis step. The InnuPure® C16 fully automates all subsequent work sequences, such as binding nucleic acids to magnetic particles and then washing and eluting them. In addition to pre-filled, sealed Reagent Strips/Plates, the kit also contains all of the other solutions and consumables, such as elution tubes and tips. The extracted DNA is highly pure and can be analyzed immediately in further downstream applications.

Process sequence

1. External erythrocyte lysis and lymphocyte pelleting
2. External lymphocyte lysis
3. DNA is automatically bound to magnetic particles
4. Bound DNA is automatically washed
5. DNA is automatically eluted

Product specifications

Starting material

- 0.5 to 2 mL samples of whole blood
- Fresh or frozen blood
- Stabilized in EDTA or citrate

Extraction time

- Lysis: 20 – 40 minutes (external)
- InnuPure® C16 protocol: approx. 45 minutes

Average yield

- Depends on the type and quantity of the starting material
- Whole blood samples: up to 10 – 40 µg

Average purity (A_{260}:A_{280})

1.8 - 2.0

Kit components

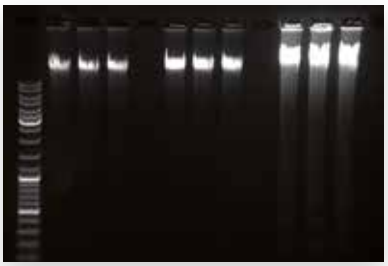
Proteinase K, Lysis Solution, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

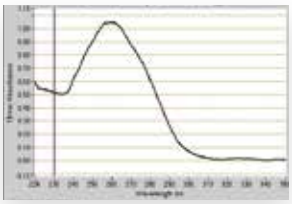
The innuPREP Blood DNA Midi Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C–25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

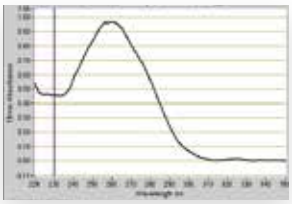
Automated DNA purification from 3 different volumes of whole-blood samples. The extracted genomic DNA was first visualized on a TAE agarose gel and then underwent spectrophotometric testing.



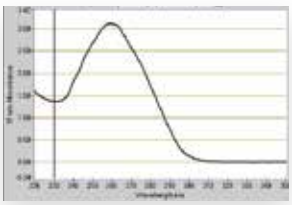
Lane 1: DNA control; **lanes 2 - 4:** gDNA from whole-blood samples (0.5 mL each); **lanes 5 - 7:** gDNA from whole-blood samples (1.0 mL each); **lanes 8 - 10:** gDNA from whole-blood samples (2.0 mL each)



Spectrophotometric DNA testing: 0.5 mL whole-blood sample



Spectrophotometric DNA testing: 1.0 mL whole-blood sample



Spectrophotometric DNA testing: 2.0 mL whole-blood sample

Order information

Order number	Quantity
845-IPS-1216016	16 reactions
845-IPS-1216096	96 reactions
845-IPP-1216016	16 reactions
845-IPP-1216096	96 reactions
845-IPP-1216480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Plant DNA** Kit-IPC16

improved product
better performance

- Ideal for processing fresh or frozen plant material
- Extracts high-quality plant DNA from up to 16 samples in paralle
- Developed and optimized for use with the InnuPure® C16 automated system
- Effective removal of inhibiting by-products such as secondary plant metabolites
- Highly reproducible yields of the DNA to be isolated

Product description

Using the innuPREP Plant DNA Kit-IPC16 allows users to isolate highly pure genomic DNA from a variety of plant materials. Following efficient homogenization using a SpeedMill, other homogenizer, or a mortar and liquid nitrogen, the plant material is lysed, and proteins and polysaccharides are effectively removed in a single precipitation step. Once it has been filtered, the lysate is transferred to pre-filled Reagent Strips and/or Plates. Nucleic acid extraction proceeds automatically on the InnuPure® C16 using a magnetic particle separation process. Because the final eluate is highly pure and free of magnetic particles, it can be used immediately in subsequent applications such as qPCR. The kit has been successfully tested using parsley, chives and rosemary.

Process sequence

1. External homogenization e.g. SpeedMill and lysis of starting material
2. Selective removal of proteins and polysaccharides
3. Automized binding of DNA to magnetic particles
4. Automized washing of bound DNA
5. Automized elution of DNA

Product specifications

Starting material

- Fresh or frozen plant material (up to 100 mg)
- Plant material containing a large proportion of water (up to 100 mg)

Extraction time

- Homogenization:Homogenizer: approx. 30 seconds - 3 minutes
- Liquid nitrogen: approx. 5 - 10 minutes
- Lysis: approx. 40 - 45 minutes
- InnuPure® C16 protocol: approx. 45 minutes

Average yield

- Depends on the type and quantity of the starting material
- Up to 60 µg

Average purity (A_{260}:A_{280})

1.8–2.0

Kit components

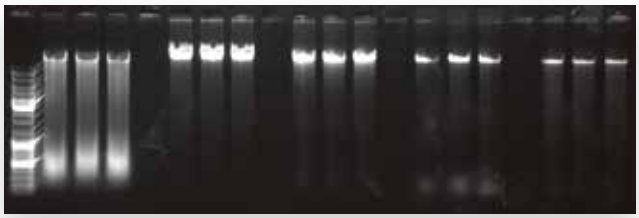
Proteinase K, Lysis Solution, Precipitation Buffer, Prefilter, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Plant DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The InnuPure® C16 was used with the innuPREP Plant DNA Kit-IPC16 for isolating the DNA from 100 mg plant material samples (after homogenization with a SpeedMill). The final step was direct visualization of the nucleic acids on a 0.8% TAE agarose gel.



Lane 1: DNA control;
lanes 2 - 4: grass;
lanes 5 - 7: parsley;
lanes 8 - 10: chives;
lanes 11 - 13: cress;
lanes 14 - 16: rosemary

Order information

Ordner number	Quantity
845-IPS-1516016	16 reactions
845-IPS-1516096	96 reactions
845-IPP-1516016	16 reactions
845-IPP-1516096	96 reactions
845-IPP-1516480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel with the InnuPure® C16.

innuPREP **Food DNA** Kit-IPC16

improved product
better performance

- Automated extraction of genomic DNA from a variety of food samples
- Food categorized into lysis-specific groups, followed by preparation protocol (specific guidelines)
- Isolates large quantities of highly pure DNA without transferring magnetic particles
- No discoloration of the DNA eluate
- RT PCR setup recommendations for each food category

Product description

The innuPREP Food DNA Kit-IPC16 is a simple, safe, automated tool for extracting DNA from a variety of food samples. Thanks to prefilled, sealed Reagent Strips/Plates, using InnuPure® C16 eliminates the need for time-consuming prep steps. Once the starting material has been homogenized (using a homogenizer such as the SpeedMill PLUS) and external lysis is complete, the InnuPure® C16 automated extraction system carries out all of the remaining steps. Based on patented DC technology and the magnetic particle separation principle, the system utilizes a stringent lysis buffer and optimized binding buffer to achieve large yields of high-quality nucleic acids. The isolated DNA contains virtually no inhibitors and is immediately available for subsequent applications (such as qPCR).

Product sequence

1. External lysis of categorized food samples
2. DNA is automatically bound to magnetic particles
3. DNA is automatically washed
4. DNA is automatically eluted

Product specifications

Starting material

Categorized food samples:

- Meat and sausage products
- Canned foods (frankfurters and fish)
- Convenience foods
- Baked goods, chips, muesli
- Chocolate
- Flour, baking mixtures, spices
- Ketchup, mustard, sauces, jams, bread spreads
- Dairy products
- Oils and fats
- Up to 200 mg of material

Extraction time

- Lysis: approx. 60 minutes (external)
- InnuPure® C16 protocol: approx. 38 or 47 minutes

Average yield

Depends on the sample and the amount used

Average purity (A_{260}:A_{280})

1.8–2.0

Kit components

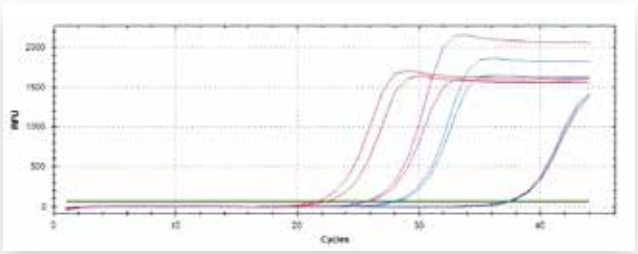
Proteinase K, Lysis Solutions, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Food DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been reconstituted, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Isolating genomic DNA from potato chips served as a basis for successful testing; the results were compared to those from a competing product.



TaqMan® Real-Time PCR curves (double determinations) for the amplified gene in genomic DNA taken from a food sample (paprika-flavored potato chips) (Analytik Jena: red = undiluted sample, pink = 1:10 sample dilution; competing product: turquoise = undiluted sample, blue = 1:10 sample dilution), includes NTC (green).

	Undiluted	1:10 dilution
Analytik Jena AG	21.9	25.7
Competing product	37.4	28.1

Order information

Ordner number	Quantity
845-IPS-5716016	16 reactions
845-IPS-5716096	96 reactions
845-IPP-5716016	16 reactions
845-IPP-5716096	96 reactions
845-IPP-5716480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel with the InnuPure® C16.

innuPREP **FFPE DNA** Kit-IPC16

- Automized and safe extraction of genomic DNA from FFPE (formalin-fixed, paraffin-embedded) tissue samples
- Complete elimination of any steps for removal of paraffin
- Without the need of typically used toxic solvents such as Xylol or Octane
- High quality of isolated DNA from up to 16 samples by InnuPure® C16

Product description

The combination of innuPREP FFPE DNA Kit-IPC16 and InnuPure® C16 offers a platform for easy, safe, automized DNA extraction from formalinfixed, paraffin-embedded (FFPE) tissue samples. Because of a novel chemistry, the typically used, extensive process to remove paraffin is completely eliminated. Thus the isolation of genomic DNA is done without the use of toxic solvents, like Xylol or Octane. An additional Proteinase K digestion breaks down proteins within cell lysates and releases the nucleic acids. Subsequent DNA isolation is performed by magnetic particle separation and is based on patented DC technology using InnuPure® C16. Prefilled, sealed Reagent Strips and/or Plates can significantly reduce the risk of cross-contamination between samples. The highly pure DNA obtained is then available for subsequent applications such as qPCR.

Process sequence

1. External lysis
2. DNA is automatically bound to magnetic particles
3. DNA is washed automatically
4. DNA is automatically eluted

Product specifications

Starting material:

- FFPE tissue samples (formalin-fixed, paraffinembedded)
- Approx. 2x 5 µm, more starting material may also be used (option)

Extraction time:

- Lysis: approx. 120 minutes (external)
- InnuPure® C16 protocol: approx. 38 - 47 minutes

Average yield:
Depends on the sample and the amount used

Average purity (A_{260}:A_{280}):
1,8 - 2,0

Kit components

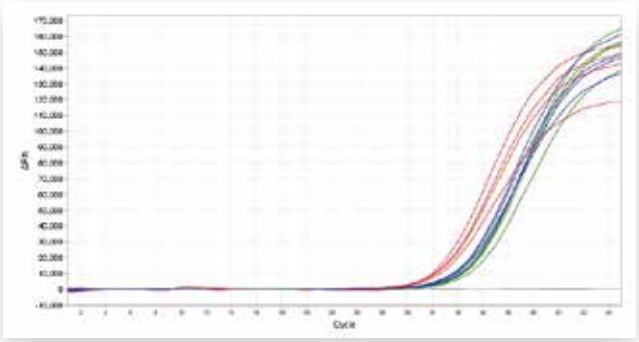
Proteinase K, Lysis Solution, prefilled Reagent Strips and/or Plates, tips, Elution Tubes, user manual

Storage conditions and stability

The innuPREP FFPE DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C – 25 °C). The recommended storage temperature for lyophilized proteinase K is 4 °C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Successful testing by isolating genomic DNA from FFPE tissue samples..



Amplification plot of the TaqMan® real-time PCR of amplified GAPDH-gene of genomic DNA different FFPE-samples in quadruplicate (red: sample 1, blue: sample 2, green: sample 3) including NTC (grey).

Order information

Order number	Quantity
845-IPS-5916016	16 reactions
845-IPS-5916096	96 reactions
845-IPP-5916016	16 reactions
845-IPP-5916096	96 reactions
845-IPP-5916480	480 reactions
844-MA205-3	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Swab DNA** Kit-IPC16

- Automated DNA isolation from buccal swabs using the InnuPure® C16
- Includes swabs (in sterile packaging) for easy sampling
- Pre-filled, sealed reagent delivery format (Strips or Plates) keep prep work to a minimum
- Magnetic particle based extraction method for up to 16 samples in parallel

Product description

The innuPREP Swab DNA Kit-IPC16 has been specially developed for automated extraction of genomic DNA from buccal swabs. Using the InnuPure® C16 in conjunction with pre-filled, sealed Reagent Strips/Plates is a highly efficient method for isolating high-quality genomic DNA. In addition the kit also contains swabs for easy sampling. Lysis is very fast and highly efficient, after which a Prefilter is used for extracting virtually all of the lysate from the swab and transferring it to the Reagent Plastic. The gDNA is then bound to magnetic particles in a subsequent separation step—a process that, like all wash steps and the final elution, are fully automated on the InnuPure® C16. The piercing feature of the InnuPure® C16 makes this process extremely easy to handle, while eliminating the risk of contamination.

Procedure

1. External lysis of the buccal swab
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. DNA is automatically eluted

Product specifications

Starting material
Buccal swabs

Extraction time
- Lysis: 15 minutes
- InnuPure® C16 protocol: approx. 45 minutes

Average yield
- Depends on the quality and quantity of the starting material
- Up to 15 µg DNA

Average purity (A_{260}:A_{280})
1.8 – 2.0

Kit components

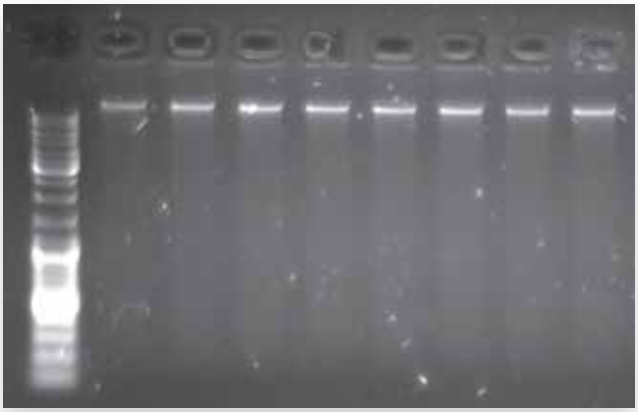
Proteinase K, Lysis Solution, Swabs, Prefilter, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Swab DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The InnuPure® C16 was used for fully automated extraction of gDNA from buccal swabs taken from 8 different test subjects. Eight Reagent Strips from the innuPREP Swab DNA Kit-IPC16 were used for this experiment. The final step was to load the DNA directly onto a 0.8% TAE agarose gel.



Lane 1: DNA control
lanes 2 - 9: highly pure DNA from buccal swabs

Order information

Order number	Quantity
845-IPS-2116016	16 reactions
845-IPS-2116096	96 reactions
845-IPP-2116016	16 reactions
845-IPP-2116096	96 reactions
845-IPP-2116480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel with the InnuPure® C16.

innuPREP **Bacteria DNA** Kit-IPC16

- Optimized for automated bacterial DNA extraction using the InnuPure® C16
- Suitable for tissue samples and for gram- or gram+ bacterial pellets
- Optional cell-wall lysis using lysozyme
- Fast, simultaneous DNA isolation from up to 16 samples thanks to pre-filled Reagent Strips/Plates

Product description

Using the innuPREP Bacteria DNA Kit-IPC16 allows researchers to isolate bacterial DNA both from bacterial cultures (gram+ and gram-) and from tissue samples. The corresponding extraction routine proceeds on the InnuPure® C16 automation system. Following external lysis, the sample is transferred to pre-filled, sealed Reagent Strips/Plates. The subsequent processes of binding the nucleic acid to magnetic particles, washing and final elution are fully automated. The option of initially lysing the cell walls with lysozyme, especially if working with gram+ bacteria is recommended. Yields and purity of the isolated, bacterial DNA are excellent.

Process sequence

1. Optional: External cell-wall lysis with lysozyme
2. External proteolytic digestion
3. DNA is automatically bound to magnetic particles
4. DNA is automatically washed and eluted

Product specifications

Starting material

Bacterial pellets (gram+ and gram-) after culturing (no more than 1 x 10^9)

Extraction time

- Lysis: 30 - 40 minutes
- InnuPure® C16 protocol: approx. 45 minutes

Average yield

- Depends on the type and quantity of the starting material
- Up to 25 µg

Average purity (A_{260}:A_{280})

1.8 - 2.0

Kit components

Proteinase K, Lysis Solution, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Bacteria DNA Midi Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C–25 °C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Automated extraction from an overnight *E. coli* culture. The isolated bacterial DNA was loaded directly onto a 1.5 % TBE agarose gel.

Lane 1: DNA control;
lanes 2 - 17: E. coli-DNA

Order information

Order number	Quantity
845-IPS-5516016	16 reactions
845-IPS-5516096	96 reactions
845-IPP-5516016	16 reactions
845-IPP-5516096	96 reactions
845-IPP-5516480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Mycobacteria DNA** Kit-IPC16

- Automated isolation of mycobacterial DNA from sputum, bronchoalveolar lavages or bacterial cell pellets
- Processes up to 16 samples in parallel using the InnuPure® C16
- Extracted DNA is of high quality
- Cell-wall lysis may be performed either using lysozyme or by elevating the temperature

Product description

When used in conjunction with the InnuPure® C16, the innuPREP Mycobacteria DNA Kit-IPC16 automates the process of extracting mycobacterial DNA from sputum, bronchoalveolar lavages or cultured mycobacterial cell pellets. Cell walls can be lysed either by treating with lysozyme or, alternately, by raising the temperature. This is followed by proteinase K digestion to break down proteins in the cell lysates and to release the nucleic acids. Subsequent DNA isolation is performed using magnetic particle separation and is based on patented DC technology. Prefilled, sealed Reagent Strips and/or Plates can significantly reduce the risk of cross-contamination between samples.

Process sequence

1. External lysis
2. DNA is automatically bound to magnetic particles
3. DNA is washed automatically
4. DNA is automatically eluted

Product specifications

Starting material:

- Mycobacterial cell pellets (max. 1 x 10^9 cells)
- Sputum
- Bronchoalveolar lavages (up to 1 mL)

Extraction time:

- Lysis: Mycobacterial cell pellets, approx. 55 – 65 minutes (external)
- Sputum samples, approx. 105 minutes (external)
- Bronchoalveolar lavages, approx. 60 – 75 minutes (external)
- InnuPure® C16 protocol: approx. 45 minutes

Average yield:
Depends on the sample and the volumes used

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

Proteinase K, Lysis Solution, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Mycobacteria DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at – 20°C, because repeated freezing and thawing will significantly reduce its activity.

Order information

Order number	Quantity
845-IPS-5816016	16 reactions
845-IPS-5816096	96 reactions
845-IPP-5816016	16 reactions
845-IPP-5816096	96 reactions
845-IPP-5816480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

innuPREP **Stool DNA** Kit-IPC16

- Ideal for automatically isolating bacterial DNA from fresh or frozen stool samples
- For use with the InnuPure® C16 and for processing up to 16 samples in parallel
- Isolates highly pure DNA without transferring magnetic particles
- Includes pre-filled, sealed Reagent Strips/Plates that keep prep work to a minimum
- Effectively prevents any potential cross-contamination

Product description

The innuPREP Stool DNA Kit-IPC16 has been specially designed for automated isolation of bacterial DNA from stool samples. Pre-filled, sealed Reagent Strips or Plates reduce time-consuming manual preparation steps to an absolute minimum. The first steps are to homogenize the starting material (using a homogenizer such as the SpeedMill) followed by external lysis. The InnuPure® C16 then carries out all of the remaining steps, which include binding bacterial DNA to magnetic and/or paramagnetic particles, washing the DNA and automatically transferring it to a closeable elution tube. Using a stringent lysis buffer in conjunction with an optimized binding buffer produces excellent yields of high-quality nucleic acid. The near complete removal of all inhibitors means that the isolated DNA can be used immediately afterwards in further applications.

Process sequence

1. Homogenization of starting material (e.g., SpeedMill)
2. External lysis of the starting material
3. DNA is automatically bound to magnetic particles
4. Bound DNA is automatically washed
5. DNA is automatically eluted

Product specifications

Starting material

- Solid stool samples (fresh or frozen) up to a maximum of 100 mg
- 100–300 µL of liquid stool samples

Extraction time

- Homogenization: maximum = 3 minutes
- Lysis: 30 minutes
- InnuPure® C16 protocol: approx. 45 minutes

Average yield

Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280})

1.8 – 2.0

Kit components

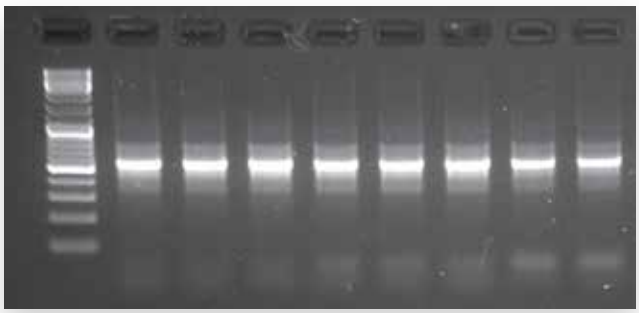
Proteinase K, Lysis Solution, Precipitation Buffer, Prefilter, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Stool DNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C–25 °C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Stool samples of 100 mg each were used for automated DNA extraction in the InnuPure® C16 (with 8 Reagent Strips). This was followed by PCR specific to *E. coli*. Visualizing the amplification products on an agarose gel was the final step.



Lane 1: DNA control;
lanes 2 - 9: *E. coli*-specific amplification products

Order information

Order number	Quantity
845-IPS-3016016	16 reactions
845-IPS-3016096	96 reactions
845-IPP-3016016	16 reactions
845-IPP-3016096	96 reactions
845-IPP-3016480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel with the InnuPure® C16.

innuPREP **Virus DNA/RNA** Kit-IPC16

- Novel kit for isolating viral DNA and RNA using InnuPure® C16
- Optimized for processing serum, plasma, cell-free bodily fluids, cell culture supernatants, swabs and even stool samples
- Up to 16 samples can be run in parallel when used with InnuPure® C16
- Sealed consumables effectively reduce cross-contamination
- Carrier Mix for internal extraction monitoring

Product description

The novel innuPREP Virus DNA/RNA Kit-IPC16 is an extraction kit for isolating viral DNA and RNA at the same time and from the same sample. Used in conjunction with the InnuPure® C16, the kit is suitable for an exceptionally wide variety of starting materials. The kit contains carrier nucleic acids so that researchers can perform an internal extraction control to prevent false-negative findings (using innuDETECT Internal Control kits, p. 141). The system automatically processes up to 16 samples in pre-filled Reagent Strips/Plates. In addition to internal lysis, the viral nucleic acids are bound to magnetic and/or paramagnetic particles, washed and then eluted. The sealed Reagent Plastic and the piercing feature of the InnuPure® C16 effectively prevent cross-contamination among samples. Manual prep steps are reduced as well, which minimizes contact between users and infectious materials.

Process sequence

1. Combine the Carrier Mix and lysis buffer
2. Internal lysis occurs once the sample is added
3. Viral DNA/RNA is automatically bound to magnetic particles
4. Bound viral DNA/RNA is automatically washed
5. Final, automated elution of viral DNA/RNA

Product specifications

Starting material

- Serum (200 µL)
- Plasma (200 µL)
- Cell-free bodily fluids (200 µL)
- Cell culture supernatants (200 µL)
- Swab samples
- Stool samples (200 µL)

Extraction time

- Lysis: internal
- InnuPure® C16 protocol: approx. 75 minutes

Average yield

Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280})

1.8 - 2.0

Kit components

Proteinase K, Lysis Solution, Carrier Mix, prefilled Reagent Strips and/or Plates, tips, elution tubes, user manual

Storage conditions and stability

The innuPREP Virus DNA/RNA Kit-IPC16 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C–25 °C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at –20°C, because repeated freezing and thawing will significantly reduce its activity.

Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-IPS-5016016	16 reactions
845-IPS-5016096	96 reactions
845-IPP-5016016	16 reactions
845-IPP-5016096	96 reactions
845-IPP-5016480	480 reactions
844-MA205-2	Laboratory Notebook

IPS = Kit contains prefilled Reagent Strips for processing individual samples
IPP = Kit contains prefilled Reagent Plates for running 8 samples in parallel
Note: Prefilled Reagent Strips and Reagent Plates can be used in parallel in the InnuPure® C16.

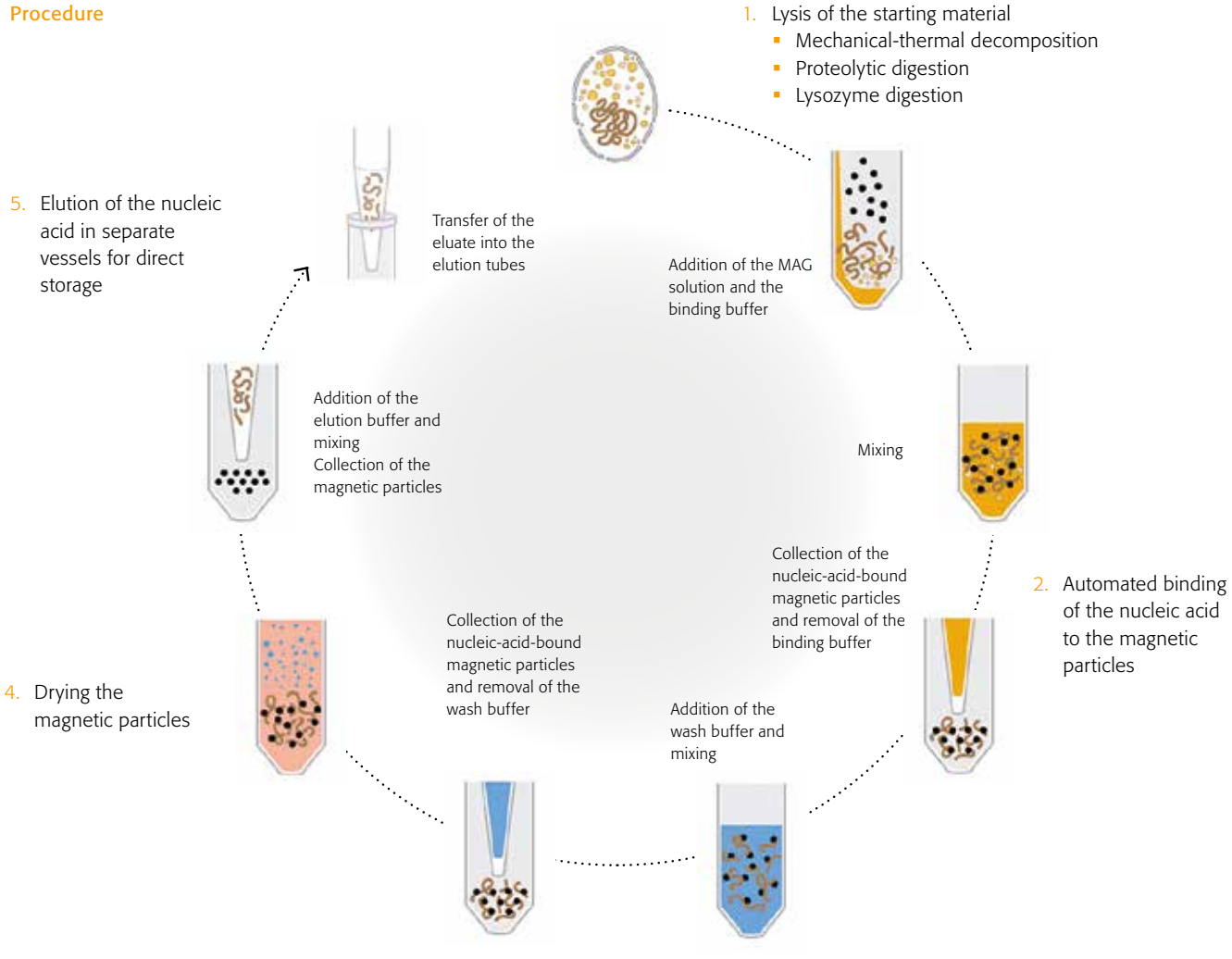
Isolation kits for the InnuPure® C96

- Efficient purification kits for a large variety of possible starting materials for fully automatic isolation of nucleic acids
- Includes pre-filled Reagent Plates to minimize manual handling steps
- Based on the well-established magnetic particle separation for excellent yields and high-quality DNA/RNA
- Simultaneous fully automatic processing of up to 96 samples
- Provision and purging of all necessary Reagents during the nucleic acid extraction through automated pipetting

Flexible, optimized kits for simple and rapid nucleic acid purification

A variety of different DNA/RNA extraction kits are available for the InnuPure® C96. Based on the well-established nucleic acid separation via the binding of the DNA/RNA to magnetic particles, excellent results with a high purity and yield are also guaranteed in the 96 well format. It is ensured that the end product is free of proteins, nucleases and other contaminants and can be immediately used for subsequent applications. The complete system provides a significant time savings. Manual interventions can be kept to the absolute minimum with the aid of pre-filled Reagent Plasticware, an integrated lysis step (optimized for the corresponding starting materials), as well as pipetting, mixing and heating steps contained in the routine. The entire purification process is completely taken over by InnuPure® C96, and thus possible contaminations can be specifically reduced. In addition, the elution of high-quality nucleic acids takes place in a separate 96 well microplate. The previously defined volume can be adjusted in an application-specific manner. All components needed for high throughput extraction in a 96 well format are contained in the kits.

Procedure



innuPREP **Blood DNA Mini** Kit-IPC96

- InnuPure® C96 for fully automated extraction routines; accommodates whole blood samples of up to 200 µL in volume
- Processes 96 samples in parallel
- Reliable, reproducible extraction of high-quality DNA
- Specially optimized magnetic particles prevent bleeding effects
- Pre-filled Reagent Plates for minimum hands-on time

Product description

The innuPREP Blood DNA Mini Kit-IPC96 is a highly efficient tool for extracting genomic DNA from whole blood samples of up to 200 µL in volume. This completely integrates the lysis step into the automated extraction routine on the InnuPure® C96. The protocol also includes binding DNA to magnetic particles, washing the genomic DNA and the final elution step (in separate Elution Plates). This eliminates the manual pipetting steps that would be required to transfer the nucleic acids to appropriate storage vessels. Cross-contamination is reliably prevented thanks to the kit's pre-filled, sealed Reagent Plates, that also reduces hands-on time to an absolute minimum.

Process sequence

1. Automatic lysis of starting material
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. DNA is automatically eluted

Product specifications

Starting material

- Fresh or frozen whole blood (up to 200 µL)
- Stabilized with EDTA or citrate

Extraction time

- Lysis: internal lysis
- InnuPure® C96 protocol: approx. 85 min.

Average yield

- Depends on the whole-blood sample used
- Up to 10 µg

Average purity (A_{260}:A_{280})

1.7 – 2.0

Kit components

Prefilled Reagent Plates, tips, Sample Plate, Elution Plate, user manual

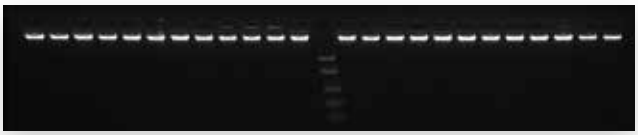
Storage conditions and stability

The innuPREP Blood DNA Mini Kit-IPC96 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C – 25 °C).

Sample application

Fully automated extraction of human genomic DNA from 200 µL whole blood samples (fresh, EDTA). The isolated DNA was directly applied to a 1.5 % TAE agarose gel (120 V, 25 min, 200 ms).

Lane 1 – 12: human gDNA from 200 µl blood, Position A1-A12
Lane 13: DNA ladder
Lane: 14 – 25: human gDNA from 200 µl blood, Position B1-B12



Lane 26 – 37: human gDNA from 200 µl blood, Position C1-C12
Lane 38: DNA ladder
Lane: 39 – 50: human gDNA from 200 µl blood, Position D1-D12

Lane 51 – 62: human gDNA from 200 µl blood, Position E1 - E12
Lane 63: DNA ladder
Lane: 64 – 75: human gDNA from 200 µl blood, Position F1-F12

Lane 76 – 87: human gDNA from 200 µl blood, Position G1-G12
Lane 88: DNA ladder
Lane: 89 – 100: human gDNA from 200 µl blood, Position H1-H12

Order information

Order number	Quantity
845-IP-1096096	96 reactions
845-IP-1096480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA/RNA** Kit-IPC96

- Automated isolation of viral DNA and RNA from serum, plasma and other cell-free bodily fluids or supernatants from cell cultures
- Extraction based on magnetic particles and is optimized for the InnuPure® C96
- Prefilled, sealed Reagent Plates keep prep work to a minimum
- Initial lysis of the starting material is integrated in the automated process

Product description

When used in combination with the InnuPure® C96, the innuPREP Virus DNA/RNA Kit-IPC96 serves as a tool for automated isolation of viral DNA from a wide variety of starting materials. Isolation is based on mangetic particle separation. Therefore the whole procedure to extract nucleic acids is completely automated on the InnuPure® C96. After a fast stringent lysis step, the viral DNA/RNA are then bound to magnetic particles, washed multiple times and then eluted in a final step into a 96 well plate. Prefilled, sealed Reagent Plates allow researchers to all but rule out the risk of cross-contamination between samples. The rate of errors as well as manual handling steps are reduced to an absolutely minimum.

Process sequence

1. Internal lysis
2. DNA is automatically bound to magnetic particles
3. DNA is washed automatically
4. DNA is automatically eluted

Product specifications

Starting material

- Serum (200 µL)
- Plasma (200 µL)
- Supernatants from cell cultures (200 µL)
- Cell-free bodily fluids (200 µL)

Extraction time

- Lysis: Internal lysis
- InnuPure® C96 protocol: approx. 90 minutes

DNA quality

Positive PCR, cDNA synthesis and TaqMan® real-time PCR testing results

Kit components

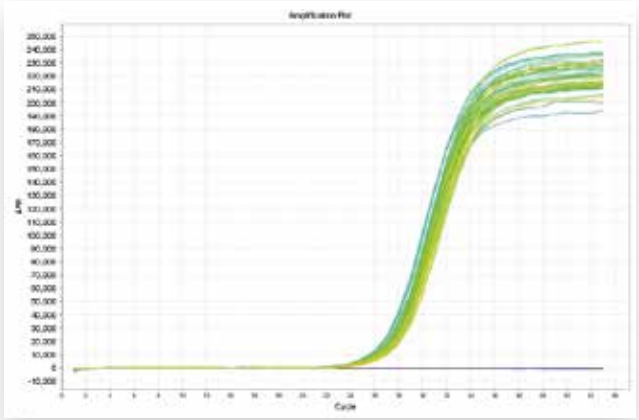
Prefilled Reagent Plates, tips, Sample Plate, Elution Plate, user manual

Storage conditions and stability

The innuPREP Virus DNA/RNA Kit-IPC96 will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C – 25 °C).

Sample application

A RNA virus was first spiked in serum. This was followed by automated RNA extraction using the innuPREP Virus DNA/RNA Kit-IPC96. A TaqMan® Real-Time PCR was performed after cDNA synthesis to verify the presence of the virus.



Amplification plot of a TaqMan® Real-Time PCR specific to the RNA virus.

Order information

Order number	Quantity
845-IP-5112096	96 reactions
845-IP-5112480	480 reactions
844-MA205-2	Laboratory Notebook

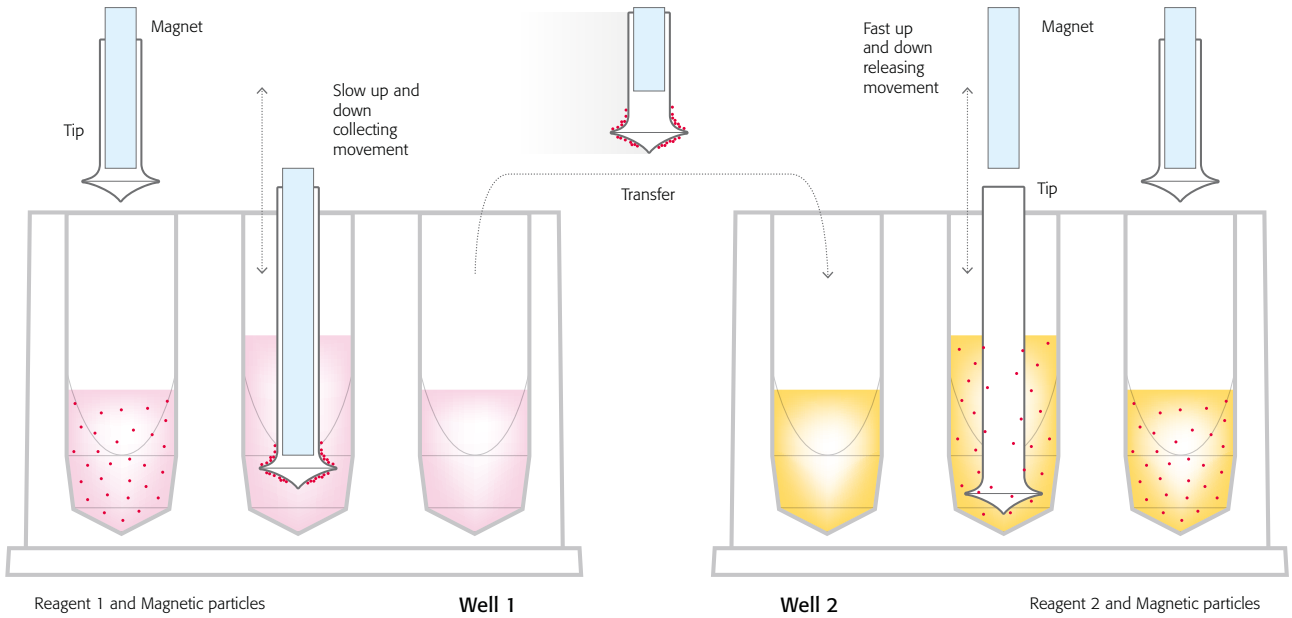
Isolation kits for KingFisher® systems

- Automated nucleic acid extraction for medium to high throughput
- 1 – 15 and/or 24 and 96 samples can be processed in parallel
- Optimized products for the KingFisher® mL and KingFisher® FLEX automated extraction systems
- Manual filling protocols makes these kits flexible and adaptable
- Based on magnetic particle separation using magnetic or paramagnetic particles
- Workflows are especially fast and easy for samples up to 1 mL

innuPREP Kits – KF: nucleic acid extraction using the KingFisher® mL or KingFisher® FLEX extraction systems

Patented DC technology also serves as the basis for extraction chemistry developed at Analytik Jena for use on KingFisher® processors. Combining highly stringent lysis buffer with a special binding buffer shortens the overall DNA/RNA isolation process tremendously, while achieving exceptionally high yields and excellent purity.
The manual filling protocols makes all KingFisher® kits flexible and adjustable. These automated systems do not involve any pipetting steps, and transfer magnetic particles from one solution to the next using a stamp and plastic comb. Rapid up and down movements mix the samples.
A large number of isolation products are available for an extremely wide variety of starting materials. In addition to genomic DNA from human samples, these systems can also isolate bacterial and viral nucleic acids from cultures and cell-free fluids. The DNA and/or RNA obtained in this way is immediately available for use in subsequent applications. No additional cleanup step required.

Procedure



innuPREP **DNA I** Kit - KFml

- Flexible, automated DNA purification using the KingFisher® ml
- Optimized for a variety of different starting materials
- Saves considerable time by processing up to 15 samples in parallel
- Extremely efficient lysis and high DNA yields

Product description

The innuPREP DNA I Kit-KFml has been optimized for automated DNA extraction using the KingFisher® ml processor. The kit yields highly pure DNA from whole blood samples as well as from (paraffin-embedded) tissue samples, mouse tails or buccal swabs. The extraction method is based on the principle of magnetic particle separation and utilizes patented chemistry from Analytik Jena AG. The kit contains all of the Reagents and plastic supplies needed for lysis and the automated process. Large yields of high-quality DNA are then available for later downstream applications within a very short period of time.

Product specifications

Starting material:

- Whole blood samples (up to 150 µl)
- Tissue samples of up to 30 mg
- Rodent tail specimens (0.4 cm – 1.0 cm)
- Paraffin samples (FFPE material: formalin-fixed, paraffin-embedded)
- Buccal swabs

Extraction time:

- Lysis: Whole blood samples: approx. 20 min
  Tissue samples and rodent tails: approx. 30 min – 3 h
  Paraffin samples (FFPE material): approx. 2 h
  Swabs: approx. 10 – 15 min
- KingFisher® ml protocol: approx. 28 min

Average yield:

- Depends on the type and quantity of the starting material
- Typical yield from 30 mg of tissue: 4 – 14 µg
- Typical yield from 150 µl of whole blood: 4 – 10 µg

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

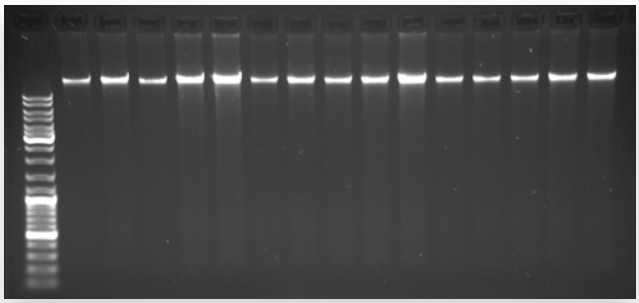
Lysis Solution, Proteinase K, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

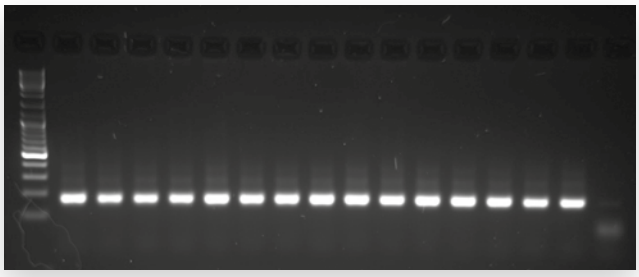
The innuPREP DNA I Kit-KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The innuPREP DNA I Kit-KFml and the KingFisher® ml system were used to isolate highly pure DNA from 150 µl whole blood samples. The DNA was visualized on a 0.8 % TAE agarose gel. A GAPDH-PCR was then carried out and the amplification products were analyzed on a second agarose gel.



Lane 1: DNA ladder
Lane 2 – 16: DNA from 150 µl whole blood samples



Lane 1: DNA ladder
Lane 2 – 16: GAPDH PCR products
Lane 17: Negative control

Order information

Order number	Quantity
845-KF-8015015	15 reactions
845-KF-8015250	250 reactions
845-KF-8015750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Bacteria DNA** Kit - KFml

- Highly efficient tool for isolating bacterial DNA from gram+ or gram– cell pellets
- Optimized for extracting up to 15 samples using the KingFisher® ml
- Different lysis protocols ensure effective sample break-down and maximum DNA yields
- Automated process for isolating high-quality DNA within an extremely short period of time

Product description

The innuPREP Bacteria DNA Kit-KFml has been designed specifically for use with the KingFisher® ml automated extraction system. The kit offers more than one lysis protocol: optimized lysozyme digestion or efficient thermal/mechanical breakdown with a homogenizer (such as the SpeedMill). These distinct approaches allow researchers to easily adapt the innuPREP Bacteria DNA Kit-KFml to different bacteria. Plus, the kit also contains all of the Reagents and consumables needed for magnetic particle separation. The overall system is easy to use, isolates high-quality nucleic acids and produces outstanding yields.

Procedure

1. Mechanical/thermal breakdown or lysozyme digestion of starting material
2. External proteolytic lysis
3. DNA is automatically bound to magnetic particles
4. Bound DNA is automatically washed
5. DNA is automatically eluted

Product specifications

Starting material:

- 1.0 ml bacterial culture
- Gram+ or gram– bacterial cell pellets

Extraction time:

- Lysis: approx. 40 – 45 minutes
- KingFisher® ml protocol: approx. 30 minutes

Average yield:

Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280}):

1.7 – 2.0

Kit components

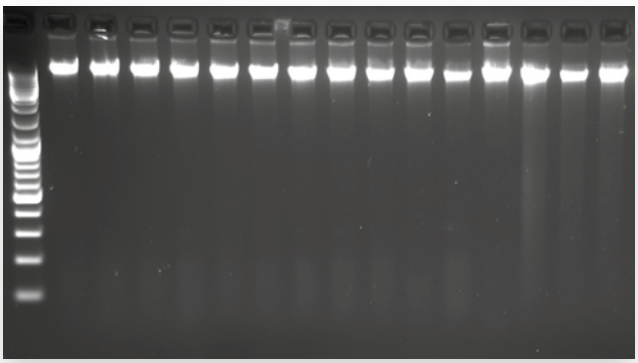
Lysis Tubes, Lysis Solution, Proteinase K, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

The innuPREP Bacteria DNA Kit-KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The KingFisher® ml system and the innuPREP Bacteria DNA Kit-KFml were used to process 15 samples from an *E.coli* overnight culture. The isolated DNA was then loaded directly on a 0.8 % TAE agarose gel and visualized.



Lane 1: DNA ladder
Lane 2 – 16: Bacterial DNA (*E.coli* overnight culture)

Order information

Order number	Quantity
845-KF-6015015	15 reactions
845-KF-6015250	250 reactions
845-KF-6015750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA** Kit - KFml

- Automated tool for isolating high-quality viral DNA from an extremely wide variety of starting materials
- Optimized for using the KingFisher® ml automated extraction system
- Processes up to 15 samples in parallel

Product description

The innuPREP Virus DNA Kit - KFml is a fast, efficient tool for extracting viral DNA using the KingFisher® ml. The purification principle is based on magnetic particle separation and uses Analytik Jena's patented extraction chemistry (DC technology), making extremely high-quality viral nucleic acids available within a very short period of time. The kit is designed as a universal tool for an exceptionally wide variety of starting materials, such as cell-free bodily fluids, cell culture supernatants, tissue samples, biopsies and paraffin-embedded tissue samples.

Procedure

1. External lysis of the starting material
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. Automated, final elution in a low-salt buffer

Product specifications

Starting material:

- Cell-free bodily fluids such as serum, plasma and cerebrospinal fluid (up to 200 µl)
- Cell culture supernatant, enrichment medium (up to 200 µl)
- Tissues and biopsies (approx. 1 – 10 mg)
- Swab samples

Extraction time:

- Lysis: approx. 15 – 30 minutes, up to 90 minutes for tissue samples
- KingFisher® ml protocol: approx. 30 minutes

DNA quality:

Positive PCR and TaqMan® real-time PCR testing results

Kit components

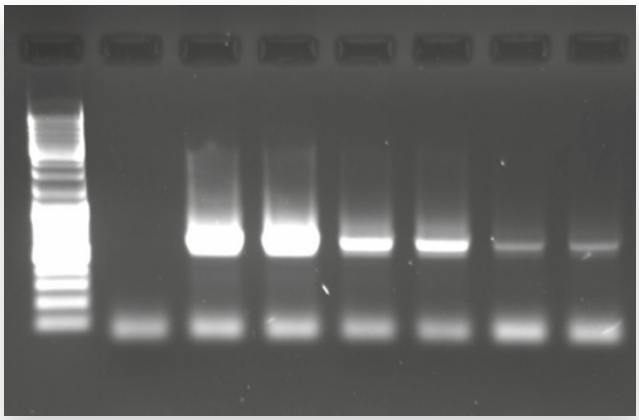
Lysis Solution, Proteinase K, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

The innuPREP Virus DNA Kit-KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The KingFisher® ml system was used to automate extraction of viral DNA from serum. A series of three 1:10 dilutions were prepared from a starting concentration of 7×10^5 DNA viruses per ml. The isolated DNA was then introduced into a virus-specific PCR and amplified (double determinations).



Lane 1: DNA ladder
Lane 2: Negative control
Lane 3 – 4: PCR products, 1:10 dilution of the starting material
Lane 5 – 6: PCR products, 1:100 dilution of the starting material
Lane 7 – 8: PCR products, 1:1,000 dilution of the starting material

Order information

Order number	Quantity
845-KF-4715015	15 reactions
845-KF-4715250	250 reactions
845-KF-4715750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus RNA** Kit - KFml

- Optimized for automated extraction of viral RNA
- For use with the KingFisher® ml automation system
- Wide variety of potential starting materials
- Based on automated magnetic particle separation
- Processes up to 15 samples in parallel

Product description

The innuPREP Virus RNA Kit-KFml can be used in conjunction with the KingFisher® ml automated extraction system. Magnetic particle separation technology makes it possible to process up to 15 samples quickly and in parallel. The kit has been adapted to work with a large number of different starting materials. The viral RNA eluted in the final step is ready for use and can easily be introduced into downstream applications such as real-time PCR. The kit contains all of the Reagents and consumables needed for fast, uncomplicated RNA purification.

Procedure

1. External lysis of the starting material
2. Viral RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Final automated elution

Product specifications

Starting material:

- Cell-free bodily fluids such as serum, plasma and cerebrospinal fluid (up to 200 µl)
- Cell culture supernatant, enrichment medium (up to 200 µl)
- Tissues (approx. 1 – 5 mg)
- Swab samples
- Stool samples (approx. 50 – 100 mg)

Extraction time:

- Lysis: approx. 15 – 30 minutes, up to 60 minutes for tissue samples
- KingFisher® ml protocol: approx. 30 minutes

Quality of viral RNA:

Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

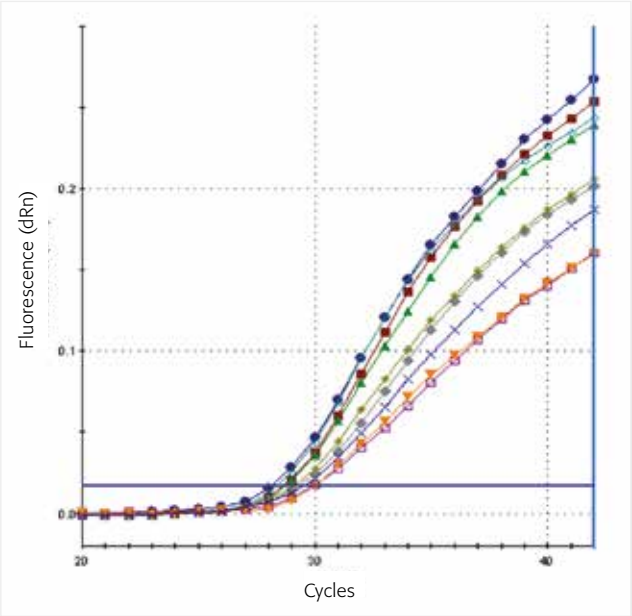
Lysis Solution, Binding Solution, Washing Solutions, RNase-free water, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

The innuPREP Virus RNA Kit-KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for the MAG Suspension is 4 °C.

Sample application

Shown in this image is a specific TaqMan® real-time PCR for detecting classical swine fever virus (CSFV). This involved automated extraction of RNA from organ grit, transcribing the RNA to cDNA and then testing for the virus.



Amplification plot of the CSFV-specific TaqMan® real-time PCR [1]

[1] Data provided with kind permission from Dr. A. Engelhardt, LUA Berlin, Germany

Order information

Order number	Quantity
845-KF-4515015	15 reactions
845-KF-4515250	250 reactions
845-KF-4515750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Virus DNA/RNA** Kit - KFml

improved product
better performance

- Parallel extraction produces high yields of high-quality viral DNA and RNA
- Based on automated magnetic particle separation
- Up to 15 samples can be processed in parallel
- Optimized for KingFisher® ml automation systems
- Includes Carrier Mix with internal DNA and RNA extraction control

Product description

The innuPREP Virus DNA/RNA Kit - KFml is an extraction system for isolating viral DNA and RNA simultaneously. The kit is suitable for use with an extremely wide variety of starting materials. Binding nucleic acids to magnetic particles forms the basis for the automated routine, along with the use of the KingFisher® ml processor. Up to 15 samples can be processed in parallel following a fast, highly efficient lysis step. Excellent yields of extremely high-quality nucleic acids are eluted in the final step and the resulting DNA can be used directly in downstream applications.

Procedure

1. External lysis of the starting material
2. Viral nucleic acids are automatically bound to magnetic particles
3. Bound nucleic acids are automatically washed
4. Final, automated elution of DNA and RNA

Product specifications

Starting material:

- Cell-free bodily fluids such as serum, plasma and cerebrospinal fluid (up to 200 µl)
- Cell culture supernatant, enrichment medium (up to 200 µl)
- Tissue samples (approx. 1 – 5 mg)
- Swab samples

Extraction time:

- Lysis: approx. 15 – 30 minutes, up to 60 minutes for tissue samples
- KingFisher® ml protocol: approx. 30 minutes

Quality of viral nucleic acids:
Tested with positive results in cDNA synthesis, PCR and TaqMan® real-time PCR

Kit components

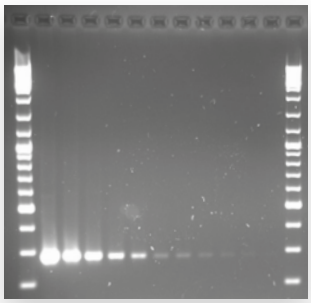
Lysis Solution, Binding Solution, Carrier Mix, Washing Solutions, RNase-free water, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

The innuPREP Virus DNA/RNA Kit - KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C – 25 °C). The recommended storage temperature for the MAG Suspension is 4 °C.

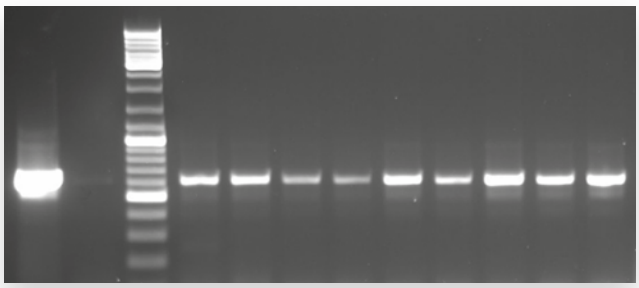
Sample application

The KingFisher® ml and the innuPREP Virus DNA/RNA Kit - KFml were used to extract viral RNA from serum (1:10 dilutions of a DNA virus in patient serum). This was followed first by cDNA synthesis and then a PCR. In the final step, the PCR products were visualized on an agarose gel.



Lane 1 and 12: DNA ladder
Lane 2 – 11: PCR products (serum dilutions ranging from 1:10 to $1:10^{11}$)

A DNA virus was diluted in different patient serum samples. This was followed by DNA extraction (using the innuPREP Virus DNA/RNA Kit - KFml) and a virus-specific PCR. The following image shows the amplification products.



Lane 1: Positive control, **lane 2:** Negative control, **lane 3:** DNA ladder, **lane 4 – 12:** Virus-specific PCR products

Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KF-4615015	15 reactions
845-KF-4615250	250 reactions
845-KF-4615750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **BTV RNA** Kit-KFml

- Optimized, automated extraction of BTV RNA from whole blood samples
- Kit for the KingFisher® ml automated extraction system; simultaneous processing of up to 15 samples
- High-quality RNA within a very short period of time

Product description

The innuPREP BTV RNA Kit-KFml with the KingFisher® ml extraction system combine to make an efficient tool for isolating bluetongue virus (BTV) nucleic acids from up to 15 whole blood samples simultaneously. Lysis is followed by all subsequent steps, such as binding the RNA to magnetic particles, washing the nucleic acid and, finally, fully automated elution on the KingFisher® ml. The kit contains all of the Reagents and plastic supplies needed. The innuPREP BTV RNA Kit-KFml is easy to use and produces high yields of extremely high-quality RNA.

Procedure

1. External lysis of the whole blood sample
2. Viral RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Final automated BTV RNA elution

Product specifications

Starting material:
Whole blood samples (200 µl max.)

Extraction time:
- Lysis: approx. 15 minutes
- KingFisher® ml protocol: approx. 30 minutes

Quality of viral RNA:
Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

Lysis Solution, Proteinase K, Binding Solution, Washing Solutions, RNase-free water, MAG Suspension, KingFisher® Tip Combs, KingFisher® Tube Strips, user manual

Storage conditions and stability

The innuPREP BTV RNA Kit-KFml will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Order information

Order number	Quantity
845-KF-4815015	15 reactions
845-KF-4815250	250 reactions
845-KF-4815750	750 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Tissue DNA** Kit - KF96 & KFFLX

improved product
better performance

- Extraction kit for automated DNA extraction using the KingFisher® 96 or the KingFisher® FLEX
- Highly effective processing of up to 96 samples in parallel
- Isolation of high-quality DNA from a variety of different tissue samples within a very short period of time
- Includes protocol for paraffin samples (FFPE material: paraffin-fixed, formalin-embedded)

Product description

The innuPREP Tissue DNA Kit-KF96 & KFFLX contains all of the Reagents and consumables needed for automated extraction of DNA from tissue samples, rodent tails and paraffin samples (FFPE material). The kit can be used for both the KingFisher® 96 and the KingFisher® FLEX, making it suitable for processing samples at high throughput rates (up to 96 samples in parallel). Based on magnetic particle separation in combination with Analytik Jena's patented extraction chemistry, the kit allows researchers to purify large amounts of extremely high-quality nucleic acids. These are then available immediately for subsequent use as a template for a wide variety of downstream applications.

Procedure

1. External, highly efficient lysis of tissue samples
2. DNA is automatically bound to magnetic particles
3. Bound nucleic acids are automatically washed
4. Automated elution in a 96 well plate

Product specifications

Starting material:

- Tissue samples of up to 30 mg
- Rodent tail specimens (0.4 cm – 0.8 cm)
- FFPE tissue samples (formalin-fixed, paraffin-embedded)

Extraction time:

- Lysis: Tissue samples and rodent tails: approx. 30 min – 3 h
  FFPE tissue samples: approx. 2 h
- KingFisher® 96 protocol: approx. 39 minutes
- KingFisher® FLEX protocol: approx. 39 minutes

Average yield:

- Depends on the type and quantity of the starting material
- Typical yield from 30 mg of tissue: 4 – 14 µg

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

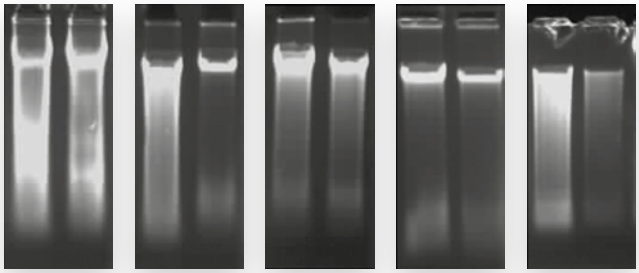
Lysis Solution, Proteinase K, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

The innuPREP Tissue DNA Kit-KF96 & KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Bovine tissue samples from different animals were used for automated DNA extraction in the KingFisher® 96. Spleen, uterus, lymph nodes, heart and kidney samples (20 mg each) were first homogenized using the SpeedMill P12 and then lysed in the KingFisher® 96 automation system. In the final step, the extracted DNA was loaded directly onto an agarose gel.



Lane 1 and 2: Spleen genomic DNA
Lane 3 and 4: Uterine genomic DNA
Lane 5 and 6: Lymph node genomic DNA
Lane 7 and 8: Heart genomic DNA
Lane 9 and 10: Kidney genomic DNA

[1] Dr. A. Bondzio of the Institut für Veterinärbiochemie at the Freie Universität Berlin kindly granted permission for the use of this image.

Order information

Order number	Quantity
845-KF-7115096	96 reactions
845-KF-7115480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Stool DNA** Kit - KF96 & KFFLX

improved product
better performance

- Efficient extraction kit for the KingFisher® 96 processor or KingFisher® FLEX
- Fast, automated extraction of bacterial DNA from stool samples
- Processes up to 96 samples in parallel under high-throughput conditions
- Isolates highly pure, ready-to-use DNA for a number of later downstream applications

Product description

The innuPREP Stool DNA Kit-KF96 & KFFLX is an extraction system for isolating DNA from fresh or frozen, solid or liquid stool samples. The kit was developed specifically for use with the KingFisher® 96 automation system and, as such, is especially well suited for high sample throughput. Up to 96 samples can be processed in parallel thanks to the use of magnetic particle separation and a patented, highly efficient chemistry. In addition, inhibitors are removed via a highly effective prefiltration step. The isolated, ready-to-use bacterial nucleic acids are of exceptionally high quality. Downstream applications can easily be carried out immediately after the extremely fast isolation process.

Procedure

1. External homogenization and prelysis of the stool samples
2. Homogenized samples undergo prefiltration step
3. Proteolytic digestion
4. DNA is automatically bound to magnetic particles
5. Bound DNA is automatically washed
6. Final automated nucleic acid elution

Product specifications

Starting material:

- 200 – 400 µg of solid stool samples
- 200 – 400 µl of liquid stool samples

Extraction time:

- Lysis: approx. 40 – 45 minutes
- KingFisher® 96 protocol: approx. 30 minutes
- KingFisher®FLEX Protokoll: 30 minutes

Average yield:
Depends on the type and quantity of the starting material

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

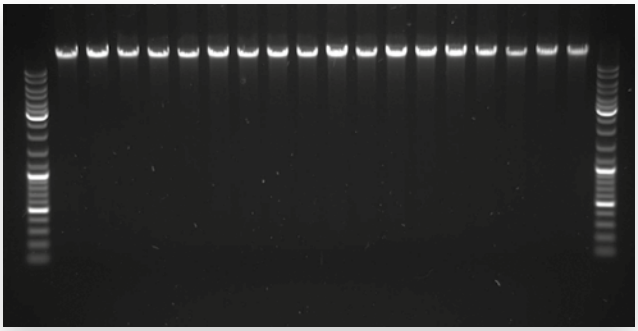
Lysis Solution, Proteinase K, Prefilter, Receiver Tubes, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

The innuPREP Stool DNA Kit-KF96 & KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The image below shows high-quality DNA extracted from various guinea pig excrement samples. The KingFisher® 96 and the innuPREP Stool DNA Kit-KF96 were used for automatic nucleic acid processing. The isolated DNA were then separated via gel electrophoresis on a 0.8 % TAE agarose gel.



Lane 1 and 20: DNA ladder
Lane 2 – 19: DNA extracted from guinea pig excrement

Order information

Order number	Quantity
845-KF-7015096	96 reactions
845-KF-7015480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA** Kit - KFFLX

improved product
better performance

selected products for in-vitro-Diagnostics CE IVD

- Fully automated DNA extraction from up to 96 whole blood samples
- Highly efficient kit for the KingFisher® FLEX automation system
- Extremely high-quality, ready-to-use DNA in just approx. 50 minutes
- Based on magnetic particle separation
- CE-IVD certification for innuPREP Blood DNA Kit - KFFLX

Product description

The innuPREP Blood DNA Kit-KFFLX is an optimized extraction kit for isolating DNA from 200 µl whole blood samples. Using the KingFisher® FLEX processor allows researchers to extract nucleic acids from up to 96 samples in parallel within a very short period of time. Fully automated lysis is followed by a second subprotocol for automated binding, washing and final elution of the DNA in a 96 well plate. Nucleic acids can be used in later downstream applications in just approx. 50 minutes – the design of the 96 well elution plate allows for the use automated pipetting stations (such as the SELMA 96 or GeneTheatre) in subsequent processing steps.

Procedure

1. Blood samples are automatically lysed in the KingFisher® FLEX
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. Automated DNA elution in a 96 well plate

Product specifications

Starting material:

- Whole blood samples (200 µl)
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:

- KingFisher® FLEX lysis protocol: approx. 25 minutes
- KingFisher® FLEX isolation protocol: approx. 37 minutes

Average yield:

- Depends on the type and quantity of the starting material
- Up to 10 µg DNA

Average purity (A_{260}:A_{280}):
1.7 – 2.0

Kit components

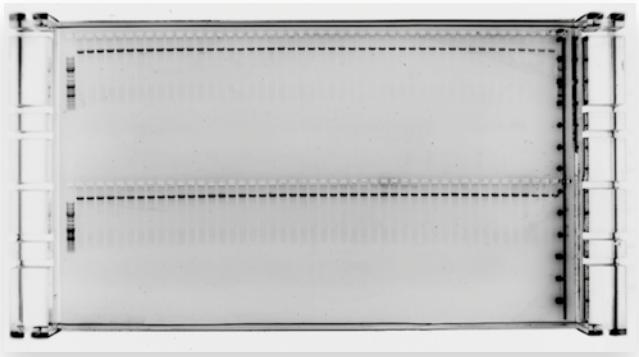
Lysis Solution, Proteinase K, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

The innuPREP Blood DNA Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The innuPREP Blood DNA Kit-KFFLX was used to extract DNA from each of 96 whole blood samples (200 µl each). The routine was fully automated and performed on the KingFisher® FLEX system. The isolated DNA was then loaded directly onto a 0.8 % TAE agarose gel.



Lane 1 and 50: DNA ladder
Lane 2 – 49 and lane 51 – 98: DNA extracted from 200 µl whole blood samples

Order information

Order number	Quantity
845-KF-8096096	96 reactions
845-KF-8096480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Blood DNA Midi** Kit-KFFLX

- Optimized for fully automated DNA extraction from 1 ml whole blood samples
- Processes up to 24 samples in parallel in the KingFisher® FLEX
- Based on magnetic particle separation
- Rapid isolation with minimal prep time

Product description

The innuPREP Blood DNA Midi Kit-KFFLX allows users to process up to 24 whole blood samples in parallel using the KingFisher® FLEX automated extraction system. The method is based on magnetic particle separation and isolates DNA (including lysis) from 1 ml starting material in just approx. 45 minutes. The kit contains all of the Reagents and consumables needed for extracting highly pure DNA and maximizing yields. The risk of cross-contamination can be all but ruled out. The extracted nucleic acid is ready for use and can be introduced directly into downstream applications.

Procedure

1. Blood samples are automatically lysed in the KingFisher® FLEX
2. DNA is automatically bound to magnetic particles
3. Bound DNA is automatically washed
4. Automated DNA elution in a 24 well plate

Product specifications

Starting material:

- Whole blood samples (1 ml)
- Fresh or frozen blood
- Stabilizers: EDTA or citrate

Extraction time:

- KingFisher® FLEX lysis protocol: approx. 20 minutes
- KingFisher® FLEX isolation protocol: approx. 27 minutes

Average yield:

- Depends on the type and quantity of the starting material
- Approx. 15–60 µg DNA

Average purity (A_{260}:A_{280}):
1.7–2.0

Kit components

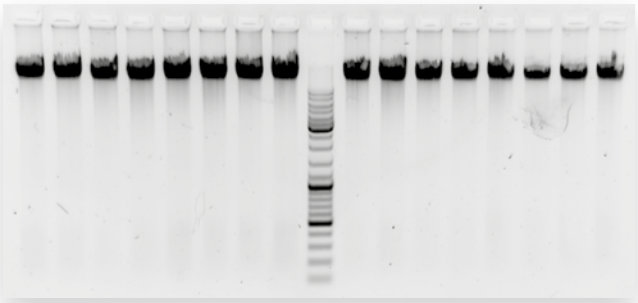
Lysis Solution, Proteinase K, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 24 Tip Comb with 24 DW Plate, KingFisher® 24 DW Plate, user manual

Storage conditions and stability

The innuPREP Blood DNA Midi Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

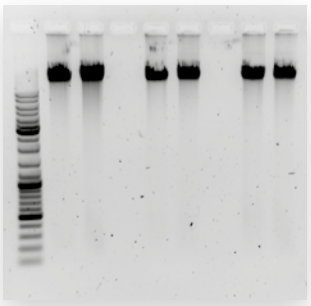
Sample application

Genomic DNA was extracted from 1 ml whole blood samples using the innuPREP Blood DNA Midi Kit-KFFLX. The entire isolation process was fully automated using the KingFisher® FLEX system. The DNA was then loaded directly on a 0.8 % TAE agarose gel and visualized.



Lane 1–8 and 10–17: gDNA from 1 ml whole blood samples
Lane 9: DNA ladder

Fully automated DNA extraction of 1 ml whole blood samples using the KingFisher® FLEX (double determinations). This image shows the isolated genomic DNA on a 0.8 % TAE agarose gel.



Lane 1: DNA ladder
Lane 2–3, 5–6 and 8–9: gDNA from 3 whole blood samples (double determinations)

Order information

Order number	Quantity
845-KF-4396024	24 reactions
845-KF-4396120	120 reactions
844-MA205-2	Laboratory Notebook

PureProve® **Blood & Tissue DNA Maxi** Kit - KFFLX

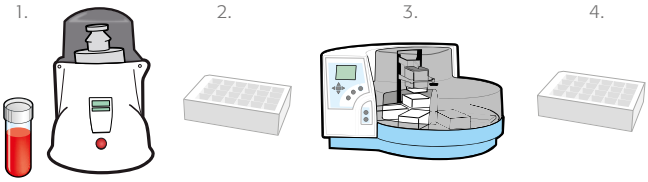
- Mechanical lysis and automated DNA extraction from up to 5 mL of whole blood and tissue samples
- Highly efficient lysis for eucaryotic and procaryotic cells
- Recommended for use with the FastPrep-24® homogenizer (MP Biomedicals) and the KingFisher® FLEX system
- PureProve®: reduced background DNA for high-sensitivity applications
- Tailored for enriching microbial DNA using the LOOXSTER® Enrichment Kit

Product description

The PureProve® Blood & Tissue DNA Maxi Kit - KFFLX utilizes efficient, mechanical of cells and of gram+ and gram- bacteria in the blood, tissue and other bodily fluids, which it combines with a highly effective DNA extraction process. Automated DNA extraction is carried out with paramagnetic particles and the KingFisher® FLEX magnetic processor. All of the Reagents and materials needed for Lysis and extraction are included with the PureProve® Blood & Tissue DNA Maxi Kit-KFFLX. The PureProve® concept: following suitable processes for reducing contamination with DNA, all system components are filled and packaged under clean-room conditions.

Procedure

1. Mechanical lysis
2. Cell debris centrifugation and lysate removal
3. The automated KingFisher® FLEX system is loaded
4. Processing (proteolysis, binding, washing, elution)



Product specifications

Starting material:

- Whole blood (5 mL)
- Other bodily fluids (No more than 2 mL for substances such as synovial fluid or other highly viscous sample matrices. Sample buffer is used for filling the remaining volume.)
- Tissue samples

Extraction time: Approx. 75 minutes

Eluate volume: 1.2 mL

Binding capacity: > 600 µg DNA

Average yield:

- Depends on the starting quantity and/or WBC
- Normal blood: 100 – 300 µg

Average purity (A_{260}:A_{280}): 1.7 – 2.0

Kit components

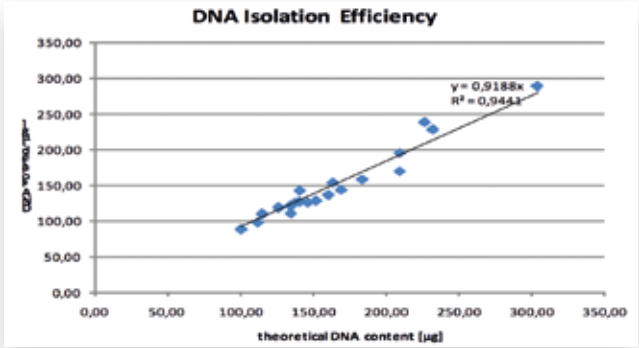
Lysis tubes, prefilled with glass beads and antifoam agent, prefilled buffer plates user manual , reagents, Magnetic particles, plastic ware

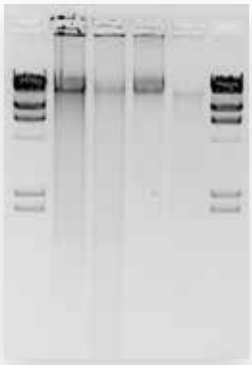
Storage conditions and stability

A storage temperature of 2°C to 8°C is recommended for the lysis tubes, total DNA beads and protease. All other components are stored at room temperature (15°C to 30°C). The kit will remain stable under these conditions for at least 6 months.

Sample application

Yields achieved by isolating DNA with the PureProve® & Tissue DNA Maxi Kit-KFFLX were correlated to the theoretical DNA content of blood (7.18 pg DNA per leukocyte). The number of leukocytes (white blood count, or WBC) was determined at the Institute for Transfusion Medicine at Jena University Hospital (Institut für Transfusionsmedizin, Universitätsklinikum Jena).
DNA samples from bodily fluids and tissues after mechanical lysis:





the PureProve® Blood & Tissue DNA Maxi Kit - KFFLX was used for preparing the lysates according to the standard protocol; the lysates were then visualized on an agarose gel.

Lanes 1 and 6: I = Lambda BstEII,
lane 2: blood,
lane 3: liver,
lane 4: muscle,
lane 5: synovial fluid

Order information

Order number	Quantity
850-300-001-0012	12 reactions
850-300-001-0024	24 reactions
844-MA205-2	Laboratory Notebook

LOOXSTER® **Blood & Tissue DNA** Kit - KFFLX

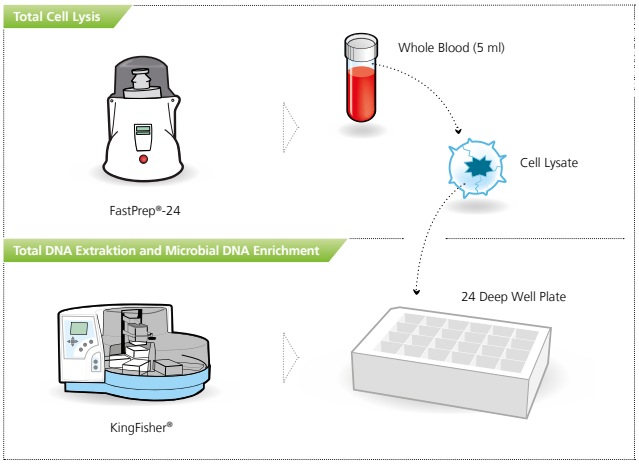
- DNA isolation and bacterial-, fungal DNA enrichment from blood and other bodily fluids, and from eucaryotic cell and tissue samples.
- Suitable for up to 600 µg of input DNA
- Removes over 95% of eucaryotic DNA
- Includes efficient mechanical lysis, DNA extraction and DNA cleanup

Product description

The LOOXSTER® Blood & Tissue DNA Kit – KFFLX is a complete preanalytical system for preparing bacterial and fungal DNA from blood and other bodily fluids, and from eukaryotic cell and tissue samples. The system consists of mechanical lysis, total DNA isolation and a LOOXSTER® enrichment step for the isolated bacterial and fungal DNA. The specific affinity of the LOOXSTER® protein for non-methylated CpG dinucleotides is what produces the enrichment effect. DNA extracts containing a mixture of methylated host DNA and small quantities of double-stranded genomic bacterial or fungal DNA, are incubated in the presence of a stringent buffer along with LOOXSTER® protein that has been immobilized on paramagnetic particles. A subsequent stringent wash step can be used for removing unbound DNA. The bacterial DNA is then eluted with elution buffer. The PureProve® concept: following suitable processes for reducing contamination with DNA, all system components are filled and packaged under clean-room conditions.

Process sequence

1. Mechanical lysis
2. Transfer to the KFFLX automated system:
   - DNA isolation
   - DNA binding to the LOOXSTER® particles
   - Washing step for the LOOXSTER® particles
   - Elution of the enriched DNA
3. Desalting and concentration processes for the enriched DNA (via cleanup columns)



Product specifications

Starting material:

- Whole blood (5 mL)
- Other bodily fluids, cells or tissues with a maximum DNA content of 600 µg
- Tissue samples

Extraction time: Approx. 120 minutes

Yield:

- No more than 6 µg of enriched DNA
- The concentration of bacterial DNA in the enriched DNA depends on the ratio of eucaryotic DNA to procaryotic DNA.
- **Example:** Less than 5% of the human DNA and approx. 50% of the bacterial DNA (E. coli) were isolated from a 100,000-fold excess of human DNA in the starting sample.

Average purity (A_{260}:A_{280}): 1.7 - 2.0

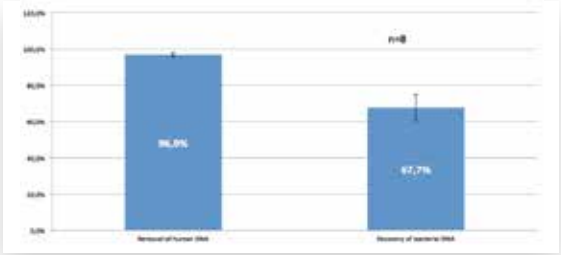
Kit components

Lysis tubes, prefilled with glass beads and antifoam agent, prefilled buffer plates LOOXSTER® Magnetic Particles, LOOXSTER® Binding Buffer, LOOXSTER® Wash Buffer, LOOXSTER® Elution Buffer; tubes with caps, desalting spin columns, collection tubes, desalting binding buffer, desalting wash buffer, desalting elution buffer, water, user manual.

Storage conditions and stability

A storage temperature of 2°C to 8°C is recommended for lysis tubes, total DNA beads, spin columns, LOOXSTER® Magnetic Particles and protease. All other components are stored at room temperature (15°C to 30°C). The kit will remain stable under these conditions for at least 6 months.

Sample application



50 µg of human DNA and 0.5 ng of E.coli DNA was mixed and treated with LOOXSTER® Blood & Tissue DNA Kit-KFFLX. In a series of 8 independent applications LOOXSTER® removes 96,9% of the human DNA and isolates 67,7% of the E.coli DNA resulting a 22-fold relative enrichment of the bacterial DNA.

Order information

Order number	Quantity
850-201-004-0012	12 reactions
850-201-004-0024	24 reactions
844-MA205-2	Laboratory Notebook

innuPREP **Plant DNA** Kit - KFFLX

- Automated isolation of DNA from a variety of different plant components and species of plants.
- Optimized for use with the KingFisher® FLEX automated extraction system
- Processes up to 96 samples in parallel
- Selectively removes inhibiting components such as the products of plant secondary metabolism

Product description

When used in conjunction with the KingFisher® FLEX system, the innuPREP Plant DNA Kit – KFFLX allows researchers to isolate DNA from up to 96 plant samples within an extremely short period of time. The first step is to homogenize the plant material using a highly efficient method, e.g., under liquid nitrogen or using a tool such as the SpeedMill. This is followed by lysis and efficient protein and polysaccharide extraction. PCR inhibitors are all but eliminated. The KingFisher® FLEX system is used for isolating the nucleic acids from the lysate in a fully automated process based on specially optimized magnetic particles. All of the Reagents and PCR materials needed for extraction are included with the innuPREP Plant DNA Kit – KFFLX.

Prozessablauf

1. Homogenization of starting material (e.g., SpeedMill)
2. External lysis
3. DNA is automatically bound to magnetic particles
4. Bound DNA is automatically washed
5. Automated DNA elution in a 96-well plate

Product specifications

Starting material:

- Different types of plant material (no more than 100 mg)
- Plant material containing a large proportion of water (no more than 150 mg)
- Fresh, frozen or dried plant material

Extraction time:

- Homogenization: Homogenizer: approx. 30 seconds – 3 minutes
  Liquid nitrogen: approx. 5 – 10 minutes
- Lysis: approx. 40 – 45 minutes
- KingFisher® FLEX protocol: approx. 27 minutes

Average yield:

- Depends on the type and quantity of the plant sample used
- Up to 60 µg DNA

Average purity (A_{260}:A_{280}):
1,7 – 2,0

Kit components

Lysis solution, Proteinase K, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, Prefilter, KingFisher® 96 Tip Comb with 96 DW plate, KingFisher® 96 DW plate, KingFisher® 96 plate, user manual

Storage conditions and stability

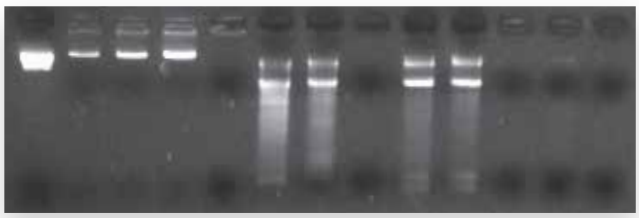
The innuPREP Plant DNA Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K and MAG suspension is 4°C. Once the proteinase K has been solubilized, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The innuPREP Plant DNA Kit-KFFLX was used to extract DNA from a variety of different plant species:

Host plant	Pathogen
Poinsettia (Euphorbia pulcherrima)	*Xanthomonas axonopodis poinsettiicola*
Common grape vine (Vitis vinifera)	*Agrobakterium vitis*

The host tissue made extraction considerably more difficult in both cases. The following image shows the DNA yield obtained using the innuPREP Plant DNA Kit-KFFLX as compared to that obtained using 2 competing products:[1]



Lane 1: DNA control
Lane 2: DNA size standard (25 ng)
Lane 3: DNA size standard (50 ng)
Lane 4: DNA size standard (100 ng)
Lanes 5, 8 and 11: Negative control
Lanes 6 – 7: 2x positive controls (competing product 1)
Lanes 9 – 10: 2x positive controls (innuPREP Plant DNA Kit-KFFLX)
Lanes 12 – 13: 2x positive controls (competing product 2)

[1] Data cited with the kind permission of Dr. Frank Brändle, IDENTXX GmbH, Stuttgart

Order information

Order number	Quantity
845-KF-4998096	96 reactions
845-KF-4998480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **RNA Virus PLUS** Kit - KFFLX

improved product
better performance

selected products CE IVD for in-vitro-Diagnostics

- Automated, parallel extraction of viral DNA and RNA from a single starting sample
- Optimized for high throughput using the automated KingFisher® FLEX system for up to 96 samples
- Includes CarrierMix with internal DNA and RNA extraction control
- CE-IVD certification for the innuPREP DNA/RNA Virus PLUS Kit – KFFLX
- High-quality nucleic acids in only about 45 minutes (depending on the starting material)

Product description

The innuPREP DNA/RNA Virus PLUS Kit – KFFLX allows the user to isolate both viral DNA and viral RNA from the same sample in only about 45 minutes. The kit is set up for working with an extremely wide variety of starting materials, including cell-free bodily fluids, biopsies, swabs and stool samples. In combination with the KingFisher® FLEX automated extraction system, magnetic particle separation makes it possible to process up to 96 samples in parallel. In the final step, the isolated nucleic acids are eluted into a 96-well plate, where they are immediately available for use in subsequent applications. In addition, CE-IVD certification means that the kit can be used for in vitro diagnostic applications.

Procedure

1. Automated lysis of the starting material (except for tissue samples) in the KingFisher® FLEX
2. RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Automated RNA elution in a 96 well plate

Product specifications

Starting material:

- Cell-free bodily fluids such as serum, plasma and cerebrospinal fluid (up to 200 µl)
- Cell culture supernatant, enrichment medium (up to 200 µl)
- Tissues (approx. 1 – 5 mg)
- Swab samples
- Stool samples (approx. 50 – 100 mg)

Extraction time:

- Manual lysis: tissue samples only (30 – 60 minutes)
- KingFisher® FLEX lysis protocol: approx. 20 minutes
- KingFisher® FLEX purification protocol: approx. 37 minutes

Quality of viral RNA:

Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

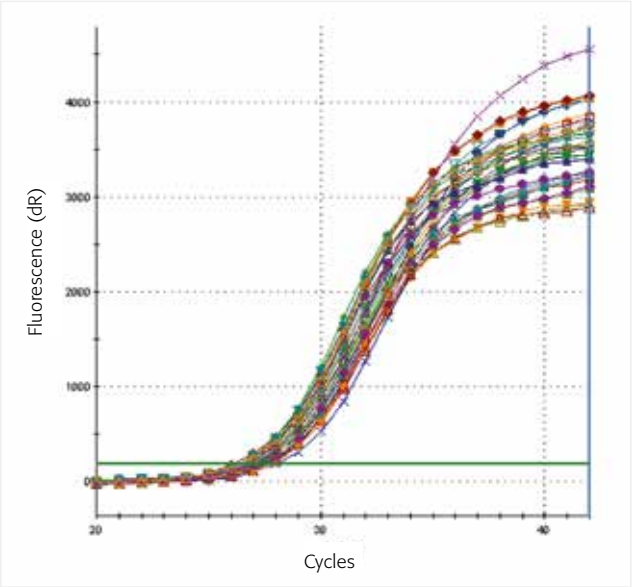
Lysis Solution, Binding Solution, Carrier Mix, Washing Solutions, RNase-free water, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

The innuPREP RNA Virus Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for the MAG Suspension is 4 °C.

Sample application

The innuPREP RNA Virus Kit-KFFLX was used to process organ grit for the purpose of extracting influenza A RNA with the KingFisher® FLEX. cDNA synthesis and quantitative virus determination were performed in a OneStep TaqMan® real-time PCR.



Amplification plot of the TaqMan® real-time PCR specific to influenza A [1]

[1] Data provided here with the kind permission of Dr. A. Engelhardt, LUA Berlin, Germany

Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KF-4596096	96 reactions
845-KF-4596480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **BTV RNA Virus** Kit-KFFLX

- Optimized for extracting RNA from the bluetongue virus (whole blood samples)
- For high-throughput applications using the KingFisher® FLEX
- Can process up to 96 samples simultaneously in less than 1 hour
- Fully automated isolation of high-quality, single-stranded (ss) RNA

Product description

The innuPREP BTV RNA Virus Kit-KFFLX is a fast, efficient tool for extracting bluetongue virus (BTV) ssRNA and is particularly suitable for high-throughput applications. When used in combination with the KingFisher® FLEX, this kit provides a fully automated method for processing up to 96 whole blood samples (150 µl each). High-quality nucleic acids are available for immediate downstream applications after just 60 minutes. The closed system all but rules out the risk of contamination. The kit contains all of the plastic supplies and Reagents needed for fast, simple isolation.

Procedure

1. Whole blood samples are automatically lysed in the KingFisher® FLEX
2. RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Automated RNA elution in a 96 well plate

Product specifications

Starting material:
Whole blood samples (150 µl)

Extraction time:
- KingFisher® FLEX lysis protocol: approx. 25 minutes
- KingFisher® FLEX protocol: approx. 37 minutes

Quality of viral RNA:
Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

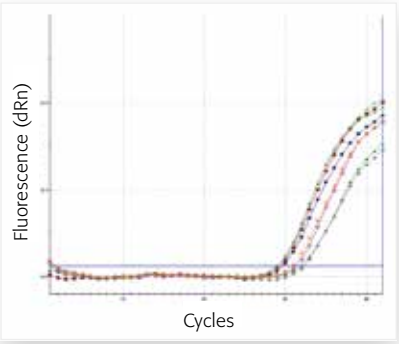
Lysis Solution, Proteinase K, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

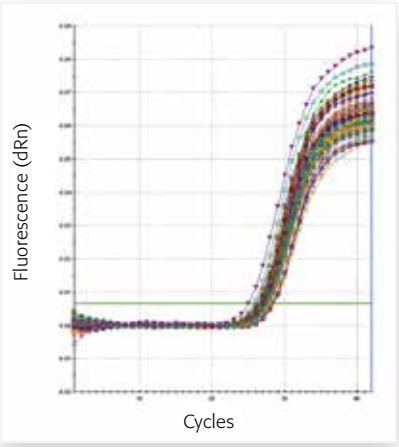
The innuPREP BTV RNA Virus Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C –25 °C). The recommended storage temperature for lyophilized Proteinase K and MAG Suspension is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The KingFisher® FLEX and the innuPREP BTV RNA Virus Kit-KFFLX were used to extract bluetongue virus (BTV) RNA. This was followed by cDNA synthesis and a BTV-specific TaqMan® real-time PCR.



Amplification plot of the BTV-specific TaqMan® real-time PCR [1]



Control amplification plot for the extraction (EGFP system, TaqMan® real-time PCR) [1]

[1] Data provided with kind permission from Dr. A. Engelhardt, LUA Berlin, Germany

Order information

Order number	Quantity
845-KF-4896096	96 reactions
845-KF-4896480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **BVDV / INFL / SP Virus** Kit - KFFLX

- Fully automated ssRNA extraction from serum and plasma
- Optimized for the influenza, bovine viral diarrhea and swine fever viruses
- High-throughput sample handling with the KingFisher® FLEX automation system
- Saves an enormous amount of time: up to 96 samples in just approx. 45 minutes

Product description

Combining the innuPREP BVDV / INFL / SP Virus Kit - KFFLX with the KingFisher® FLEX automation system creates an extremely fast tool for isolating viral ssRNA under increased throughput conditions. The process has been tailored to the influenza, bovine virus diarrhea and swine fever viruses and can be used to process up to 200 µl serum or plasma. Based on magnetic particle separation and a patented extraction chemistry, the kit allows researchers to process up to 96 samples in just approx. 45 minutes. The viral ssRNA is then automatically eluted into a 96 well plate, where it is immediately available for additional applications.

Procedure

1. Starting material is automatically lysed in the KingFisher® FLEX
2. RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Automated RNA elution in a 96 well plate

Product specifications

Starting material:
Serum or plasma (200 µl)

Extraction time:
KingFisher® FLEX protocol, including lysis: approx. 47 minutes

Quality of viral RNA:
Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

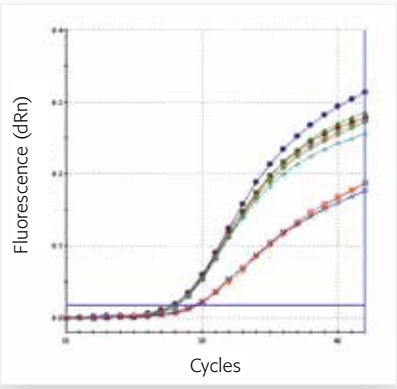
Lysis Solution, Binding Solution, Washing Solutions, Elution Buffer, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

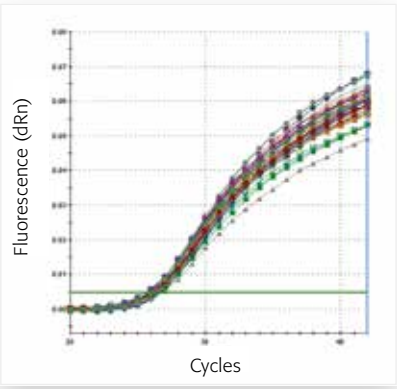
The innuPREP BVDV / INFL / SP Virus Kit - KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for the MAG Suspension is 4 °C.

Sample application

The innuPREP BVDV / INFL / SP Virus Kit - KFFLX was used in combination with the KingFisher® FLEX for fully automated extraction of viral RNA. Serum samples and cell culture media contaminated with classical swine fever virus (CSFV) were used as starting materials. Isolating the CSFV RNA was followed by a specific TaqMan® real-time PCR. The resulting amplification plots are shown below:



Amplification plot of the CSFV-specific TaqMan® real-time PCR after isolating RNA from serum [1]



Extraction control amplification (EGFP system, TaqMan® real-time PCR) [1]

[1] Data provided here with kind permission from Dr. A. Engelhardt, LUA Berlin, Germany

Order information

Order number	Quantity
845-KF-4996096	96 reactions
845-KF-4996480	480 reactions
844-MA205-2	Laboratory Notebook

innuPREP **DNA/RNA Virus PLUS** Kit-KFFLX

improved product
better performance

selected products for in-vitro-Diagnostics IVD

- Optimized for isolating viral RNA under high-throughput conditions
- Use of the KingFisher® FLEX automation system for running up to 96 samples in parallel
- Automated elution in a 96 well plate
- CE-IVD certification for innuPREP RNA Virus PLUS Kit-KFFLX
- Includes Carrier Mix with internal DNA and RNA extraction control

Product description

The innuPREP RNA Virus PLUS Kit-KFFLX can be used to automate extraction of viral RNA from up to 96 samples in just approx. 45 minutes. The method, which is based on magnetic particle separation and on the use of patented extraction chemistry in the KingFisher® FLEX system, can be used for isolating an extremely wide variety of starting materials, such as cell-free bodily fluids, biopsies, swabs and stool samples. The isolated viral nucleic acids are then available for immediate use in downstream applications. The high quality of the RNA has been successfully tested and confirmed using the TaqMan® real-time PCR (after cDNA synthesis).

Procedure

1. Automated lysis of the starting material (except for tissue samples) in the KingFisher® FLEX
2. RNA is automatically bound to magnetic particles
3. Bound RNA is automatically washed
4. Automated RNA elution in a 96 well plate

Product specifications

Starting material:

- Cell-free bodily fluids such as serum, plasma and cerebrospinal fluid (up to 200 µl)
- Cell culture supernatant, enrichment medium (up to 200 µl)
- Tissues (approx. 1 – 5 mg)
- Swab samples
- Stool samples (approx. 50 – 100 mg)

Extraction time:

- Manual lysis: tissue samples only (30 – 60 minutes)
- KingFisher® FLEX lysis protocol: approx. 20 minutes
- KingFisher® FLEX protocol: approx. 37 minutes

Quality of viral RNA:

Tested with positive results in cDNA synthesis followed by TaqMan® real-time PCR

Kit components

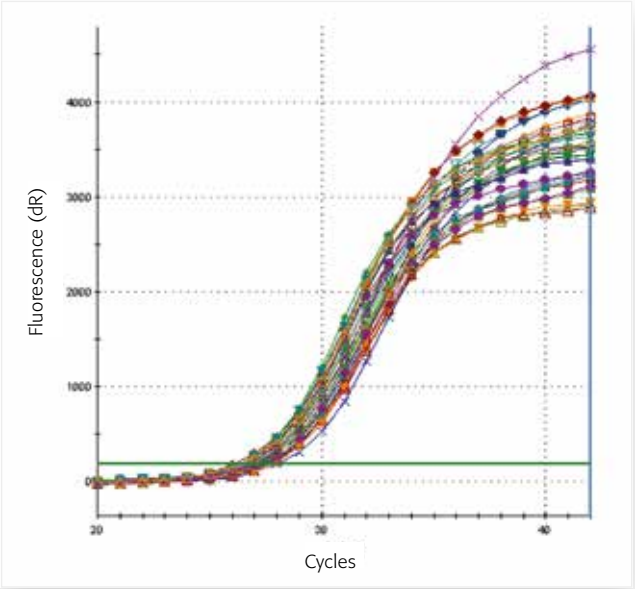
Lysis Solution, Binding Solution, Washing Solutions, Carrier Mix, RNase-free water, MAG Suspension, KingFisher® 96 Tip Comb with 96 DW Plate, KingFisher® 96 DW Plate, KingFisher® 96 Plate, user manual

Storage conditions and stability

The innuPREP RNA Virus Kit-KFFLX will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for the MAG Suspension is 4 °C.

Sample application

The innuPREP RNA Virus Kit-KFFLX was used to process organ grit for the purpose of extracting influenza A RNA with the KingFisher® FLEX. cDNA synthesis and quantitative virus determination were performed in a OneStep TaqMan® real-time PCR.



Amplification plot of the TaqMan® real-time PCR specific to influenza A[1]

[1] Data provided here with the kind permission of Dr. A. Engelhardt, LUA Berlin, Germany

Detection system for internal control

innuDETECT Internal Control DNA Assay 141
innuDETECT Internal Control RNA Assay 141
innuDETECT Internal Control DNA/RNA Assay 141

Order information

Order number	Quantity
845-KF-4596096	96 reactions
845-KF-4596480	480 reactions
844-MA205-2	Laboratory Notebook

Extraction control

Analytik Jena also offers a panel of extraction controls as an additional application following nucleic acid extraction. These controls are optimized PCR assays based on amplification of the specific DNA sequences of the starting material used.
The use of extraction controls confirms successful nucleic acid isolation and prevents false negatives in subsequent detection sequences.

innuAMP **Food DNA** Test

- A fast, simple, external control assay for assessing DNA extraction from food
- Optimized for standard and *rapid*PCR
- Includes all plastic supplies and PCR Reagents
- Highly sensitive, highly specific detection reaction

Product description

The innuAMP Food DNA Test is a control test used for assessing the success of DNA extraction from bacterial cell pellets. The kit has been specially optimized for DNA templates isolated after performing a standard bacterial culture method on food samples (in a Stomacher apparatus). The test is based on amplifying a universal, bacteria-specific DNA sequence (DNA coding for 16 S RNA). The innuAMP Food DNA Test is an effective tool for preventing false negatives in subsequent detections of microbial DNA (e.g. tests for salmonella or listeria). This ready-to-use kit contains all of the consumables and PCR Reagents needed, as well as a positive control. The innuAMP Food DNA Test has been adapted to unique *rapid*PCR technology using either a Low-Profile Rapid (LPR) block or a Standard Profile Rapid (SPR) block (Analytik Jena). The test has also been optimized for use with standard thermal cyclers such as the FlexCycler (Analytik Jena). The advantage of *rapid*PCR is the ability to perform tests in less than 45 minutes.

Product specifications

Starting material:
DNA extracted from a bacterial cell pellet after standard culturing in a Stomacher apparatus (1 ml)

Amplification time:
- *rapid*PCR (SpeedCycler²): approx. 30 minutes
- Standard PCR: Depends on thermal cyclers, approx. 2 hours

Detection time:
Approx. 20 minutes at 100 mA

Evaluation:
Visible 260 bp fragment on a 2 % agarose gel after electrophoresis

Kit components

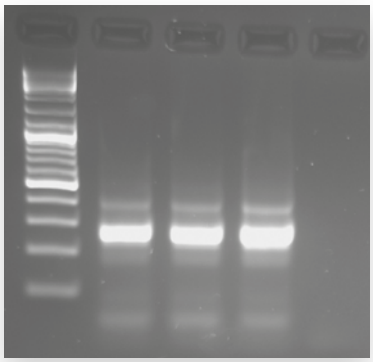
Plastic PCR supplies, positive control, primer, dNTPs, PCR-grade H_2O, polymerase

Storage conditions and stability

Components of the innuAMP Food DNA Test will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual Reagents and should be avoided.

Sample application

Bacterial cells were cultured in a Stromacher apparatus and pelletized. The blackPREP Food DNA Kit I was then used to extract the bacterial DNA. The isolated nucleic acids were introduced directly into the amplification reaction using the innuAMP Food DNA Test. The final step involved visualizing the PCR products on a 2 % agarose gel.



Lane 1: DNA ladder
Lane 2 – 4: 260 bp fragment and confirmation of successful DNA extraction
Lane 5: Negative control

Other products for the food sector

Order information

Order number	Quantity
845-IA-2007010	10 reactions
845-IA-2007025	25 reactions
845-IA-2007050	50 reactions
844-MA205-2	Laboratory Notebook

innuAMP **Tick DNA** Test

- Optimized test kit for verifying successful DNA extraction from ticks
- Optimized for standard and *rapid*PCR
- Contains all of the necessary consumables and PCR components
- Sensitive, highly reproducible detection of all members of the Ixodidae family

Product description

The innuAMP Tick DNA Test provides verification of tick-specific DNA and, as such, can be used to determine how well a nucleic acid isolated from ticks can be amplified – an especially important feature with respect to subsequent diagnostic tests for detecting bacterial pathogens. In other words, the use of the innuAMP Tick DNA Test prevents false negatives in downstream nucleic acid studies. The amplification protocols for the tick-specific mitochondrial gene have been adapted to unique *rapid*PCR technology using either a Low-Profile Rapid (LPR) block or a Standard Profile Rapid (SPR) block (Analytik Jena AG). The protocols have also been optimized for use with standard thermal cyclers such as the FlexCycler (Analytik Jena). The kit also contains all of the necessary consumables, PCR components and a positive control.

Product specifications

DNA was extracted from 100 ticks as part of the validation process for the innuAMP Tick DNA Test. The eluates were then tested for the presence of amplifiable DNA.

The following table provides an overview of the study results.

Tick species	Quantity	
	Total	Results
Dermacentor reticulatus	20	20
Ixodes hexagonus	1	1
Haemaphysalis concinna	5	5
Ixodes ricinus	74	74
Total	**100**	**100**

Detection of tick-specific DNA

Starting material:
The test has been developed to detect DNA from all members of the Ixodidae family (hard-bodied ticks).

Amplification time:
- *rapid*PCR (SpeedCycler²): approx. 30 minutes
- Standard PCR: Depends on thermal cyclers, approx. 2 hours

Detection time:
Approx. 20 minutes at 100 mA

Evaluation:
Visible 150 bp fragment on a 2 % agarose gel after electrophoresis

Kit components

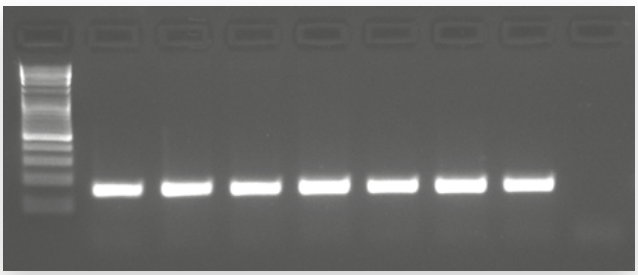
Plastic PCR supplies, positive control, primer, dNTPs, PCR-grade H_2O, polymerase

Storage conditions and stability

Components of the innuAMP Tick DNA Test will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual Reagents and should be avoided.

Sample application

The blackPREP Tick DNA Kit was used initially to isolate DNA from ticks. The innuAMP Tick DNA Test was then used to subject the nucleic acids to a tick-specific amplification reaction. In the final step, the PCR products were visualized on a 2 % agarose gel.



Lane 1: DNA ladder, **lane 2 – 8:** 150 bp fragment confirming successful DNA extraction, **lane 9:** Negative control

Other products for tick diagnostics

Order information

Order number	Quantity
845-IA-2006010	10 reactions
845-IA-2006025	25 reactions
845-IA-2006050	50 reactions
844-MA205-2	Laboratory Notebook

innuDETECT **Internal Control DNA/RNA** Assay

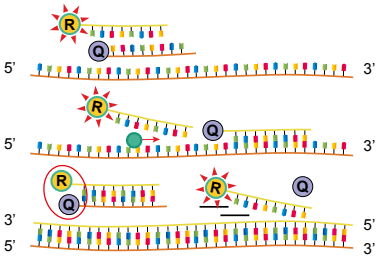
- System for detecting internal DNA and RNA Carrier Mix controls from nucleic acid purification kits
- Flexible for use in all commonly used real-time PCR thermocyclers, accommodating both *rapidP*CR and standard PCR formats
- Based on the use of TaqMan® exonuclease assays
- Highly sensitive and specific for qualitative and quantitative analyses alike

Product description

The innuDETECT Internal Control DNA/RNA Assay is a highly sensitive, selective tool for detecting internal DNA and RNA controls. The assay is based on a TaqMan® exonuclease assay that yields qualitative and quantitative information for verifying results. Using TAMRA as a reporter fluorophore makes the assay suitable for multiplex applications. The innuDETECT Internal Control DNA/RNA Assay is universally compatible with all commercially available real-time *rapidP*CR thermocyclers and with standard PCR thermocyclers that use a TAMRA test channel.

Process sequence

1. **Denaturation:** All DNA molecules in the sample are present in their single-stranded form. Fluorescence cannot be measured.
2. **Annealing/elongation:** The exonuclease activity of the enzyme amplifies the target DNA and breaks down the probe.
3. **Fluorescence measurement:** The reporter fluorophore is released and fluorescence is measured.



Specifications

Starting material

Internal DNA and RNA carrier mix controls from nucleic acid purification kits for different starting materials.

Detection time

- Rapid qPCR (qTOWER): approx. 50 minutes
- Standard qPCR (qTOWER 2.0 or TOptical): approx. 2 h

Sensitivity/detection

Detection of fluorescence and of IC DNA or IC RNA.

Kit components

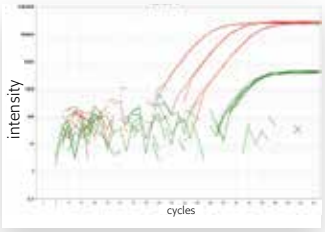
Primer/probe mix, PCR-grade H_2O, Carrier Mix

Storage conditions and stability

The components of the innuDETECT Internal Control DNA/RNA Assay will remain stable for 6 months when stored at –20°C. Repeated thawing and freezing should be avoided since this will negatively affect the activity of the individual Reagents.

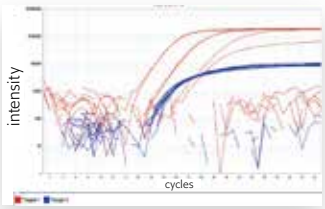
Sample application

The amplification plots below show internal control detection for DNA and RNA when amplifying DNA and RNA of different pathogens at different dilutions. This was done by amplifying targets at different concentrations of *E. coli* O104 DNA and RNA strains of the bird flu virus (H5N1).



Sample No.	Cells/ initial sample	Ct value 1	Ct value 1	Ct value, IC DNA
1	10^6	20.97	21.08	32.47
2	10^5	24.25	24.71	31.66
3	10^4	27.94	28.14	31.51

Amplification plot showing the dilution series for *E. coli* O104 DNA (Stx2 gene; FAM marker) multiplexed with IC DNA (TAMRA marker).



Sample No.	Virus strain	Ct value 1	Ct value 1	Ct value, IC RNA
1	Strain 1	17.60	16.90	19.78
2	Strain 2	20.36	20.64	20.34
3	Strain 3	25.48	24.44	20.53

Amplification plot of different strains of the H5N1 bird flu virus (HA gene; FAM marker) multiplexed with IC RNA (TAMRA marker).

PCR products

Order information

Ordner number			Quantity
innuDETECT Internal Control DNA Assay	innuDETECT Internal Control RNA Assay	innuDETECT Internal Control DNA/RNA Assay	
845-ID-0006010	845-ID-0007010	845-ID-0008010	10 reactions
845-ID-0006100	845-ID-0007100	845-ID-0008100	100 reactions
844-MA205-2		Laboratory Notebook	

Epigenomic solutions and kits

Bisulfite conversion along with Easyfficient extraction of cell-free DNA: the epigenomics section contains optimized kits, patent-pending technologies and extremely easy sequences.
The epigenomics product line is characterized by high recovery and conversion rates, extremely easy application, and exceptionally fast, reliable results.

innuCONVERT **Bisulfite Basic** Kit

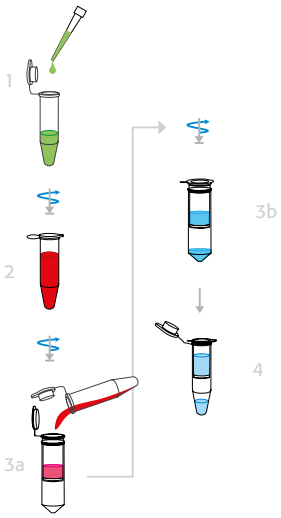
- Complete conversion of non-methylated cytosine to uracil in just a few hours
- Flexible for use in all commonly used thermocylers or heating blocks
- Denaturation and conversion combined in a single work sequence

Product description

The innuCONVERT Bisulfite Basic Kit allows users to completely convert non-methylated cytosine to uracil in just a few hours. DNA sample denaturation and bisulfite treatment are combined in the same reaction vessel. After a total reaction time of approx. 3 hours, the converted DNA is isolated and desulfonated in a column. The eluted DNA is then ready-to-use in downstream applications (such as PCR, sequencing, etc.).

Process sequence

1. Addition of DNA sample to the Conversion Reagent
2. DNA denaturation and conversion (approx. 3h)
3. DNA purification and desulfonation in the column
4. DNA elution



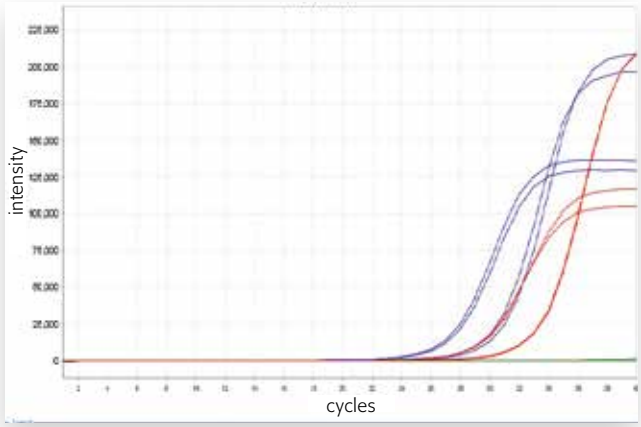


Fig. 1 Amplification plot of eluted DNA from Jurkat cells: undiluted and a 1:10 dilution, treated with innuCONVERT Bisulfite Basic Kit (blue); compared to a competing product (red) and a negative control (green).

Product specifications

Starting material
Isolated DNA

Purification time
Approx. 4 hours

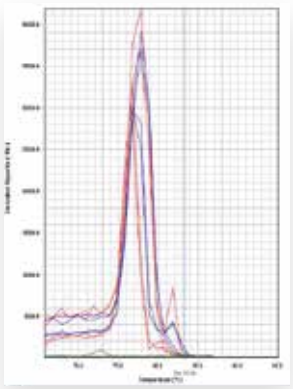


Fig. 2 Melting curves of eluted DNA from Jurkat cells: treated with innuCONVERT Bisulfite Basic Kit (blue); compared to a competing product (red) and a negative control (green).

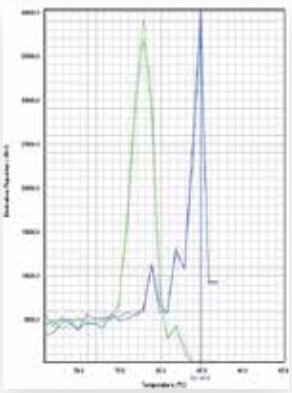


Fig. 3 Melting curves of converted (green) and unconverted (blue) DNA. Basic was carried out using the innuCONVERT Bisulfite Conversion Kit.

Kit components

Conversion Reagent, column-based DNA purification and desulfonation module, user manual

Storage conditions and stability

Store the purification components of the innuCONVERT Bisulfite Basic Kit at room temperature (14°C to 25°C); store the conversion Reagent at –20°C. The kit will remain stable under these conditions for at least 12 months.

Sample application

A ß-actin gene sequence was amplified before and after conversion, comparing innuCONVERT Bisulfite Basic Kit with a competing

Order information

Order number	Quantity
845-IC-1000008	8 reactions
845-IC-1000040	40 reactions
845-IC-1000080	80 reactions
844-MA205-2	Laboratory Notebook

innuCONVERT **Bisulfite All-In-One** Kit

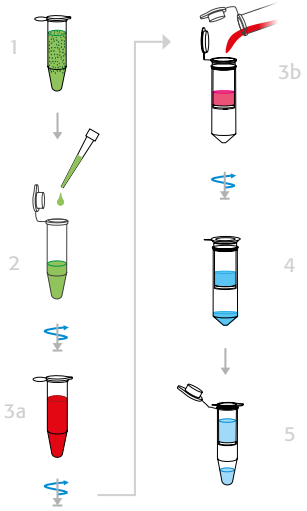
- DNA extraction for different starting materials
- Includes a module for completely converting non-methylated cytocine to uracile in a few minutes
- Liquid reagents are stable and can be stored.
- Denaturation and conversion combined in a single work sequence
- Overall optimized process is complete in under 5 hours.

Product description

The innuCONVERT Bisulfite All-In-One Kit al-lows researchers to extract DNA from a variety of relevant starting materials and then completely convert non-methylated cytosine to uracil in a few hours. A specially optimized universal buffer can be used for processing different lysis protocols, while DNA sample/lysate denaturation and bisulfite treatment take place in a single reaction vessel. This is followed by on-column purification and desulfonation of the converted DNA. The pure nucleic acid obtained can then be easily used for later downstream applications (such as PCR, sequencing).

Product description

1. External lysis of various starting materials
2. Addition of the DNA sample or lysate to the conversion reagent
3. DNA denaturation and conversion
4. DNA purification and desulfonation
5. DNA elution



Product specifications

Starting material:

- Purified DNA samples (500 pg – 10 µg)
- FFPE tissue sections (formalin-fixed, paraffin-embedded, 1-3 sections, 10 µm each)
- FFPE tissue plugs (formalin-fixed, paraffin-embedded, 10 mg)
- Cell lines (no more than 5 x 10^5 cells)
- Bronchial aspirates, swabs, peritoneal cavity fluid, pleural effusions, sputum
- Fresh tissue (no more than 1 mg)

Extraction time:

- Lysis: approx. 3 hours or more
- Conversion reaction: 45 minutes
- Purification and desulfonation: 45 minutes

Average yield:
Depends on the sample and the amount used

Average purity (A_{260}:A_{280}):
1.8 – 2.0

Kit components

Lysis Solution, Proteinase K, Conversion Reagent, on-column purification and desulfonation module, elution tubes, user manual

Storage conditions and stability

The innuCONVERT Bisulfite All-In-One Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14°C – 25°C). The recommended storage temperature for lyophilized proteinase K is 4°C. Once the proteinase K has been reconstituted, it should be stored in aliquots at -20°C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

Extraction of DNA from 3T3 cells with the optimized lysis buffer of innuCONVERT Bisulfite All-In-One Kit and subsequent conversion reaction:

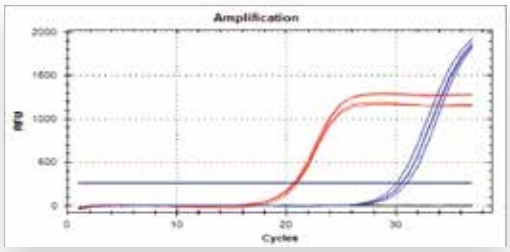


Fig 1: Amplification of ß-actin methylation-independent fragment with innuMIX qPCR MasterMix SyGreen after (red) and before (blue) of the bisulfite conversion.

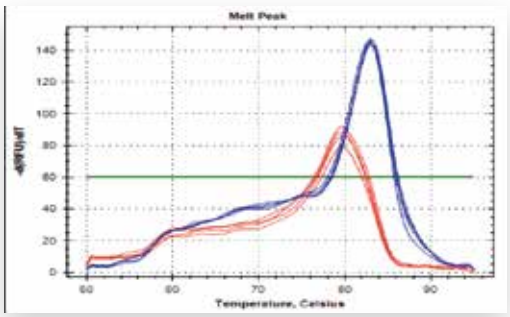


Fig 2: Melting curves of the DNA after (red) and before (blue) of the bisulfite conversion. The converted DNA shows a significant decrease in the melting temperature of the PCR fragment.

Order information

Order number	Quantity
845-IC-2000008	8 reactions
845-IC-2000040	40 reactions
845-IC-2000080	80 reactions
844-MA205-2	Laboratory Notebook

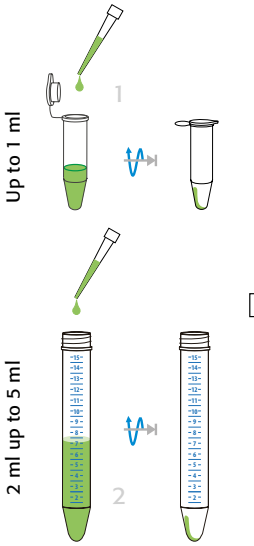
PME **free-circulating DNA Extraction** Kit

- Easy handling, high efficiency and extremely time saving
- Processing of starting sample volumes up to 5 ml
- Proven for serum and plasma from different blood collection systems
- Novel, patent pending technology: Polymer Mediated Enrichment (PME)
- Enrichment & extraction in approx. 30 min from 1 ml or approx. 1 h from 5 ml of serum or plasma and up to 10 ml from urine

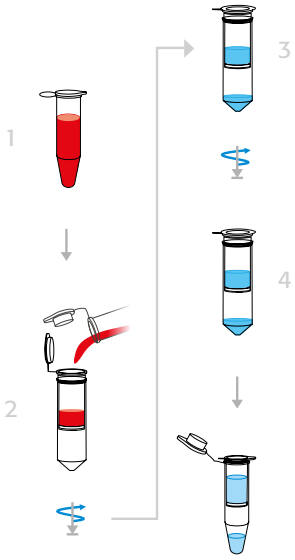
Product description

Circulating cell-free DNA is a very interesting diagnostic target, but the amount of free-circulating DNA is usually very low and varies among different individuals. Further, these nucleic acids are present as short fragments, typically smaller than 1000 nt, making the efficient extraction process challenging. Because of the high sample volumes the protocols of commercially available kits are very labor-intensive as well as time consuming and need a lot of reagents. The PME free-circulating DNA Extraction Kit is based on a new, patent-pending technology called **PME** – **P**olymer **M**ediated **E**nrichment. As first step cell-free DNA in the entire sample is captured by a polymer. Afterwards this complex is collected as a pellet by centrifugation. Subsequently the captured nucleic acid is dissolved in a special buffer thus reducing the sample volume in the following extraction significantly.

Enrichment of free-circulating DNA



Sample preparation of free-circulating DNA



Procedure

1. Capturing of cell-free DNA in the polymer
2. Spin down of the Polymer/DNA complex

1. Lysis of the Polymer/DNA complex
2. Binding of cell-free DNA to the Spin Filter
3. Washing of bound cell-free DNA
4. Eluting of the cell-free DNA

Product specifications

Starting material:

- Serum, plasma and urine
- Cell culture supernatants or mediums
- Other cell-free body fluids (except urine)
- From up to 5 ml (plasma) or 10 ml (urine)

Time of preparation:

- From 1 ml starting sample: approx. 30 min
- From 5 ml starting sample: approx. 1 h
- From 5 ml and 10 ml starting sample: approx 1 h

Field of applications:

- Tumor and prenatal diagnosis
- Pathological states, including trauma, sepsis, myocardial infarction, stroke, transplantation, diabetes mellitus, and hematologic disorders

Validation

Positive tested for following blood collection systems

No.	Blood sampling system from Sarstedt
1.	S-Monovette® 9 ml Silicat
2.	S-Monovette® 9 ml Polyacrylester Gel
3.	S-Monovette® 8,5 ml CPDA
4.	S-Monovette® 9 ml K3E (EDTA K3)
5.	S-Monovette® 10 ml 9NC (Trisodium Citrate Solution, Citrate Solution)
6.	S-Monovette® 7,5 ml NH (Natrium-Heparin)
7.	S-Monovette® 7,5 ml LH-Gel (Lithium-Heparin)
8.	S-Monovette® 9 ml LH (Lithium-Heparin)

Kit components

Enrichment Reagents, Lysis Solution, Binding Solution, Carrier Mix, RNase-free Water, Proteinase K, Precipitation Buffer, Washing Solutions, Spin Filter (bordeaux), Receiver Tubes, Elution Tubes, Manual

Storage conditions and stability

The PME free-circulating DNA Extraction Kit will remain stable for at least 6 months if stored in a dry place at room temperature (14 °C to 25 °C). The recommended storage temperature for lyophilized Proteinase K is 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Validation results/Sample application

1.) Different blood collecting systems for extraction of free-circulating DNA:

Besides of the variability amongst different specimens, also the blood collection system used, has a big influence on the recovery of free-circulating DNA. Therefore the following blood collection systems were tested.

Testing the suitability of the PME free-circulating DNA Kit for eight different blood collection systems (listed above), at two different starting amounts of sera or plasma (1 ml and 5 ml, respectively).
Extracted free-circulating DNA has been tested by amplification of a human specific target gene:

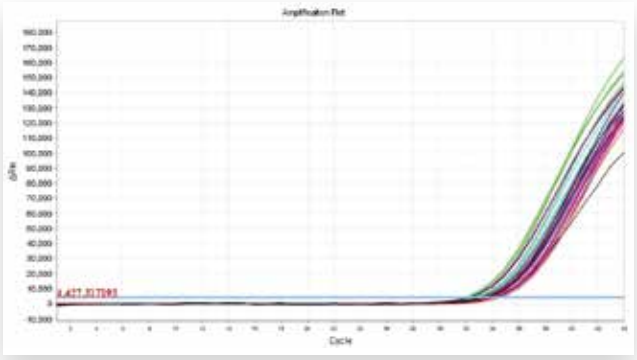
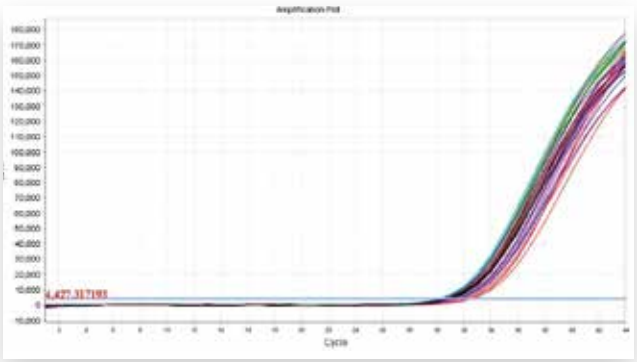


Figure 1: Resultant amplification plots after preparation of 1 ml starting sample volume



LFigure 2: Resultant amplification plots after preparation of 5 ml starting sample volume

The amplification plots show differences in dependence on type of blood collection systems. Best results can be achieved using S-Monovette® 9 ml LH (Lithium-Heparin, Sarstedt) or S-Monovette® 7,5 ml NH (Natrium-Heparin, Sarstedt) and S-Monovette® 7,5 ml LH-Gel (Lithium-Heparin, Sarstedt).

2.) Isolation of free-circulating DNA using PME free-circulating DNA Extraction Kit in comparison to standard purification kit for cell-free DNA:

Next to the speed of performance and efficiency of the PME free-circulating DNA Extraction Kit, the whole procedure also convince in relation to the market leader product, as shown in the following.

Comparison or cell-free DNA extraction from 1 ml and 5 ml serum respectively by using PME technology versus a commercially standard extraction kit for free-circulating nucleic acids. After isolation, the DNA has been tested for amplification of a gene coding for the human estrogen receptor 1.

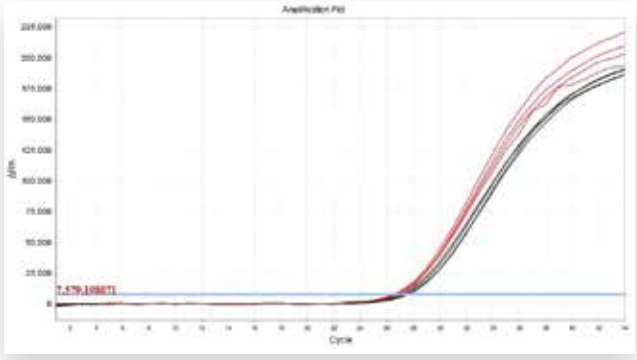


Figure 3: Resultant amplification plots after preparation of 1 ml starting sample volume

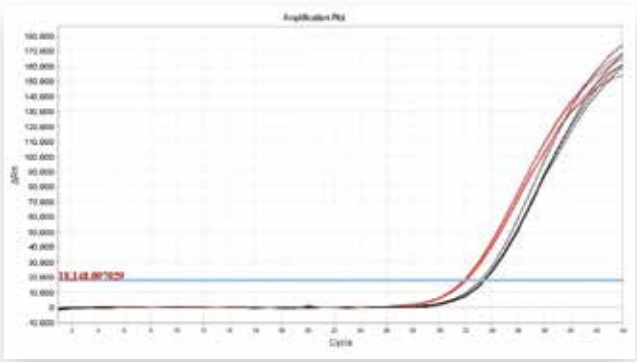


Figure 4: Resultant amplification plots after preparation of 5 ml starting sample volume

The red graphs correspond to the extraction based on PME technology and the black graphs correspond to the competitor's kit (market leader).

Related products

innuCONVERT Bisulfite Basic Kit 143
innuCONVERT Bisulfite All-in-One Kit 144

Order information

Order number	Quantity
845-IR-0003010	10 reactions
845-IR-0003050	50 reactions
844-MA205-2	Laboratory Notebook

Analytik Jena offers all from one hand: polymerases and master mixes for PCR or real-time PCR respectively, as well as PCR buffer, additives, dNTP's, DNA ladders and loading dyes for gel electrophoresis. We know the requirements of our customers. And we know to what they attach special importance: to highest quality "Made in Germany" and a service, which deserves that characteristic.

Reagents for molecular biology

PCR: polymerases and master mixes

The following product group includes a variety of highly efficient polymerases and master mixes for PCR, providing the flexibility needed for easy PCR optimization. Reagents are suitable both for *rapid*PCR and for standard PCR.

innuTaq DNA Polymerase

Order number	Quantity
845-EZ-1000500	500 units

- Optimal for routine PCR
- Convenient and reliable amplification
- Extremely thermostable
- Best reproducible results

Product description
Analytik Jena's innuTaq DNA Polymerase is a highly purified recombinant thermostable DNA polymerase that has been isolated from *E.coli* carrying a vector encoding the Thermus aquaticus DNA polymerase gene. The enzyme has 5'→3' DNA polymerase activity. It exhibits high thermal stability in withstanding prolonged incubations at elevated temperatures (95 °C). It is recommended for use in routine PCR reactions.

Concentration*: 5 U/µl
Enzyme storage buffer: 20 mM Tris-HCl pH 8.0; 100 mM KCl; 1 mM DTT; 0.1 mM EDTA; 0.5 % Tween 20; 0.5 % Nonidet P40; 50 % Glycerol
PCR Buffer:
- 10× PCR Buffer with KCl; 100 mM Tris-HCl (pH 8.8 at 25 °C); 500 mM KCl; 0.8 % Nonidet P40
- 10× PCR Buffer with $(NH_4)_2SO_4$; 750 mM Tris-HCl (pH 8.8 at 25 °C); 200 mM $(NH_4)_2SO_4$; 0.1 % Tween 20

Mg^{2+} solution: $MgCl_2$ stock solution 25 mM

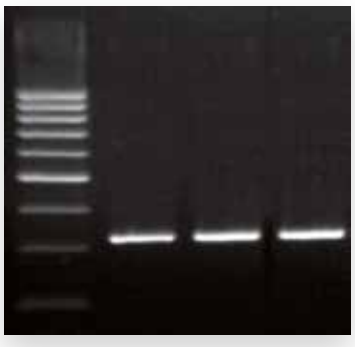
Store at –20 °C, avoid frequent thawing and freezing.

Sample application
Amplification of a 420 bp DNA fragment using innuTaq DNA Polymerase
Lane 1: innuSTAR 100 bp DNA Ladder, **lane 2–4:** innuTaq DNA Polymerase

innuTaq RED DNA Polymerase

Order number	Quantity
845-EZ-2000500	500 units

- Easy visual recognition
- Time saving – direct loading onto agarose gels
- Optimal for routine PCR
- Convenient, consistent, reliable



Product description
innuTaq RED DNA Polymerase has a special formulation, which contains a non-toxic and non-hazardous red dye. The strong red color also provides an easy and quick check of reactions to which the enzyme has been added, facilitates the confirmation of complete mixing, making it very suitable for standard applications.
The reaction products are ready for direct gel loading and the dye serves as marker for electrophoresis progress monitoring. The presence of the dye has no effect to the application.
Purified from an recombinant thermostable DNA polymerase that has been isolated from *E.coli* carrying a vector encoding the Thermus aquaticus DNA polymerase gene. The enzyme has 5`→3` DNA polymerase activity. It exhibits high thermal stability in withstanding prolonged incubations at elevated temperatures (95 °C).

Concentration*: 1 U/µl
Enzyme storage buffer: 20 mM Tris-HCl pH 8.0; 100 mM KCl; 1 mM DTT; 0.1 mM EDTA; 0.5 % Tween 20; 0.5 % Nonidet P40; 50 % Glycerol
PCR Buffer:
- 10× KCl reaction buffer, without $MgCl_2$
- 10× $(NH_4)_2SO_4$ reaction buffer, without $MgCl_2$

Mg^{2+} solution: $MgCl_2$ stock solution, 25 mM

Store at –20 °C, avoid frequent thawing and freezing.

Sample application
Amplification of a 330 bp DNA fragment using innuTaq RED DNA Polymerase
Lane 1: innuSTAR 100 bp DNA Ladder, **lane 2–4:** innuTaq RED DNA Polymerase

innuTaq HOT-A DNA Polymerase

Order number	Quantity
845-EZ-3000500	500 units

- High-fidelity combined with improved specificity of hotstart
- Convenient PCR setup at room temperature
- No unwanted secondary extensions, reduced background
- Very high specificity and PCR sensitivity

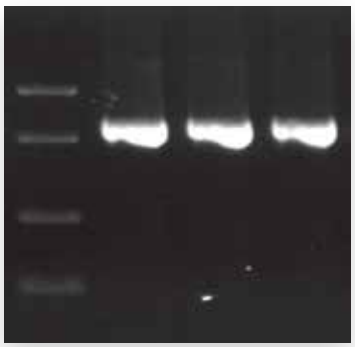
Product description
innuTaq HOT-A DNA Polymerase provides improved specificity and sensitivity when amplifying low-copy-number targets in complex backgrounds or when prolonged room temperature set up is required. The polymerase activity is blocked at ambient temperature and switched on automatically at the onset of the initial denaturation. The thermal activation prevents the extension of nonspecifically annealed primers and primer-dimer formation at low temperatures during PCR setup. The enzyme catalyzes the polymerization of nucleotides into duplex DNA in 5′→3′ direction in the presence of magnesium. It also possesses a 5′→3′ polymerization-dependent exonuclease replacement activity but lacks a 3′→5′ exonuclease activity.

innuTaq HOT-A DNA Polymerase requires no prolonged heating or denaturing step. The polymerase inhibiting ligand is quickly released at the increased temperature of thermal cycling.

Concentration*: 5 U/µl
Enzyme storage buffer: 20 mM Tris-HCl; 100 mM KCl; 0.1 mM EDTA; 1 mM DTT; 0.5 % Tween 20; 0.5 % Nonidet P40; 50 % (v/v) Glycerol; pH 8.0 (25 °C)
PCR Buffer:
- 10× Hot Start Buffer complete; 200 mM Tris-HCl (pH 8.5 at 25 °C); 500 mM KCl; 15 mM $MgCl_2$
- 10× Hot Start Buffer without $MgCl_2$; 200 mM Tris-HCl (pH 8.5 at 25 °C); 500 mM KCl

Mg^{2+} solution: $MgCl_2$ stock solution 25 mM

Store at –20 °C, avoid frequent thawing and freezing.



Sample application
Amplification of a 1 kb DNA fragment using innuTaq HOT-A DNA Polymerase
Lane 1: 1 kb DNA ladder, **lane 2 – 4:** innuTaq HOT-A DNA Polymerase

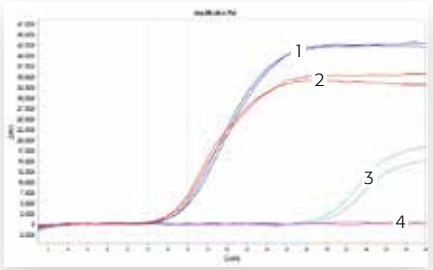
innuTaq UltraPure DNA Polymerase

Order number	Quantity
845-EZ-6000500	500 U

- Ultrapure, highly concentrated Taq DNA polymerase, free of bacterial DNA
- Can readily be used for conventional and real-time PCR alike
- Highly specific, efficient amplification
- Chemicals are ultra-pure and have undergone sterile filtration

Product description
innuTaq UltraPure DNA Polymerase is an ultrapure, DNA-free Taq polymerase that has been tested for protein purity and the absence of DNA. The enzyme can be used whenever even tiny amounts of bacterial DNA would distort results. The chemicals included are ultra-pure and have undergone sterile filtration. In addition, the scope of delivery includes a 50 mM $MgCl_2$ solution. Thus an optimization of special PCR requirements become possible at any time.

Concentration: 5 U/µl
Enzyme Storage buffer: 20 mM Tris-HCl pH 8.0, 100 mM KCl, 0.1 mM EDTA, 1 mM DTT, 0.5% NP40, 0.5% Tween 20, 50% (v/v) Glycerol
PCR buffer: 670 mM Tris-HCl pH 8.8 at 25 °C, 166 mM $(NH_4)2SO_4$, 4.5% Triton®-X-100, 2 mg/ml gelatine.
$MgCl_2$-solution: 50 mM $MgCl_2$ in PCR-grade H_2O.
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.



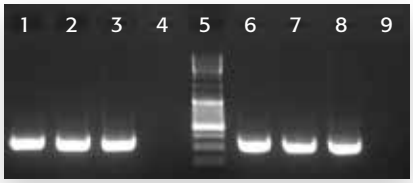
Sample application:
innuTaq UltraPure DNA Polymerase was used for determining the total microbial count for a listeria culture sample; the results were compared to those obtained with conventional Taq polymerase

	Enzyme	Ct 1	Ct 2
1	Conventional Taq polymerase	16,77	17,07
2	innuTaq UltraPure DNA Polymerase	16,21	16,42
3	NTC conventional Taq polymerase	32,71	33,78
4	NTC innuTaq UltraPure DNA Polymerase	NoCt	NoCt

innuMIX rapidPCR MasterMix

Order number	Quantity
845-AS-1600100	1 mL for 100 reactions of 20 µL each
845-AS-1600200	2 mL for 200 reactions of 20 µL each

- Ideal for *rapid*PCR runs
- Ready-to-use: including Taq DNA polymerase with high amplification speed
- Quick and easy preparation of the PCR batch
- Excellent yield and quality of the PCR products with high sample throughput



Product description

Besides having an optimized buffer system, the innuMIX *rapid*PCR MasterMix contains an ideal amount of magnesium and a high quality dNTP mix of dATP, dCTP, dGTP and dTTP. It also contains a Taq DNA polymerase with high amplification speed that is specially matched for *rapid*PCR applications.
The ready-to-use master mix offers uncomplicated and time-efficient preparation of the PCR batch, resulting in an effectively increased sample throughput while maintaining yield and product quality.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.

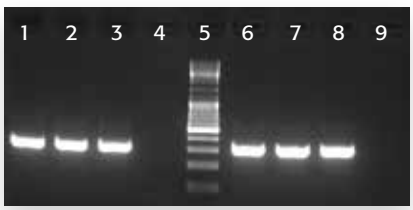
Sample application:

Lanes 1 - 3: DNA amplification of a DNA fragment using in-house PCR chemistry (innuTaq HOT-A DNA polymerase, 50x inNucleotide mix and $MgCl_2$ solution); **Lane 4:** NTC using in-house PCR chemistry; **Lane 5:** DNA control; **Lanes 6 - 8:** DNA amplification of a DNA fragment using innuMIX rapidPCR MasterMix; **Lane 9:** NTC using innuMIX rapidPCR MasterMix

innuMIX Standard PCR MasterMix

Order number	Quantity
845-AS-1700100	1 mL for 100 reactions of 20 µL each
845-AS-1700200	2 mL for 200 reactions of 20 µL each

- Ideal for use in routine PCR
- Simplified and faster preparation of PCR batches
- Optimized buffer/dNTP mix combined with an adapted Taq DNA polymerase
- High quality and yield of the PCR products



Product description

The innuMIX standard PCR MasterMix contains both an optimized buffer system, high quality dNTPs (dATP, dCTP, dGTP, dTTP) and an ideal amount of $MgCl_2$.
The ready-to-use mix also contains a Taq DNA polymerase that is ideally suited for routine PCR.
As a result of the extremely simple and fast preparation of the PCR batch, using the innuMIX standard PCR MasterMix achieves a higher sample throughput with a conventional thermocycler without having to forgo the quality and yield of PCR products.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.

Sample application:

Lanes 1 - 3: DNA amplification of a DNA fragment using in-house PCR chemistry (innuTaq HOT-A DNA polymerase, 50x inNucleotide mix and $MgCl_2$ solution); **Lane 4:** NTC using in-house PCR chemistry; **Lane 5:** DNA control; **Lanes 6 - 8:** DNA amplification of a DNA fragment using innuMIX standard PCR MasterMix; **Lane 9:** NTC using innuMIX standard PCR MasterMix

* One unit is defined as the amount of enzyme required to catalyze the incorporation of 10 nmol of dNTPs into a polynucleotide fraction in 30 minutes at 70°C.

innuMIX Green PCR MasterMix

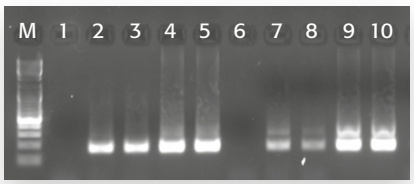
Order number	Quantity
845-AS-1400100	1 mL for 100 reactions of 20 µL each
845-AS-1400200	2 mL for 200 reactions of 20 µL each

- Maximum simplification of routine PCR
- A composition of two dyes for direct loading of agarose gels, a Taq DNA polymerase and high quality dNTPs
- Excellent PCR efficiency
- Suitable for use with most PCR instruments

Product description
The innuMIX Green PCR MasterMix was developed to make routine PCR as time-efficient and simple as possible.
A combination of all the necessary PCR chemicals of optimal concentration ensures that the innuMIX Green PCR MasterMix delivers fast, highly specific and ultrasensitive amplification of DNA fragments of up to 4 kb. Only the template and primers need to be added to the reaction, followed by enough water (suitable for PCR) to produce the final volume.
Thanks to the two dyes (yellow and blue) contained in the innuMIX Green PCR MasterMix, the amplification products can be loaded directly on an agarose gel.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.



Sample application:

Detection of the amplification products of the GAPDH gene in human DNA using the innuMIX Green PCR MasterMix
Lane M: DNA marker, **Lanes 1 – 5:** innuMIX Green PCR MasterMix, **Lanes 6 – 10:** Competing product, **Lanes 1 and 6:** Negative control, **Lanes 2, 3, 7 and 8:** DNA isolated from 5 µL whole blood; **Lanes 4, 5, 9 and 10:** DNA isolated from 50 µL whole blood

cDNA synthesis: RT enzymes and reagents

With their enzymes, kits and reagents for cDNA synthesis, innuSCRIPT products are hallmarked not only by large yields, but also by significantly improved enzyme activity across an extremely broad range of temperatures.
Individual enzymes are just as readily available as ready-to-use kits. The perfect solution for every application.

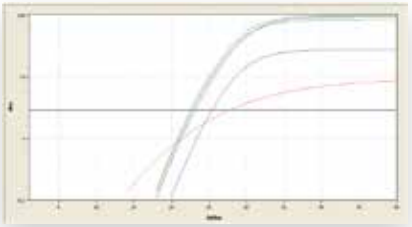
innuSCRIPT One Step RT-PCR Probe Kit

Order number	Quantity
845-RT-7000100	1 mL for 100 reactions of 20 µL each
845-RT-7000200	2 mL for 200 reactions of 20 µL each

- Contains thermostable reverse transcriptase (50°C to 55°C) and an effective RNase inhibitor.
- Reverse transcription followed by real-time PCR in a single step
- Highly sensitive
- Universally applicable: standard and fast cyclers, GC- and AT-rich templates
- Simple handling and superior reproducibility
- Fast amplification rate for Ct values that can be detected early

Product description
The innuSCRIPT One Step RT-PCR Probe Kit is a ready-to-use, 2x master mix uniting reverse transcription with subsequent qPCR in a single reaction vessel. Positive test results are already available for the reaction mix on a variety of commercially available real-time thermal cyclers. The innuSCRIPT One Step RT-PCR Probe Kit is based on cDNA synthesis and subsequent real-time PCR using specific probe-detection technologies. The kit composition was validated in such a way that each RNA template can be quantified, including mRNA, total RNA and viral sequences. Detection is also highly efficient for targets for which the number of copies is extremely small. Adding RNA template and primer to the reaction are the only preparation steps involved. The final step is to add PCR-grade water to achieve the final volume.

Concentration: 2x master mix
Mg^{2+} Lösung: The concentration of $MgCl_2$ in the master mix has been optimized, eliminating the need for adding more $MgCl_2$.
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.



Sample application:
Comparison between the innuSCRIPT One Step RT-PCR Probe Kit and various competing products; comparison included Ct value assessment.

	Kit	Ct 1	Ct 2
1	innuSCRIPT One Step RT-PCR Probe Kit	22.56	22.76
2	Competing product 1	23.14	23.36
3	Competing product 2	no Ct	27.80

innuSCRIPT One Step RT-PCR SyGreen Kit

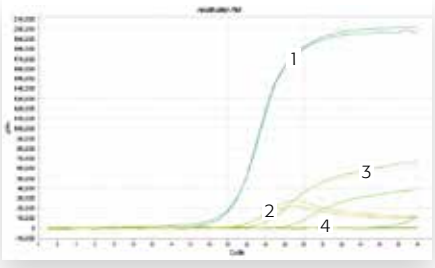
Order number	Quantity
845-RT-6000100	1 mL for 100 reactions of 20 µL each
845-RT-6000200	2 mL for 200 reactions of 20 µL each

- Reverse transcription and real-time PCR in a single step
- Real-time PCR using an intercalating dye
- Simple, well-established handling and superior re-producibility
- Compatible with most real-time PCR thermocyclers
- Highly specific, efficient reverse transcription and subsequent real-time amplification

Product description
The innuSCRIPT One Step RT-PCR SyGreen Kit was developed for fast, highly reproducible reverse transcription and subsequent real-time PCR and has been validated on the most common real-time PCR instruments. The innuSCRIPT One Step RT-PCR SyGreen Kit includes a dye that intercalates with double-stranded DNA without inhibiting the PCR reaction as many traditional PCR fluorescent dyes do. The 2x concentrated master mix also contains a thermostable reverse transcriptase (50°C to 55°C) and an effective RNase inhibitor. The composition of the innuSCRIPT One Step RT-PCR SyGreen Kit has been optimized to yield an excellent slope at optimum PCR efficiency. Users now only need to add the RNA template and primers to the reaction, followed by enough water (suitable for real-time PCR) to produce the final volume.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: at -20°C and aliquot to prevent repeated thawing and freezing.



Sample application:
Comparison between the innuSCRIPT One Step RT-PCR SyGreen Kit and various competing products, including Ct value assessment.

	Kit	Ct 1	Ct 2
1	innuSCRIPT One Step RT-PCR SyGreen kit	18,73	19,19
2	Competitor 1	23,16	22,98
3	Competitor 2	28,15	24,58
4	Negative controls	no Ct	

Enzymes for cDNA synthesis (reverse transcription)

innuSCRIPT Reverse Transcriptase

Order number	Quantity
845-RT-5000010	10 reactions (250 U)
845-RT-5000050	50 reactions (1,250 U)
845-RT-5000200	200 reactions (5,000 U)

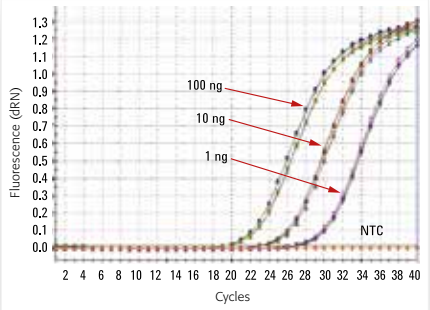
- Improved specificity and activity in cDNA synthesis
- Can be used at a wide range of temperatures (42°C – 55°C)
- Positive test results for product sizes of 0.5 – 9 kb
- Free of detectable endonuclease, exonuclease and RNase activity

Product description
innuSCRIPT Reverse Transcriptase is a genetically engineered version of MMLV reverse transcriptase. Genetic engineering has made the enzyme more specific and active in cDNA synthesis—even within a broad temperature range of 42°C to 55°C. Plus, innuSCRIPT Reverse Transcriptase produces higher cDNA synthesis yields than traditional enzymes, delivering excellent results for real-time PCR. innuSCRIPT Reverse Transcriptase has been tested for cDNA synthesis using various RNA starting samples and product sizes ranging from 0.5 to 9.0 kb.

The enzyme tested negative for detectable endonu-clease, exonuclease and RNase activity.

Concentration: 25 U/µL
Enzyme storage buffer: 20 mM Tris-HCl, pH 8.0; 0.1 mM EDTA; 1 mM DTT; 0.01% Igepal CA-630; 0.1 M NaCl; 50% Glycerol
10× RT-Buffer: 500 mM Tris-HCl (pH 8.3 at 25 °C); 750 mM KCl; 30 mM $MgCl_2$
DTT solution: 100 mM

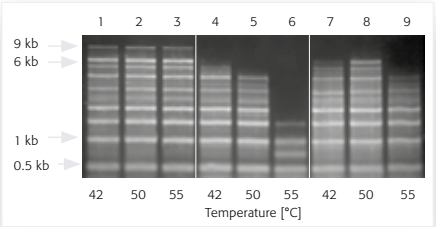
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.



Sample application:

cDNA synthesis from total RNA was performed at various reaction temperatures (42°C, 50°C and 55°C) using oligo(dT) primer. The amount of template used was the same as the amount of total RNA added to the cDNA synthesis reaction (100 ng, 10 ng, 1 ng). qPCR of the ODC gene (using Brilliant® SYBR® Green qPCR Master Mix from Stratagene) showed that Ct values were the same for any given quantity of RNA, regardless of the incubation temperature (see graph), e.g., 100 ng RNA yielded Cts of 19.27, 19.30 and 19.44 at 42°C, 50°C and 55°C, respectively (see table).

Temperature (°C)			
RNA quantity	42°C	50°C	55°C
100 ng	Ct 19.27	Ct 19.30	Ct 19.44
10 ng	Ct 23.00	Ct 22.83	Ct 23.12
1 ng	Ct 26.59	Ct 26.31	Ct 26.92
NTC	no Ct	no Ct	no Ct



Comparison between innuSCRIPT Reverse Transcriptase and traditional cDNA enzymes at various temperatures
Lanes 1 – 3: innuSCRIPT Reverse Transcriptase, **Lanes 4 – 6 and 7 – 9:** MMLV reverse transcriptases from various providers

Real-time PCR: master mixes

Whether you're working with intercalating dyes or probe assays, innuMIX master mixes are the ideal amplification reagents for a variety of different real-time PCR applications.
The concentration of these mixes has been doubled, which enormously simplifies setup, significantly reduces hands-on steps and minimizes sources of error.

innuMIX qPCR MasterMix Probe

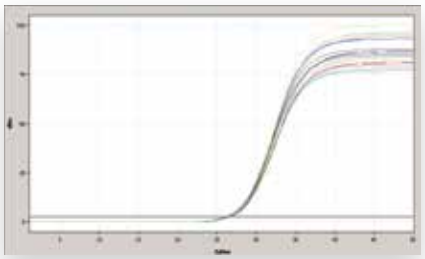
Order number	Quantity
845-AS-1200100	1 mL for 100 reactions of 20 µL each
845-AS-1200200	2 mL for 200 reactions of 20 µL each

- Ready-to-use master mix for use in probe-based, real-time PCR
- Includes innuTaq Hot-A DNA Polymerase and high-quality dNTPs in a 2x formulation
- Simple, well-established handling combined with superior reproducibility
- Excellent PCR efficiency and slope
- Ideal for most commercially available real-time PCR instruments

Product description
innuMIX qPCR MasterMix Probe has been developed for fast, highly reproducible, real-time PCR and validated on the most common real-time instruments. The master mix can be readily combined with an extremely wide variety of probe systems, including TaqMan® and rehybridization probes. By delivering the perfect combination of the latest chemistry and PCR enhancer developments with a hot-start Taq DNA polymerase, this product allows researchers to achieve highly specific, ultrasensitive, real-time PCR results. Plus, it also significantly reduces the time required to prepare the qPCR batch, while making the process radically easier to handle. Users now only need to add the template, probes and primers to the reaction, followed by enough water (suitable for real-time PCR) to produce the final volume—prep work that can readily be carried out at room temperature.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: Store at -20 °C, avoid frequent thawing and freezing by preparing aliquots.



Sample application
Using a FAM-labeled probe in qTOWER 2.0 to identify the SRY gene in human DNA

Sample	1	2	3	4	5	6	7	8	9
Ct 1	26.52	26.08	26.21	26.62	26.56	26.58	26.25	26.17	26.38
Ct 2	26.10	26.15	26.03	26.10	26.31	26.43	26.72	26.42	26.41

innuMIX qPCR MasterMix SyGreen

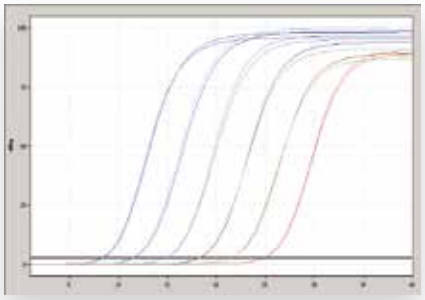
Order number	Quantity
845-AS-1300100	1 mL for 100 reactions of 20 µL each
845-AS-1300200	2 mL for 200 reactions of 20 µL each

- Ready-to-use master mix for use in real-time PCR
- Includes highly specific Taq DNA polymerase, high-quality dNTPs and intercalating dye
- Very high reproducibility and PCR efficiency
- Simple handling and fast qPCR preparation
- Can be used on most qPCR thermocyclers

Product description
innuMIX qPCR MasterMix SyGreen is a ready-to-use master mix for real-time PCR. The mix includes a dye that intercalates with double-stranded DNA and, unlike many other PCR fluorescent dyes, does not inhibit the PCR reaction. The composition of innuMIX qPCR MasterMix SyGreen has been tested using the most common real-time instruments, validating an excellent slope at optimum PCR efficiency. Another advantage of the system is its simple handling and fast qPCR batch preparation. After adding the template and primers, the only remaining step is to add enough suitable water to achieve the desired final reaction volume; the reaction will then be immediately ready for qPCR. The results achieved are highly reproducible and sensitive.

The concentration of $MgCl_2$ in the master mix is already ideal, eliminating the need to add any more.

Concentration: 2x master mix
Storage: Store at -20°C and aliquot to prevent repeated thawing and freezing.



Sample application
DNA dilution series for detecting the human SRY gene (using innuMix qPCR MasterMix SyGreen and qTOWER).

Dilution	undiluted	1:10	1:100	1:1,000	1:10,000	1:100,000
Ct 1	8.34	11.39	14.78	18.15	21.41	24.82
Ct 2	8.37	11.41	14.74	18.20	21.43	24.88

dNTP's, DNA ladders, buffers and additives

Complementing its line of PCR and real-time PCR enzymes and master mixes, Analytik Jena also offers an array of products for gel electrophoresis, home-made PCR reactions and additives for special applications.

Desoxynukleotide (dNTP's)

50× inNucleotide Mix (12.5 mM, 2 × 25 µmol)

Order number	Quantity
845-AS-9000100	2 × 0.5 ml

- Purity > 98 % (RP-HPLC)
- RNase-free, Protease-free
- Free from PCR inhibitors

Product description
Analytik Jena's ready-to-use nucleotide mix provides highest quality of desoxynucleotides. All dNTPs are ultra pure (> 98 %) and quality checked by a set of PCR, RT-PCR and Klenow reactions. It is supplied as a 50-fold concentrated mix of ultra pure dATP, dCTP, dGTP and dTTP with 12.5 mM each. The total amount of dNTP in each tube is 25 µmol (6.25 µmol of each dNTP).

Quality control: The desoxynucleotide solution has a purity of > 98 % and is functionally tested by real-time amplification of 30 kb DNA fragments.
Pack size: 2 × 25 µmol
Concentration: 12.5 mM of each dNTP
Store at –20 °C, avoid frequent thawing and freezing.

inNucleotide Set (100 mM; 4 × 25 µmol)

Order number	Quantity
845-AS-1100250	4 × 0.25 ml

- Purity > 98 % (RP-HPLC)
- RNase-free, Protease-free
- Free from PCR inhibitors

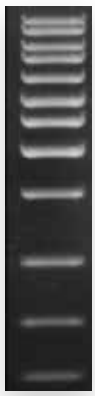
Product description
A set of 4 separate 100 mM solutions (dATP, dGTP, dCTP, dTTP). Each tube contains 25 µmol (250 µl) of the corresponding dNTP.

Quality control: The desoxynucleotide solutions have a purity of > 98 % and are functionally tested by real-time amplification of 30 kb DNA fragments.
Pack size: 4 × 25 µmol
Concentration: 100 mM of each dNTP
Store at –20 °C, avoid frequent thawing and freezing.

DNA ladders and loading buffers

100 bp DNA Ladder Express
0.5 µg/lane = 5 µL; 0.5 x TBE buffer, 1.5% agarose gel

Number of bands: 10
Size range: 10 – 1,000 bp
Band size: contains bands in multiples of 100 bp (100 bp, 200 bp, 300 bp, 400 bp, 500 bp, 600 bp, 700 bp, 800 bp, 900 bp, 1,000 bp)



1 kb DNA Ladder Express
0.5 µg/lane = 5 µL; 1 x TAE buffer, 1.0% agarose gel

Number of bands: 13
Size range: 300 – 10,000 bp
Band size: contains bands in the following increments: 300 bp, 500 bp, 700 bp, 1,000 bp, 1,500 bp, 2,000 bp, 2,500 bp, 3,000 bp, 4,000 bp, 5,000 bp, 6,000 bp, 8,000 bp and 10,000 bp

DNA ladders from innuSTAR have been developed for determining the precise size of DNA fragments on an agarose gel; fragment sizes range between 100 and 1,000 bp and/or between 300 and 10,000 bp. These ladders have received excellent reviews when compared to other products available on the market. innuSTAR DNA ladders are stable for long periods, and yield distinct, easy-to-recognize bands.

Features of the ladder:
- 100 lanes per tube
- Stable for 6 months at 4°C; may be stored for longer periods at -20°C
- Contains no dNTPs
- Ladders consist of a 1:10 blend of ladder and bromophenol blue and can be loaded directly onto the gel.
- Uniformly visible bands after staining with ethidium bromide.

Volume: 500 µL/tube
Concentration: 0.1 µg/µL
Recommended loading volume: 5 µL

Storage and stability: May be stored for long periods at -20°C; avoid repeated thawing and freezing.

innuSTAR 100 bp DNA Ladder Express

Order number	Quantity
845-ST-1010100	500 µL
845-ST-1010500	5 × 500 µL

innuSTAR 1 kb DNA Ladder Express

Order number	Quantity
845-ST-1020100	500 µL
845-ST-1020500	5 × 500 µL

6× Loading Dye Bromophenol Blue

Order number	Quantity
845-ST-3010003	3 × 1 mL
845-ST-3010006	6 × 1 mL

Product description: The 6x loading dye contains bromophenol blue and xylene cyanol FF. This ready-to-use solution is suitable for loading samples onto agarose and polyacrylamide gels.

Composition: 10 mM Tris-HCl (pH 7.6), 0.03% bromophenol blue, 0.03% xylene cyanol FF, 60% glycerol, 60 mM EDTA.

6× Loading Dye Orange G

Order number	Quantity
845-ST-4010003	3 × 1 mL
845-ST-4010006	6 × 1 mL

Product description: The 6x loading dye contains Orange G and xylene cyanol FF. This ready-to-use solution is suitable for loading samples onto agarose and polyacrylamide gels.

Composition: 10 mM Tris-HCl (pH 7.6), 0.15% Orange G, 0.03% xylene cyanol FF, 60% glycerol, 60 mM EDTA.

Reagents and additives

$MgCl_2$-Solution

Order number	Quantity
845-AS-1000015	3x 1.5 ml (25 mM)
845-AS-1010015	3x 1.5 ml (50 mM)

Product description: A $MgCl_2$ solution for polymerase chain reaction, 25 mM or 50 mM. The amount of $MgCl_2$ has to be optimized in dependance on other PCR conditions (Taq polymerase, primer, template etc.).

10× PCR Reaction Buffer with NH_4

Order number	Quantity
845-AS-7000015	3 × 1.5 ml

Product description: A 10-fold concentrated Taq Polymerase Buffer for PCR. This buffer is optimized to improve amplification rates of a PCR amplification process, especially for longer and difficult templates. The buffer can also be used together with all DNA polymerases from Analytik Jena.

Storage and stability: Store at –20 °C, avoid frequent thawing and freezing.

10× PCR Reaction Buffer with KCl

Order number	Quantity
845-AS-8000015	3 × 1.5 ml

Product description: A 10-fold concentrated Taq Polymerase Buffer for PCR. The buffer can also be used together with all DNA polymerases from Analytik Jena.

Storage and stability: Store at –20 °C, avoid frequent thawing and freezing.

PCR-grade H_2O

Order number	Quantity
845-AS-1800002	2.0 mL
845-AS-1800010	5x 2.0 mL

- Contains no nucleases (DNase or RNase)
- Contains no gDNA or nucleic acid contaminants
- Contains no proteases
- Suitable for use in microbiology, PCR and real-time PCR applications
- Autoclaved and membrane filtered
- No DEPC treatment

Product description: PCR-grade H_2O contains no nucleases or nucleic acids of any kind that could produce false positives in real-time PCR. This product can be used for all molecular biology techniques, as it contains only sterile, deionized water and no chemicals such as DEPC (diethylpyrocarbonate). The water can be used immediately and requires no preparation, mixing or autoclaving steps.

Quality control: PCR-grade H_2O is tested for bacterial contamination using real-time PCR. Store at -20°C and aliquot to prevent repeated thawing and freezing.

Storage and stability: PCR-grade H_2O will remain stable for at least 1 year if unopened and stored at room temperature.

Analytik Jena | Life Science offers a comprehensive range of kits and reagents for nucleic acid and protein diagnostic in human, veterinary, food and environment area.

Kits and reagents for diagnostics

Laboratory Notebook

Order your own laboratory notebook in Analytik Jena | Life Science Design.

Whether you are scientist or student, laboratory notebook is an essential part of each research project. With the laboratory notebook of Analytik Jena you are perfectly able to document your laboratory research and daily work results.

- High-quality Analytik Jena | Life Science design
- Table of content for your personal structure
- Including introduction and conversion table
- Size: 120 pages in A4 format (squared paper)

Order information

Order number	Quantity
844-MA205-2	1 piece

Kits and reagents for diagnostics

rapidSTRIPE Assays

The rapidSTRIPE Assays use as final detection system a lateral flow strip (LFS) which shows a clear yes or no result and is independable from expensive equipment. The assays is composed in modules which all fit to each other. By that way nucleic acid exraction, amplification and detection can be choosen individuallly.

Immuno-Assays

ELISA for detection and quantification of neurodegenerative diseases (BSE, CJD, AD, PD), virus infections (PRRSV) and other pathological processes (TG2).

innuDETECT Assays

The innuDETECT Assays use real-time PCR as detection platform. The integrated new and patented probe system is as sensitive and specific as standard probe systems. As the assays are composed in modules nucleic acid extraction, amplification and detection can be choosen individually.

RoboGene® Assays

RoboGene® Assays are Real-Time PCR Kits for quantitative and qualitative detection of nucleic acids target sequences. Kit versions for several targets are available which fit with the majority of Real-Time PCR platforms on the market. The kits have a perfect analytical and diagnostic specificity.

VYOO®

VYOO® is a multiplex PCR assay containing a mechanical lysis step for whole blood, automated total DNA extraction and a unique patented pathogen DNA enrichment technology VYOO® rapidly identifies sepsis causing bacteria, fungi and antibiotic resistances with high sensitivity and specificity.

LOOXSTER®

LOOXSTER® is a technology for the enrichment of bacterial and fungal DNA in DNA isolates containing predominant amounts of mammalian DNA. Resulting DNA is available for all kinds of downstream applications. LOOXSTER® is an enabling technology enhancing the efficiency of downstream applications. All system components are PureProve® level assuring low risk of foreign DNA contamination.

Antibodies and proteins

Well characterized antibodies for use in different immunochemical techniques (ELISA, WB, IHC, IP, FACS) – for neurodegenerative diseases partially unique worldwide. Recombinant and synthetic proteins are offered for research of neurodegenerative diseases.

Human diagnostics

Nowadays it is increasingly important to be able to identify human pathogens quickly and clearly. For this purpose, we have developed CE-IVD certified ready-to-use kits specially designed for the highly sensitive detection of various microorganisms.

The Kits of the product group rapidSTRIPE and RoboGene convince trough accurate and reliable results even at lowest detection limits.

RoboGene® **HBV DNA Quantification** Kit – CE

- Real-time PCR quantification of Hepatitis B virus (HBV) DNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for HBV DNA or for confirmation of an HBV infection
- Stably coated and ready-to use standards
- Low detection limit (17 IU/ml)
- Detects all HBV genotypes
- CE-IVD labelled (see order information)

Product description

The RoboGene® HBV DNA Quantification Kit is intended for real-time PCR quantification of Hepatitis B Virus (HBV) DNA in human EDTA plasma or serum samples. The level of HBV DNA in plasma or serum can be used in conjunction with other clinical markers and clinical findings to distinguish between acute and chronic HBV infection and to assess the viral response to antiviral treatment.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes DNA_D1 to control DNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic HBV DNA, which must be amplified in parallel. Amplification of HBV DNA in samples and standards and of IC DNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

DNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 16 non-HBV-positive specimens. Furthermore, 108 plasma samples from blood donors which have been tested negative for HBV DNA using the CobasTaqMan HBV kit were analysed to determine the diagnostic specificity. The RoboGene® HBV DNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for HBV DNA.

Kit components

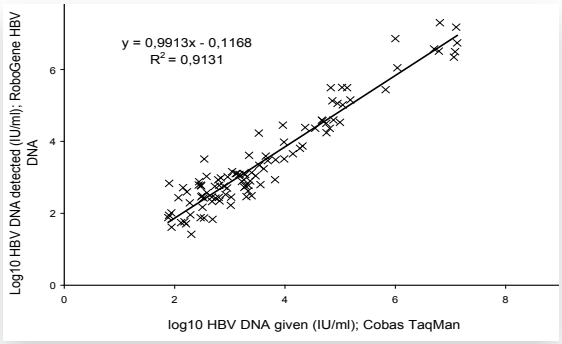
- Extraction tubes coated with IC DNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic HBV DNA, IC DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HBV and Internal control DNA (IC) specific primers, probes and dNTPs
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® HBV DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the HBV DNA Quantification Kit and Taq polymerase at –15°C to –40°C in the dark immediately upon arrival.

Sample application

Diagnostic evaluation: comparison of the RoboGene® HBV DNA Quantification Kit (sample purification with the INSTANT Virus DNA Kit) with the CobasTaqMan HBV kit. The correlation of quantitative results from both tests (n=101) was analyzed by linear regression. The equation of the respective regression lines is included in the figure.



DNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HBV DNA Quantification Kit	847-0207300102	100 tests	ABI 7000/7300/7700	CE
	847-0207300104	50 tests		
	847-0207300142	100 tests	Rotor-Gene 3000/6000	CE
	847-0207300144	50 tests		
	847-0207300162	100 tests	Low profile-Block cycler	CE
	847-0207300164	50 tests		
	847-0207300182	100 tests	TOptical	RUO
	847-0207300184	50 tests		
	847-0207300152	100 tests	SmartCycler®	RUO
	847-0207300154	50 tests		
	847-0207300132	100 tests	LightCycler™	RUO
	847-0207300134	50 tests		
	847-0207300172	100 tests	Spartan Dx-12	RUO
	847-0207300174	50 tests		

RoboGene® **HCV RNA Quantification** Kit – CE

- Real-time PCR quantification of Hepatitis C virus (HCV) RNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for HCV RNA or for confirmation of an HCV infection
- stably coated and ready-to use standards
- Low detection limit (68 IU/ml)
- Detects all HCV genotypes
- CE-IVD labelled (see order information)

Product description

The RoboGene® HCV RNA Quantification Kit is intended for real-time quantification of Hepatitis C Virus *(HCV)* RNA in human plasma or serum samples. The level of HCV RNA in serum and plasma can be used in conjunction with other clinical markers and clinical findings to distinguish between acute and chronic *HCV* infection and to assess the viral response to antiviral treatment.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes RNA_D1 to control RNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic HCV RNA, which must be amplified in parallel. Amplification of HCV RNA in samples and standards and of IC RNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

RNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 3 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 12 non-*HCV* positive specimens. Furthermore, 105 plasma samples from blood donors which have been tested negative for *HCV* RNA using the CobasTaqMan HCV kit were analysed to determine the diagnostic specificity. The RoboGene® HCV RNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *HCV* RNA.

Kit components

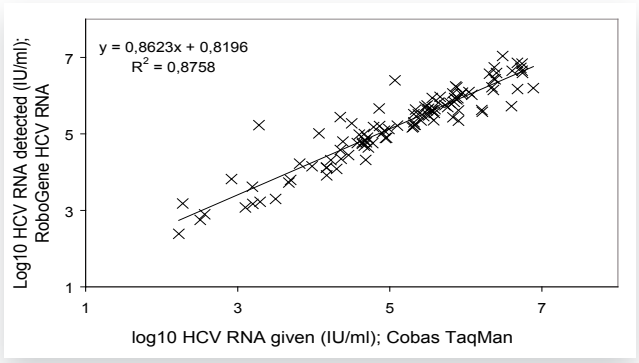
- Extraction tubes coated with IC RNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic HCV RNA, IC RNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HCV and Internal control RNA (IC) specific primers and probes
- RT-PCR enzyme mix and corresponding 2x reaction mix

Storage conditions and stability

The RoboGene® HCV RNA Quantification Kit is delivered at room temperature except the RT-PCR enzyme, 2 x reaction mix and Mg-sulfate solution, 50 mM which are shipped on dry ice. Store the HCV RNA Quantification Kit incl. RT-PCR enzyme/2x reaction mix/Mg-sulfate solution at –15 C to –40°C in the dark immediately upon arrival.

Sample application

Diagnostic evaluation: comparison of the RoboGene® HCV RNA Quantification Kit with the the CobasTaqMan HCV kit. A: sample purification with the QIAamp DSP Virus Kit (n=108). The correlation of quantitative results from both tests was analyzed by linear regression. The equation of the respective regression lines is included in the figure.



RNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HCV RNA Quantification Kit	847-0207200102	100 tests	ABI 7000/7300/7700	RUO
	847-0207200104	50 tests		
	847-0207200142	100 tests	Rotor-Gene 3000/6000	CE
	847-0207200144	50 tests		
	847-0207200162	100 tests	Low profile-Block cycler	CE
	847-0207200164	50 tests		
	847-0207200182	100 tests	TOptical	RUO
	847-0207200184	50 tests		
	847-0207200152	100 tests	SmartCycler®	RUO
	847-0207200154	50 tests		
	847-0207200132	100 tests	LightCycler™	RUO
	847-0207200134	50 tests		
	847-0207200172	100 tests	Spartan Dx-12	RUO
	847-0207200174	50 tests		

RoboGene® **HDV RNA Quantification** Kit

- Real-time PCR quantification of HDV RNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for HDV RNA or for confirmation of an HDV infection
- Low detection limit (500 IU/ml)
- Stably coated and ready-to use standards

Product description

The RoboGene® HDV RNA Quantification Kit is intended for real-time quantification of Hepatitis D Virus *(HDV)* RNA in human EDTA plasma and serum. The level of *HDV* RNA in serum and plasma can be used in conjunction with other clinical markers and clinical findings to distinguish between acute and chronic *HDV* infection and to assess the viral response to antiviral treatment.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes RNA_D1 to control RNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic HDV RNA, which must be amplified in parallel. Amplification of HDV RNA in samples and standards and of IC RNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

RNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 3 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 15 non-*HDV* positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for *HDV* RNA were analysed to determine the diagnostic specificity. The RoboGene® HDV RNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *HDV* RNA.

Kit components

- Extraction tubes coated with IC RNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic HDV RNA, IC RNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HDV and Internal control RNA (IC) specific primers and probes
- RT-PCR enzyme mix and corresponding 2x reaction mix

Storage conditions and stability

The RoboGene® HDV RNA Quantification Kit is delivered at room temperature except the RT-PCR enzyme, 2 x reaction mix and Mg-sulfate solution, 50 mM which are shipped on dry ice. Store the HDV RNA Quantification Kit incl. RT-PCR enzyme/2x reaction mix/Mg-sulfate solution at –15 C to –40°C in the dark immediately upon arrival.

Sample application

RoboGene® HDV RNA Quantification Kit. Analytical sensitivity determination using *HDV* positive serum and a Rotor-Gene 3000 instrument.

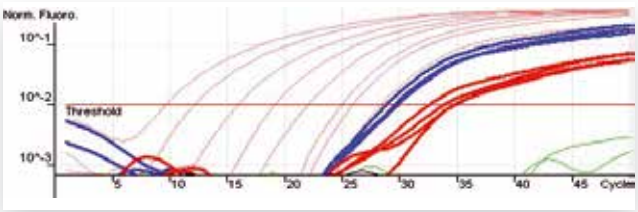


Abb. A.: *HDV* target saturation curves: standards (pink), 1000 IU/ml (blue), 500 IU/ml (red), negatives (green).

RNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HDV RNA Quantification Kit	847-0207400502	100 tests	ABI 7000/7300/7700	RUO
	847-0207400504	50 tests		
	847-0207400542	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207400544	50 tests		
	847-0207400562	100 tests	Low profile-Block cycler	RUO
	847-0207400564	50 tests		

RoboGene® **HIV-1 Quantification RNA** Kit

- Real-time PCR quantification of HIV-1 RNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for HIV-1 RNA or for confirmation of an HIV-1infection
- Low detection limit (300 IU/ml)
- Stably coated and ready-to use standards
- Detects the most of HIV-1 genotypes

Product description

The RoboGene® HIV-1 RNA Quantification Kit is intended for real-time quantification of Human Immunodeficiency Virus type 1 *(HIV-1)* RNA in human EDTA plasma and serum. The level of *HIV-1* RNA in serum and plasma can be used in conjunction with other clinical markers and clinical findings to distinguish between acute and chronic *HIV-1* infection and to assess the viral response to antiviral treatment.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes RNA_D1 to control RNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic HIV RNA, which must be amplified in parallel. Amplification of HIV RNA in samples and standards and of IC RNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

RNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 3 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 15 non HIV-positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for *HIV-1* RNA were analysed to determine the diagnostic specificity. The RoboGene® HIV-1 RNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *HIV-1* RNA.

Kit components

- Extraction tubes coated with IC RNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic HIV RNA, IC RNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HIV and Internal control RNA (IC) specific primers and probes
- RT-PCR enzyme mix and corresponding 2x reaction mix

Storage conditions and stability

The RoboGene® HIV RNA Quantification Kit is delivered at room temperature except the RT-PCR enzyme, 2 x reaction mix and Mg-sulfate solution, 50 mM which are shipped on dry ice. Store the HIV RNA Quantification Kit incl. RT-PCR enzyme/2x reaction mix/Mg-sulfate solution at –15 C to –40°C in the dark immediately upon arrival.

Sample application

RoboGene® HIV-1 RNA Quantification Kit. Quantification limits determination using a Rotor-Gene 3000 instrument. Blue thick curves: 300 IU per ml (150 copies per ml).

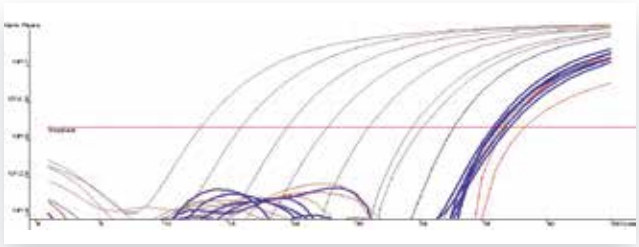


Abb. A.: RoboGene® HIV-1 RNA Quantification Kit. Quantification limits determination using a Rotor-Gene 3000 instrument. Blue thick curves: 300 IU per ml (150 copies per ml).

RNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HIV-1 Quantification RNA Kit	847-0207200302	100 tests	ABI 7000/7300/7700	RUO
	847-0207200304	50 tests		
	847-0207200342	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207200344	50 tests		
	847-0207200362	100 tests	Low profile-Block cycler	RUO
	847-0207200364	50 tests		
	847-0207200352	100 tests	SmartCycler®	RUO
	847-0207200354	50 tests		

RoboGene® **HCMV DNA Quantification** Kit

- Real-time PCR quantification of HCMV DNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for HCMV DNA or for confirmation of an HCMV infection
- Stably coated and ready-to use standards
- Low detection limit (500 copies/ml)

Product description

The RoboGene® HCMV DNA Quantification Kit is intended for real-time PCR quantification of Human Cytomegalovirus (HCMV) DNA in human EDTA plasma or serum samples.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes DNA_D1 to control DNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic HCMV DNA, which must be amplified in parallel. Amplification of HCMV DNA in samples and standards and of IC DNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

DNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 15 non *HCMV*-positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for HCMV DNA were analysed to determine the diagnostic specificity. The RoboGene® HCMV DNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *HCMV* DNA.

Kit components

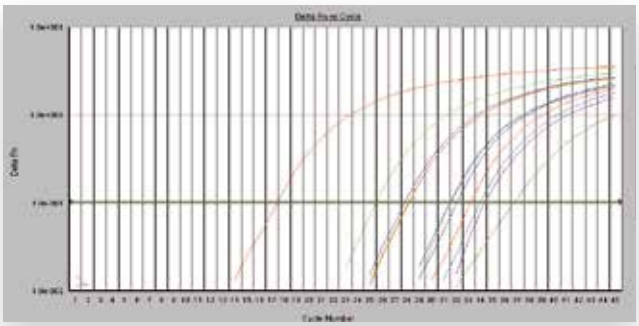
- Extraction tubes coated with IC DNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic HCMV DNA, IC DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HCMV and Internal control DNA (IC) specific primers, probes and dNTPs
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® HCMV DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the HCMV DNA Quantification Kit and Taq polymerase at –15 C to – 40°C in the dark immediately upon arrival.

Sample application

Quantification of *HCMV* genomes using an ABI PRISM 7000 SDS. The data show the amplification of a dilution series (500,000; 50,000; 5,000 and 500 copies/ml, respectively) of OptiQuant CMV DNA Quantification Panel.



DNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HCMV DNA Quantification Kit	847-0207500202	100 tests	ABI 7000/7300/7700	RUO
	847-0207500204	50 tests		
	847-0207500242	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207500244	50 tests		
	847-0207500262	100 tests	Low profile-Block cycler	RUO
	847-0207500264	50 tests		
	847-0207500252	100 tests	SmartCycler®	RUO
	847-0207500254	50 tests		
	847-0207500232	100 tests	LightCycler™	RUO
	847-0207500234	50 tests		
	847-0207500272	100 tests	Spartan Dx-12	RUO
	847-0207300274	50 tests		

RoboGene® **EBV DNA Quantification** Kit

- Real-time PCR quantification of Epstein-Barr virus (EBV) DNA
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for EBV DNA or for confirmation of an EBV infection
- Stably coated and ready-to use standards

Product description

The RoboGene® EBV DNA Quantification Kit is intended for real-time PCR quantification of Epstein-Barr virus *(EBV)* DNA in human blood or tissue samples. *EBV* is associated to the etio-pathogenesis of an increasing number of tumors, e.g. B-cell Non-Hodgekin lymphoma and Burkitt's lymphoma. Detection/quantification of *EBV* in pathology samples is relevant since its high prevalence in some cancers makes the virus a promising target of monitoring the success of specific therapies.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes DNA_D1 to control DNA extraction and to indicate for inhibitory effect on detection. Quantitation standard consists of 8 tubes coated with given amounts of synthetic *EBV* DNA, which must be amplified in parallel. Amplification of *EBV* DNA in samples and standards and of IC DNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

DNA from human blood or tissue samples

Detection time

Standard qPCRcycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 16 non-EBV positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for EBV DNA were analysed to determine the diagnostic specificity. The RoboGene® EBV DNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for EBV DNA.

Kit components

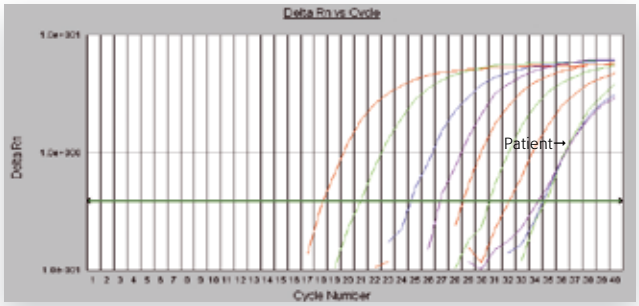
- Extraction tubes coated with IC DNA and carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic EBV DNA, IC DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing EBV and Internal control DNA (IC) specific primers, probes and dNTPs
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® EBV DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the *EBV* DNA Quantification Kit and Taq polymerase at –15 C to -40°C in the dark immediately upon arrival.

Sample application

DNA from 200 µl of frozen patient EDTA blood sample evaluated positive for *EBV* IgG (5,400 copies/ml) was purified with the INSTANT Virus DNA Kit. 50 ng of purified sample DNA were measured in duplicate experiments using the RoboGene® EBV DNA Quantification Kit.



DNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® EBV DNA Quantification Kit	847-0207300302	100 tests	ABI 7000/7300/7700	RUO
	847-0207300304	50 tests		
	847-0207300342	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207300344	50 tests		
	847-0207300362	100 tests	Low profile-Block cycler	RUO
	847-0207300364	50 tests		

RoboGene® **PVB19 Quantification DNA** Kit

- Real-time PCR quantification of PVB19
- Perfect analytical and diagnostic specificity
- Not intended for screening of blood or blood products for PVB19 RNA or for confirmation of an PVB19 infection
- Detects all three erythrovirus (PVB19) genotypes (genotype 1, 2, 3)
- Stably coated and ready-to use standards

Product description

The RoboGene® PVB19 DNA Quantification Kit is intended for real-time PCR quantification of Parvovirus B19 DNA in serum, plasma, amniotic or synovial fluid samples. The detection of *PVB19* DNA assay is recommended on suspicion of Parvovirus infection of pregnant women, trans-placentalhydropsfetalis measured in umbilicalcord blood, severe fetal anemia, cardiomyopathy, and *PVB19*-associated athritis in synovial fluid of immune suppressed patients with persisting infection. Detection of *PVB19* in clinical samples is relevant in monitoring the success of specific therapies.

Procedure

Quantitation standard consists of 8 tubes coated with given amounts of synthetic PVB19 DNA, which must be amplified in parallel. Amplification of PVB19 DNA in samples and standards is measured in the FAM channel of the respective real-time instrument.

Product specifications

Starting material
DNA from human blood or tissue samples

Detection time
Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Analytical and diagnostic specificity
The analytical specificity was evaluated by analyzing 16 non-*PVB19* positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for *PVB19* DNA were analysed to determine the diagnostic specificity. The RoboGene® PVB19 DNA Quantification Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *PVB19* DNA.

Kit components

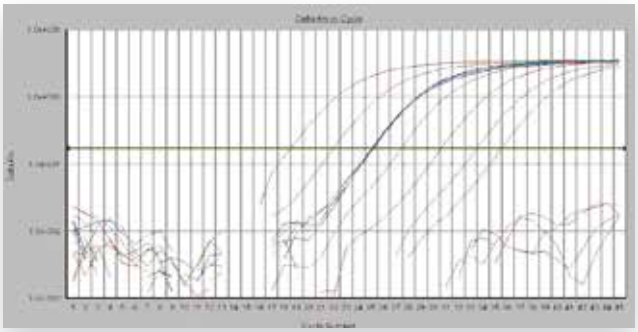
- Extraction tubes coated with carrier nucleic acid
- Quantitation standard tubes coated with different amounts of synthetic PVB19 DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing PVB19 specific primers, probes and dNTPs
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® PVB19 DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the PVB19 DNA Quantification Kit and Taq polymerase at –15 C to -40°C in the dark immediately upon arrival.

Sample application

Quantification of *PVB19* genomes using an ABI PRISM 7000 SDS. Saturation curves. The data represent the amplification of the ready-to-use *PVB19* DNA controls (9x107, 9x106, 9x105, 2.25x105, 9x104, 2.25x104, 4.5x103, 9x102 IU per tube) and WHO standard for *PVB19* NAT assay; NIBSC code 99/800; Charge EN63QG; 1x106 IU/ml.



DNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® PVB19 Quantification DNA Kit	847-0207300402	100 tests	ABI 7000/7300/7700	RUO
	847-0207300404	50 tests		
	847-0207300442	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207300444	50 tests		
	847-0207300462	100 tests	Low profile-Block cycler	RUO
	847-0207300464	50 tests		

Minimal residual disease (MRD) in hematology / oncology

- Real-time PCR quantification of cDNA
- Perfect analytical and diagnostic specificity
- Stably coated and ready-to use standards

Product description

Minimal residual disease (MRD) is the name given to small numbers of leukaemic cells that remain in the patient during treatment, or after treatment when the patient is in remission. It is the major cause of relapse in cancer and leukaemia in cancertreatment, particular lyleukaemia, MRD testing has several important roles: determining whether treatment has eradicated the cancer or whether traces remain, comparing the efficacy of different treatments, monitoring patient remission status and recurrence of the leukaemia or cancer and choosing the treatment that will best meet those needs (personalization of treatment). 5 Kits are offered for detection of MRD: RoboGene® M-BCR-ABL Kit, RoboGene® mi-BCR Kit, RoboGene® PML-RARA Kit, RoboGene® MBR Kit and RoboGene® HER2/NEU Kit.

Procedure

Total RNA or mRNA samples prior transcribed into cDNA using random hexanucleotides are amplified and detected by Real-Time PCR. The quantification of M-BCR-ABL, mi-BCR, PML-RARA, MBR or HER2/NEU is performed by using 8 standards. The data should be normalized to the number of c-ABL or GAPDH transcripts as housekeeping genes.

Product specifications

Starting material

cDNA from human blood or tissue samples

Kit components

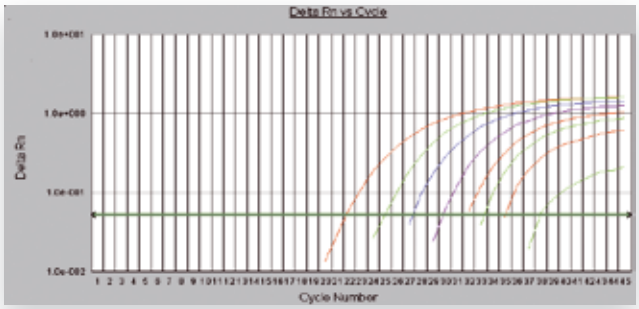
- Quantitation standard tubes coated with different amounts of synthetic M-BCR-ABL, mi-BCR, PML-RARA, MBR or HER2/NEU DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing M-BCR-ABL, mi-BCR, PML-RARA, MBR or HER2/NEU DNA specific primers, probes and dNTPs

Storage conditions and stability

After delivery at room temperature store cDNA Quantification kits-tubes at –20°C. Protect Real-Time reagent mix, lyophilized always from light and store at –20°C in the dark.

Sample application

Quantification of *M-BCR* cDNA using an ABI PRISM 7000 SDS. Saturation curves. The data represent the amplification of the ready-to-use *M-BCR* DNA controls.



RNA isolation products

innuPREP Blood RNA Kit 68
innuPREP Blood RNA Midi Direct Kit 34

Order information

Product	Order number	Contents	Version	IvD
RoboGene® M-BCR-ABL Kit; t(9;22)	847-0202000102	100 tests	ABI 7000/7300/7700	RUO
	847-0202000142	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202000162	100 tests	Low profile-Block cycler	RUO
	847-0202000132	100 tests	LightCycler™	RUO
RoboGene® mi-BCR Kit; t(9;22)	847-0202000202	100 tests	ABI 7000/7300/7700	RUO
	847-0202000242	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202000232	100 tests	LightCycler™	RUO
RoboGene® PML-RARA Kit; t(15;17)	847-0202001602	100 tests	ABI 7000/7300/7700	RUO
	847-0202001642	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202001632	100 tests	LightCycler™	RUO
RoboGene® MBR Kit; t(14;18)	847-0202002102	100 tests	ABI 7000/7300/7700	RUO
	847-0202002142	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202002132	100 tests	LightCycler™	RUO
RoboGene® HER2/ NEU Kit	847-0202001402	100 tests	ABI 7000/7300/7700	RUO
	847-0202001442	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202001462	100 tests	Low profile-Block cycler	RUO
	847-0202001432	100 tests	LightCycler™	RUO

Normalization of gene expression quantification data

- Real-time PCR quantification of cDNA
- Perfect analytical and diagnostic specificity
- Stably coated and ready-to use standards

Product description

Housekeeping genes are typically constitutive genes that are required for the maintenance of basic cellular function, and are expressed in all cells of an organism under normal and patho physiological conditions. *In vitro* quantification of *glyceraldehyde-3-phosphate dehydrogenase* (GAPDH) and c-ABL reference transcripts are suited for normalization of several target gene expression data in total RNA/mRNA samples which are prior reverse transcribed into cDNA using random hexanucleotides. Two kits are offered as housekeeping genes: RoboGene® GAPDH Kit and RoboGene® c-ABL Kit.

Procedure

Total RNA or mRNA samples prior transcribed into cDNA using random hexanucleotides are amplified and detected by Real-Time PCR. The quantification of housekeeping genes is performed in parallel to the quantification of several target genes and used for the normalization of target gene expression data.

Product specifications

Starting material
cDNA from human blood or tissue samples

Kit components

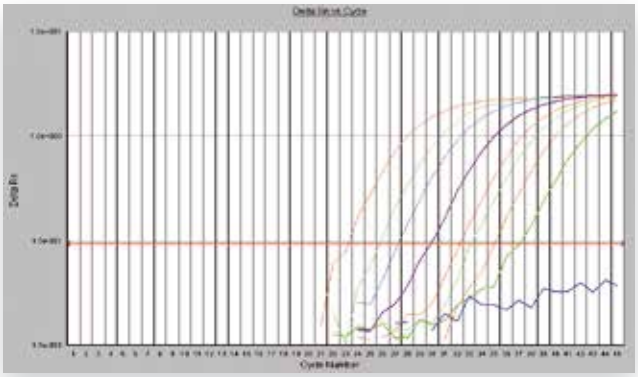
- Quantitation standard tubes coated with different amounts of synthetic GAPDH or c-ABL DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing GAPDH or c-ABL specific primers, probes and dNTPs

Storage conditions and stability

After delivery at room temperature store cDNA Quantification kits at –20°C. Protect Real-Time reagent mix, lyophilized always from light and store at –20°C in the dark.

Sample application

Quantification of *c-ABL*cDNA using an ABI PRISM 7000 SDS. Saturation curves. The data represent the amplification of the ready-to-use *c-ABL* DNA controls.



RNA isolation products

innuPREP Blood RNA Kit 68
innuPREP Blood RNA Midi Direct Kit 34

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® GAPDH Kit	847-0202001202	100 tests	ABI 7000/7300/7700	RUO
	847-0202001242	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202001262	100 tests	Low profile-Block cycler	RUO
	847-0202001232	100 tests	LightCycler™	RUO
RoboGene® c-ABL Kit	847-0202002002	100 tests	ABI 7000/7300/7700	RUO
	847-0202002042	100 tests	Rotor-Gene 3000/6000	RUO
	847-0202002062	100 tests	Low profile-Block cycler	RUO
	847-0202002032	100 tests	LightCycler™	RUO

Multidrug resistance

- Real-time PCR quantification of cDNA
- Perfect analytical and diagnostic specificity
- Stably coated and ready-to use standards

Product description

Multidrug resistance, the principal mechanism by which many cancers develop resistance to chemotherapy drugs, is a major factor in the failure of many forms of chemotherapy. It affects patients with a variety of blood cancers and solid tumors, including breast, ovarian, lung, and lower gastrointestinal tract cancers. As primary candidates for mediating MDR a diverse group of membrane transport proteins called the ABC (ATP-binding cassette) protein family has been identified. Most prominent members of this family are the classical chemoresistance mediating transporter gene products *mdr-1* and MRP coding for P-glycoprotein and multidrug resistance-associated protein *(MRP)*, respectively. Two test Kits are offered for the detection of multidrug resistance genes: RoboGene® MDR-1 Kit and RoboGene® MRP Kit.

Procedure

Total RNA or mRNA samples prior transcribed into cDNA using random hexanucleotides are amplified and detected by Real-Time PCR. The quantification of MDR-1 or MRP is performed using 8 standards. The data should be normalized to the number of GAPDH transcripts as housekeeping gene.

Product specifications

Starting material

cDNA from human blood or tissue samples

Kit components

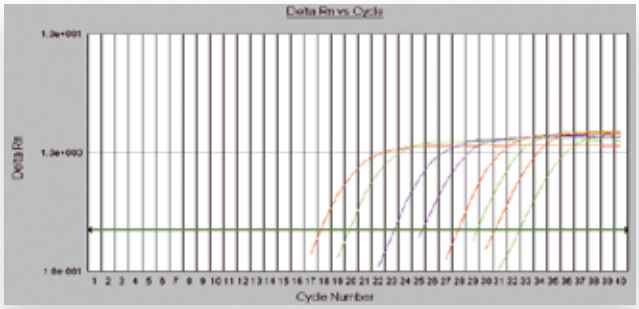
- Quantitation standard tubes coated with different amounts of synthetic MDR-1 or MRP DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing MDR-1 or MRP specific primers, probes and dNTPs

Storage conditions and stability

After delivery at room temperature store cDNA Quantification kits at –20°C. Protect Real-Time reagent mix, lyophilized always from light and store at –20°C in the dark.

Sample application

Quantification of *MRP*c DNA using an ABI PRISM 7000 SDS. Saturation curves. The data represent the amplification of the ready-to-use *MRP* DNA controls.



RNA isolation products

innuPREP Blood RNA Kit 68
innuPREP Blood RNA Midi Direct Kit 34

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® MDR-1 Kit	847-0202001002	100 tests	ABI 7000/7300/7700	RUO
	847-0202001042	100 tests	Rotor-Gene 3000/6000	RUO
RoboGene® MRP Kit	847-0202001102	100 tests	ABI 7000/7300/7700	RUO
	847-0202001142	100 tests	Rotor-Gene 3000/6000	RUO

Tumor research (apoptosis, cell cycle)

- Real-time PCR quantification of cDNA
- Perfect analytical and diagnostic specificity
- Stably coated and ready-to use standards

Product description

Deregulation of the apoptotic machinery plays a major role in cell death, cellular transformation and cancer. Amongst other genes MDM-2 and BCL-2 play a role in this deregulation. The oncogenic properties of the human *MDM-2* and BCL-2 gene products have been attributed mostly to its interaction with the tumor suppressor gene p53. High expression of *BCL-2* mRNA was shown to be a determinant of poor prognosis or drug resistance in AML, human cervical cancer ovarian carcinoma, and Kaposi's sarcoma. In numerous tumor cell lines and malignant tumors, particularly sarcomas, the human *MDM-2* protein overexpression is a characteristic feature which can be correlated to poor prognosis. Two kits are offered: RoboGene® MDM-2 Kit and RoboGene® BCL-2 Kit.

Procedure

Total RNA or mRNA samples prior transcribed into cDNA using random hexanucleotides are amplified and detected by using Real-Time PCR. The quantification of MDM-2 or BCL-2 is performed by using 8 standards. The data should be normalized to the number of GAPDH as housekeeping gene.

Product specifications

Starting material

cDNA from human blood or tissue samples

Kit components

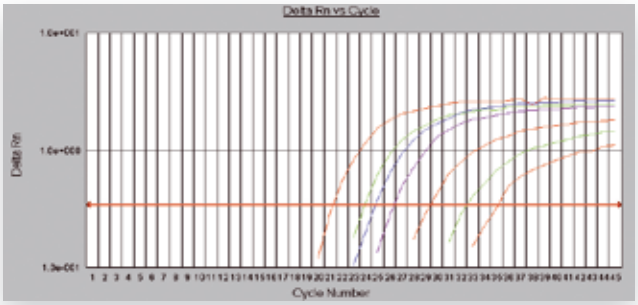
- Quantitation standard tubes coated with different amounts of synthetic MDM-2 or BCL-2 DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing MDM-2 or BCL-2 specific primers, probes and dNTPs

Storage conditions and stability

After delivery at room temperature store cDNA Quantification kits at –20°C. Protect Real-Time reagent mix, lyophilized always from light and store at –20°C in the dark.

Sample application

Quantification of *MDM-2*cDNA using an ABI PRISM 7000 SDS. Saturation curves. The data represent the amplification of the ready-to-use *MDM-2* DNA controls.



RNA isolation products

innuPREP Blood RNA Kit 68
innuPREP Blood RNA Midi Direct Kit 34

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® MDM-2 Kit	847-0202000302	100 tests	ABI 7000/7300/7700	RUO
	847-0202000342	100 tests	Rotor-Gene 3000/6000	RUO
RoboGene® BCL-2 Kit	847-0202000402	100 tests	ABI 7000/7300/7700	RUO
	847-0202000442	100 tests	Rotor-Gene 3000/6000	RUO

RoboGene® **HSV DNA Qualitative DNA** Kit

- Qualitive real-time PCR kit for detection of HSV DNA
- detects all types of virusses (*HSV-1* and *HSV-2*)
- Perfect analytical and diagnostic specificity
- stably coated and ready-to use positive controls
- Low detection limit (10 copies/run)

Product description

The RoboGene® HSV DNA Qualitative Kit is intended for real-time detection of Herpes Simplex Virus 1 and 2 *(HSV-1 and HSV-2)* DNA in human serum, EDTA blood, liquor, blister aspirates, tissue biopsies, and swabs of lesions, rashes or ulcer samples. The level of *HSV* DNA in different kind of samples can be used in conjunction with other clinical markers and clinical findings to diagnose *HSV* infection and to assess the viral response to antiviral treatment.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes DNA_D1 to control DNA extraction and to indicate for inhibitory effect on detection. Qualitative standard tubes are coated with 2 different amounts of synthetic *HSV-1* and *HSV-2* DNA, respectively, which must be amplified in parallel. Amplification of HSV DNA in samples and standards and of IC DNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

DNA from human blood or tissue samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 18 non-*HSV* positive specimens. Furthermore, 15 plasma samples from blood donors which have been tested negative for *HSV* DNA were analysed to determine the diagnostic specificity. The RoboGene® HSV DNA Qualitative Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *HSV* DNA.

Kit components

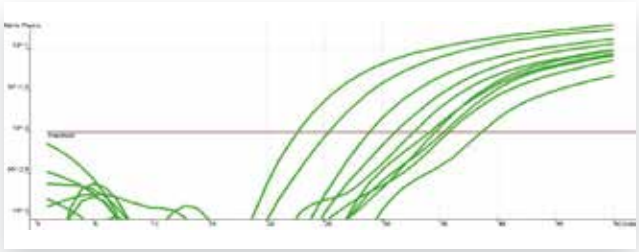
- Extraction tubes coated with IC DNA and carrier nucleic acid
- Qualitative standard tubes coated with 2 different amounts of *HSV-1* and *HSV-2* DNA, respectively, IC DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing HSV and Internal control DNA (IC) specific primers, probes and dNTPs
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® HSV DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the HSV DNA Quantification Kit and Taq polymerase at –15 C to -40°C in the dark immediately upon arrival.

Sample application

Linearity of the RoboGene® HSV DNA Qualitative Kit. The study was performed with synthetic, HPLC calibrated *HSV* DNA specimen (5) on Rotor-Gene 3000.



DNA isolation products

innuPREP Virus DNA/RNA Kit 74

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® HSV DNA Qualitative Kit	847-0207500602	100 tests	ABI 7000/7300/7700	RUO
	847-0207500604	50 tests		
	847-0207500642	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207500644	50 tests		
	847-0207500662	100 tests	Low profile-Block cycler	RUO
	847-0207500664	50 tests		

RoboGene® **BF H5N1 RNA Qualitative** Kit

- Qualitative real-time PCR Kit for detection of BF H5N1 RNA
- Perfect analytical and diagnostic specificity
- Stably coated and ready-to use positive controls

Product description

The RoboGene® Bird Flu H5N1 RNA Qualitative Kit is intended for qualitative detection of Bird Flu Virus (H5N1) RNA in nasopharyngeal (human samples), cloacal swabs (animal samples), serum or plasma samples.

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes RNA_D1 to control RNA extraction and to indicate for inhibitory effect on detection. Positive control consists of 3 tubes coated with given amounts of synthetic BF H5N1 RNA, which must be amplified in parallel. Amplification of BF H5N1 RNA in samples and standards and of IC RNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

RNA from nasopharyngeal (human samples) or cloacal (animal samples) swabs, serum or plasma samples

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 3 hours

Analytical and diagnostic specificity

The analytical specificity was evaluated by analyzing 15 non-BF positive specimens. Furthermore, 10 plasma samples from blood donors which have been tested negative for *BF* RNA were analysed to determine the diagnostic specificity. The RoboGene® BF H5N1 RNA Qualitative Kit had a perfect analytical and diagnostic specificity. None of the analyzed samples gave positive test results for *BF* RNA.

Kit components

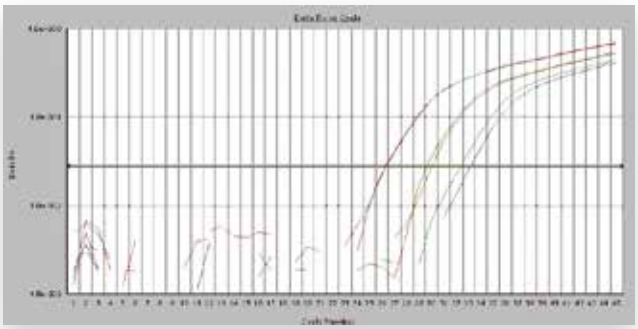
- Extraction tubes coated with IC RNA and carrier nucleic acid
- Positive control tubes coated with different amounts of synthetic BF H5N1 RNA, IC RNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing BF H5N1 and Internal control RNA (IC) specific primers and probes
- RT-PCR enzyme mix and corresponding 2x reaction mix

Storage conditions and stability

The RoboGene® Bird Flu H5N1 RNA Qualitative Kit is delivered at room temperature except the RT-PCR enzyme, 2 x reaction mix and Mg-sulfate solution, 50 mM which are shipped on dry ice. Store the RoboGene® Bird Flu H5N1 RNA Qualitative Kit incl. RT-PCR enzyme/2x reaction mix/Mg-sulfate solution at –15 to –40°C in the dark.

Sample application

Typical amplification run of *BF* positive control tubes (10,000; 1000, and 100 copies) using an ABI PRISM 7000 SDS.



RNA isolation products

innuPREP Virus DNA/RNA Kit 74
innuPREP Virus RNA Kit 73

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® BF H5N1 RNA Qualitative Kit	847-0207400402	50 tests	ABI 7000/7300/7700	RUO
	847-0207400404	50 tests		
	847-0207400442	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207400444	50 tests		
	847-0207400462	100 tests	Low profile-Block cycler	RUO
	847-0207400464	50 tests		

RoboGene® **TB DNA Qualitative** Kit

- Qualitive real-time PCR kit for detection of M. tuberculosis (MTB)
- Perfect analytical and diagnostic specificity
- stably coated and ready-to use positive controls
- Low detection limit (10 copies/ml)

Product description

The RoboGene® M. tuberculosis *(MTB)* Qualitative Kit is a real-time PCR test which specifically detects the strains M. tuberculosis and M. bovis of the Mycobacterium tuberculosis complex DNA by targeting both the multicopy target IS6110 insertion element and also a common genomic subsequence. The test is intended for rapid qualitative detection of Mycobacterium tuberculosis *(MTB)* DNA from sputum, bronchalveolar lavage, or tissue biopsies (e.g. lymph nodes).

Procedure

During sample preparation a synthetic internal control is included via Extraction tubes DNA_D1 to control DNA extraction and to indicate for inhibitory effect on detection. Standard tubes are coated with a cut-off amount of synthetic *MTB* DNA, which must be amplified in parallel. Amplification of *MTB* DNA in samples and standards and of IC DNA is measured independently at different wavelengths due to probes labelling with different fluorescence reporter dyes.

Product specifications

Starting material

DNA from sputum, bronchalveolar lavage, or tissue biopsies (e.g. lymph nodes)

Detection time

Standard qPCR cycler (e.g. TOptical, Rotor-Gene) approx. 2.5 hours

Diagnostic specificity

Sputum samples of healthy donors not diseased from TB were analyzed to determine the specificity of the RoboGene® M. tuberculosis *(MTB)* Qualitative Kit, which is expressed as negative result in absence of the target. 10 donor samples were analysed to determine the diagnostic specificity. The RoboGene® M. tuberculosis *(MTB)* Qualitative Kit has a good diagnostic specificity. None of the analyzed samples gave positive test results for *MTB* DNA.

Kit components

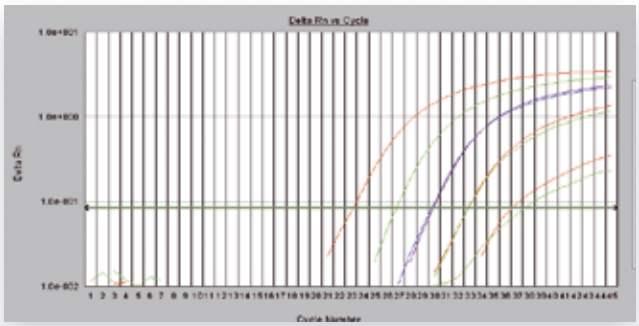
- Extraction tubes coated with IC DNA and carrier nucleic acid
- Standard tubes coated with a cut-off amount of synthetic *MTB* DNA, IC DNA and amplification enhancer
- Sample tubes coated with amplification enhancer
- Lyophilized reagent mix containing *MTB* and Internal control DNA (IC) specific primers and probes
- Taq DNA polymerase and corresponding PCR buffer

Storage conditions and stability

The RoboGene® MTB DNA Quantification Kit is delivered at room temperature except the Taq polymerase and PCR buffer which are shipped on dry ice. Store the MTB DNA Quantification Kit and Taq polymerase at –15 C to -40°C in the dark immediately upon arrival.

Sample application

Typical run of simultaneous amplification of *MTB* DNA and Internal Control DNA (IC) using an ABI PRISM 7000 SDS. DNA purified from cultured *M. tuberculosis* using the INSTANT Mycobacteria DNA Kit. A dilution series of the eluate (1:10; 1:100; 1:1,000; 1:10,000 and 1:100,000; respectively) was amplified by real-time PCR using the RoboGene® M. tuberculosis *(MTB)* Qualitative Kit. The *MTB* control amplicon was recorded in the FAM channel.



DNA isolation products

innuPREP Mycobacteria DNA Kit 43

Order information

Product/ Description	Order number	Contents	Version	IvD
RoboGene® TB DNA Qualitative Kit	847-0207300502	100 tests	ABI 7000/7300/7700	RUO
	847-0207300504	50 tests		
	847-0207300542	100 tests	Rotor-Gene 3000/6000	RUO
	847-0207300544	50 tests		
	847-0207300562	100 tests	Low profile-Block cycler	RUO
	847-0207300564	50 tests		
	847-0207300552	100 tests	SmartCycler®	RUO
	847-0207300554	50 tests		
	847-0207300532	100 tests	LightCycler™	RUO
	847-0207300534	50 tests		
	847-0207300572	100 tests	Spartan Dx-12	RUO
	847-0207300574	50 tests		

RoboGene® **Norovirus RNA Detection** Kit

- Detection of Norovirus RNA from stool samples by real-time PCR
- Verification and differentiation of genogroups GI and GII in parallel with an internal control
- CE-certified for use with ABI7500 fast real-time-PCR system
- Kit contains reaction vessels coated with positive controls
- Sample preparation with InnuPure® C16 for up to 16 samples in parallel

Product description

The RoboGene® Norovirus RNA Detection Kit allows the qualitative detection of Norovirus genogroups GI and GII in human stool samples by real-time PCR. Amongst other genotypes the kit is able to detect the currently circulating strain „Sydney2012" (GII.4).
Using differently labeled fluorescent probes it is pos-sible to differentiate both genogroups. This enables a first epidemiological analysis of samples without time and work consuming sequencing steps.
The evaluation of the whole diagnosis process rang-ing from RNA extraction to detection is possible by analysing of the ranging control, amplified in parallel.

The RoboGene® Norovirus RNA Detection Kit is CE validated for use with ABI7500 Fast real-time-PCR-system in combination with the InnuPure® C16, applying the innuPREP Virus DNA/RNA Kit-IPC16 for RNA extraction.

Procedure

1. RNA extraction using the InnuPure C16, including the innuPREP Virus DNA/RNA Kit-IPC16
2. Amplification and detection of Norovirus RNA by real-time PCR using the ABI7500 Fast
3. Analysis and process control assessing the internal control (Extraction Tubes)

Product specifications

Starting material:

- human stool samples

Detection time:

- Amplification approximately 2 h

Kit components

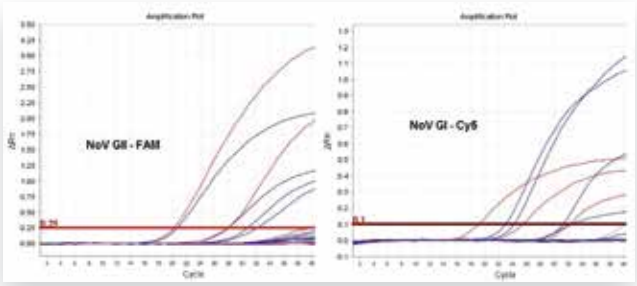
Extractions Tubes coated with internal control and carrier RNA
Sample Tubes – Reaction vessels coated with amplification enhancer
Positive controls – Reaction vessels coated with Norovirus GI and GII positive control RNA (3 different concentrations, each) and internal control RNA
Reagent Mix containing all Norovirus and IC specific Primers and probes
RT-PCR-Enzyme-Mix, water, optical tape and **Manual**

Storage conditions and stability

The RoboGene® Norovirus RNA Detection Kit should be stored at -40°C to -15°C, always protected from light.

Sample application

Norovirus reference samples from the Robert-Koch-Institut (RKI), genotyped by sequencing, were purified with the InnuPure C16 using the innuPREP Virus DNA/RNA Kit-IPC16. Afterwards extracted RNAs were amplified using the RoboGene® Norovirus RNA Detection Kit. Reference samples comprised genotypes GI.3; GI.7; GI.b; GII.4 (Sydney 2012); GII.2 and GII.g.



Amplification of RKI-Reference material (bue) and positive controls (red)

RNA isolation products

innuPREP Virus DNA/RNA Kit-IPC16 116

Order information

Order number	Contents	IVD
847-0207400684	50 tests	CE
847-0207400682	100 tests	CE

rapidSTRIPE **Bordetella** Assay

- Molecular detection system for *Bordetella*, including *B. pertussis*, *B. parapertussis* and *B. bronchiseptica*
- Detection is based on **RAH** technology (**R**apid **A**mplification and **H**ybridization)
- Includes all of the reagents needed
- Comes with protocols for rapid and standard PCR thermal cyclers

Product description

The rapidSTRIPE Bordetella Assay is a detection system for Bordetella in nasopharyngeal and throat swabs. Based on RAH technology, the assay is used to detect *B. pertussis, B. parapertussis* and *B. brochiseptica* with certainty in a reaction. The rapidSTRIPE Bordetella Assay also comes with all of the reagents needed for the combined amplification/hybridization reaction and for analyzing the results on a lateral flow strip (LFS). The user-friendly test strip is stable over long periods and can be archived for documenting results.

Kit components

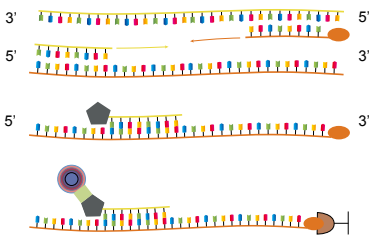
PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

PCR components of the rapidSTRIPE Bordetella assay will remain stable for 6 months if stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided.

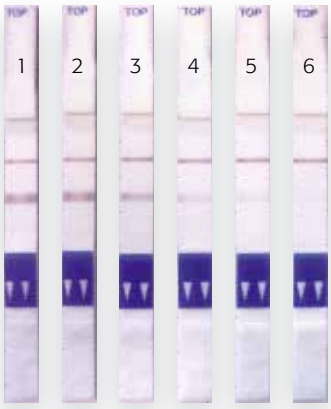
Process sequence

1. Standard or *rapidP*CR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Sample application

To use the rapidSTRIPE Bordetella Assay, the first step was to isolate the DNA from a throat swab (innuPREP DNA Mini kit). The extracted nucleic acid was then diluted to different levels and introduced into the specific RAH reaction. The hybridization products were subsequently visualized on a lateral flow strip (LFS).



Strip 1: Undiluted
Strip 2: Dilution 1:10
Strip 3: Dilution 1:100
Strip 4: Dilution 1:1.000
Strip 5: Dilution 1:10.000
Strip 6: Negative control

Product specifications

Performance characteristics:

- Detection of *B. pertussis*, *B. bronchioseptica* and *B. parapertussis*
- No cross-reaction with human DNA.
- Over 200 repetitions of the same samples with various kit batches yield 100% reproducible results

Starting material:
Nasopharyngeal or throat swabs

Time required for amplification and hybridization (RAH):

- *rapidP*CR (SpeedCycler²): approx. 50 min
- Standard PCR: approx. 2 – 2.5 h, depending on the thermal cycler

Detection time:
Approx. 10 – 20 minutes

Sensitivity:
The assay was compared to conventional PCR for the same gene segment, and sensitivity was found to be comparable for both methods. The rapidSTRIPE Pertussis assay is recommended as a means of further narrowing down detection of *Bordetella* to *B. pertussis*.

Order information

Order number	Quantity
845-IV-1300010	10 reactions
845-IV-1300025	25 reactions
845-IV-1300050	50 reactions

rapidSTRIPE **Pertussis** Assay

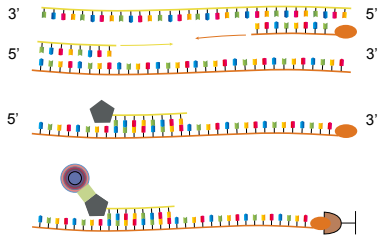
- CE-IVD certified, ready-to-use assays for fast, highly sensitive detection of pertussis
- Includes optimized reagents for DNA extraction, for the amplification and hybridization reaction and for final detection
- Based on highly specific rapid amplification and hybridization (RAH) technology
- Designed for use with a standard or *rapid*PCR thermal cycler

Product description

The rapidSTRIPE Pertussis Assay is a complete, highly sensitive system for detecting *Bordetella pertussis* in human sample material (nasopharyngeal or throat swabs). The kit contains the reagents needed for manually extracting DNA using proven Spin Filter technology, as well as solutions for the amplification/hybridization reaction and accessories for final detection using sensitive lateral flow strips. The appearance of a test line confirms the presence of pertussis-positive amplification products. The strips also include a control line indicating whether the strips are working properly. The kit is CE-IVD certified, which makes it approved for human diagnostic applications.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

Performance characteristics:

- Detection of *B. pertussis* DNA (target sequence IS481) in swab samples (throat, nasopharyngeal tract)
- No cross-reactions with *B. bronchioseptica*, *B. parapertussis* or human DNA
- Repeatedly testing the same sample over 200 times with different kits produced 100 % reproducible results

Starting material:
Nasopharyngeal or throat swabs

Time required for amplification and hybridization (RAH):

- *rapid*PCR (SpeedCycler²): approx. 50 minutes
- Standard PCR: depends on thermal cycler, approx. 2 – 2.5 hours

Detection time:
Approx. 10 – 20 minutes

Sensitivity:
The target sequence IS481 is found over 50 times in the genome of *B. pertussis*, which results in a highly sensitive test. Sensitivity was found to be comparable when compared to conventional PCR for the same gene segment.

Kit components

Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter, Receiver Tubes, Elution Tubes, plastic PCR supplies, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

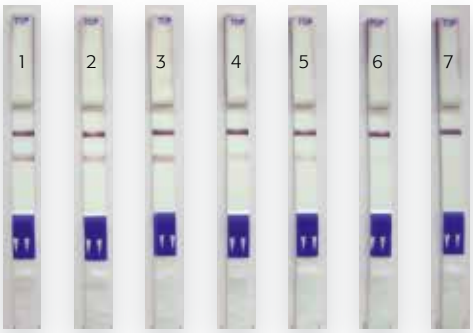
Storage conditions and stability

PCR components of the rapidSTRIPE Pertussis Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store lyophilized Proteinase K and the test strips (including running buffer) at 4 °C. Once the Proteinase K has been solubilized, it should be stored in aliquots at –20 °C, because repeated freezing and thawing will significantly reduce its activity.

Sample application

The rapidSTRIPE Pertussis Assay was used to first isolate DNA from a nasopharyngeal swab sample. The combined amplification/hybridization reaction was then performed in the AlphaSC® on a variety of different dilutions of the starting template. In the final step, the amplification products were loaded onto lateral flow strips and analyzed.

Order information



Strip 1: Undiluted, **strip 2:** 1:10 dilution, **strip 3:** 1:100 dilution, **strip 4:** 1:1,000 dilution, **strip 5:** 1:10,000 dilution, **strip 6:** 1:100,000 dilution, **strip 7:** Negative control

Order number	Quantity
845-IV-1100010	10 reactions
845-IV-1100025	25 reactions
845-IV-1100050	50 reactions

rapidSTRIPE **H1N1 Detection** Assay | rapidSTRIPE **H1N1** Assay-KF

- CE-IVD certified, ready-to-use assays for rapid, highly sensitive detection of influenza A, H1N1 subtype (swine flu)
- Includes optimized reagents for automatic RNA extraction (only for the rapidSTRIPE H1N1 Assay-KF), RT-PCR, PCR amplification and final detection
- Based on highly specific rapid amplification and hybridization (RAH) technology
- Optimized for standard and *rapid*PCR

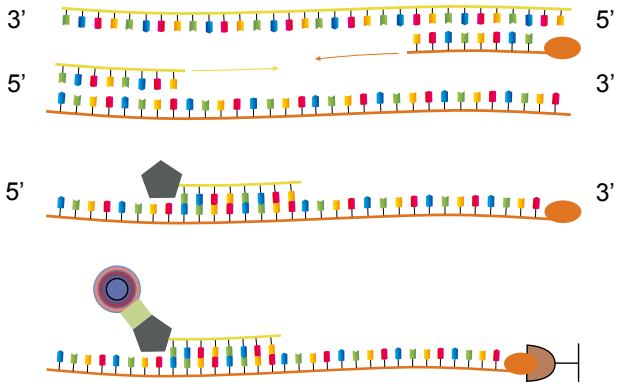
Product description

The rapidSTRIPE H1N1 Detection Assay and the rapidSTRIPE H1N1 Assay-KF are ready-to-use kits for highly sensitive detection of A/H1N1 from throat or nasal swabs. The kits contain all of the solutions and plastic materials required for upstream cDNA synthesis, for a combined amplification and hybridization reaction using a sequence-specific probe and for final detection on a lateral flow strip. Both assays are approved for *in-vitro* diagnostic applications. Results from visual detection (strip test) were comparable to those from traditional, established TaqMan® real-time PCR for the same gene segment.

Includes RNA extraction: rapidSTRIPE H1N1 Assay-KF

The rapidSTRIPE H1N1 Assay-KF also includes an optimized extraction and purification chemistry that has been tailored for compatibility with the KingFisher® ml and KingFisher® FLEX automated extraction systems. RNA isolation is based on Analytik Jena's patented DC technology and on the proven method of magnetic particle separation.

Procedure



1. Synthesize cDNA (RT-PCR)
2. Perform standard or *rapid*PCR using tag-labelled primer
3. Hybridize using sequence-specific, antigen-tagged probe (perform in the same vessel along with reaction 2)
4. Antigen/antibody interaction for detection on a lateral flow strip (LFS)

Product specifications

Performance characteristics:

The performance characteristics of the method were established using tests of cultured viral material (A/California/04/2009, A/Hamburg/4/2009); over 200 patient samples were prepared. The TaqMan® real-time PCR[1] method published and validated by the Robert-Koch Institute was used as the standard comparison method.

	*rapid*PCR (AlphaSC®)	Standard PCR (TProfessional)
Diagnostic specificity: (NC/(NC + FP) × 100 %)*	97 %	90 %
Diagnostic sensitivity: (PC/(PC + FN) × 100 %)*	88 %	85 %
Negative predictive value: (NC/(NC + FN) × 100 %)*	89 %	83 %
Positive predictive value: (PC/(PC + FP) × 100 %)*	97 %	91 %

* NC-negative control, PC-positive control, FN-false negative, FP-false positive

Starting material:
Throat or nasal swabs

Time required for cDNA synthesis, amplification and hybridization:

- cDNA synthesis: approx. 30 minutes
- *rapid*PCR (SpeedCycler²): approx. 50 minutes
- Standard PCR: Depends on thermal cycler, approx. 2–2.5 hours

Detection time:
Approx. 10–20 minutes

Sensitivity:
Comparable to TaqMan® real-time PCR

Kit components

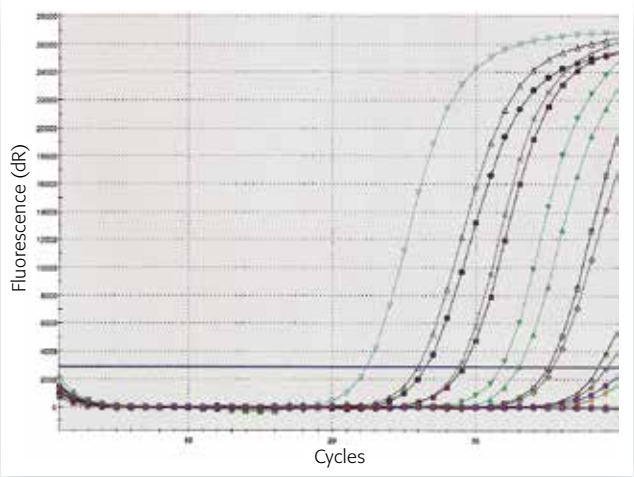
Plastic and reagents for isolating RNA with a KingFisher® instrument (only for rapidSTRIPE H1N1 Assay-KF), PCR plastic, positive control, primer, probe, dNTPs, RT enzyme, RT buffer, DDT, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Storage conditions and stability

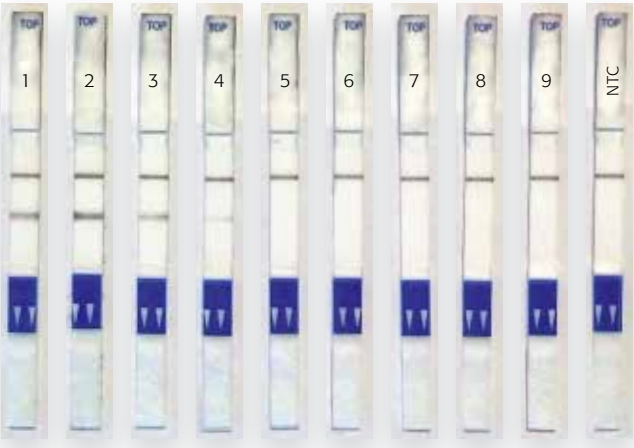
PCR components of the rapidSTRIPE H1N1 Detection Assay and/or rapidSTRIPE H1N1 Assay-KF will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

Comparing the performance of the two methods showed the sensitivity of the rapidSTRIPE H1N1 Detection Assay to be comparable to that of TaqMan® real-time PCR.



TaqMan® real-time PCR curves of different sample dilutions (double determinations), including internal control, NTC and negative material from test subjects [1]



Analysis of *rapid*PCR amplification products at various dilutions of the starting template using a lateral flow strip (LFS); includes NTC and negative material from test subjects

No.	Dilution	Cell count	Ct values	LFS
1	1 : 2	1.8×10^6	26.5	Positive
2	1 : 20	1.8×10^5	29.1	Positive
3	1 : 200	1.8×10^4	33.0	Positive
4	1 : 2,000	1.8×10^3	35.4	Positive
5	1 : 20,000	1.8×10^2	38.7	Negative
6 – 9	Negative samples	–	No Ct	Negative
NTC	NTC	–	No Ct	Negative

[1] TaqMan® real-time PCR for detecting the HA gene of porcine influenza A/ H1N1 viruses (new flu) by the Robert-Koch-Institut, NRZ Influenza on 5/20/2009

RNA isolation products

innuPREP Virus RNA Kit 73
innuPREP Virus DNA/RNA Kit 74

Reference:
"rapidSTRIPE H1N1 Test for Detection of the Pandemic Swine Origin Influenza A (H1N1) Virus"; Pranav Patel, Elmara Graser, Stephan Robst, Roger Hillert, Axel Meye, Timo Hillebrand and Matthias Niedrig; J. Clin. Microbiol.; April 2011; Vol. 49; No. 4

Order information

Order number	Quantity
For rapidSTRIPE H1N1 Detection Assay	
845-IV-1020010	10 reactions
845-IV-1020025	25 reactions
845-IV-1020050	50 reactions
845-IV-1020100	100 reactions
For rapidSTRIPE H1N1 Assay-KF*	
845-IV-1010015	15 reactions
845-IV-1010050	50 reactions
845-IV-1010100	100 reactions

* Includes certified RNA extraction chemistry for either the KingFisher® ml or the KingFisher® FLEX.

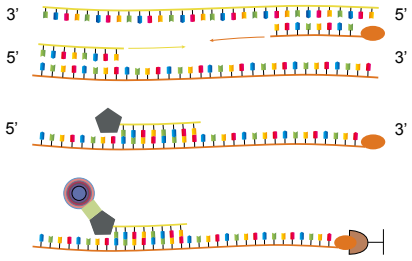
rapidSTRIPE **Influenza A/B** Assay

- Ready-to-use assay for sensitive, highly specific detection of influenza A and influenza B
- Optimized for use with unique *rapid*PCR technology and a standard PCR thermal cycler
- Extremely easy to use and saves substantial time: total test duration is just 1.5 hours

Product description

The rapidSTRIPE Influenza A/B Assay is a PCR-based detection system for viral RNA from influenza A and influenza B. Following cDNA synthesis, the target is introduced to two separate amplification and hybridization reaction mixtures and processed with a PCR program. Final detection proceeds on a lateral flow strip (via integrated antigen-antibody interaction) and takes only 10–20 minutes. The appearance of a test line confirms positive samples. The rapidSTRIPE Influenza A/B Assay contains all of the reagents and consumables needed for cDNA synthesis, for the combined amplification/hybridization reaction and for detection.

Procedure



1. Synthesize cDNA (RT-PCR)
2a. Perform standard or *rapid*PCR with tag-labelled primers for influenza A and B
2b. Hybridize using a sequence-specific, antigen-tagged probe for influenza A and B (perform in the same vessel along with reaction 2a)
3. Perform detection on a lateral flow strip (LFS) via antigen/antibody interaction

Product specifications

Starting material:
Throat or nasal swabs

Time required for cDNA synthesis, amplification and hybridization:

- cDNA synthesis: approx. 30 minutes
- *rapid*PCR (SpeedCycler²): approx. 50 minutes
- Standard PCR: Depends on thermal cycler, approx. 2–2.5 hours

Detection time:
Approx. 10–20 minutes

Sensitivity:
Comparable to TaqMan® real-time PCR

Kit components

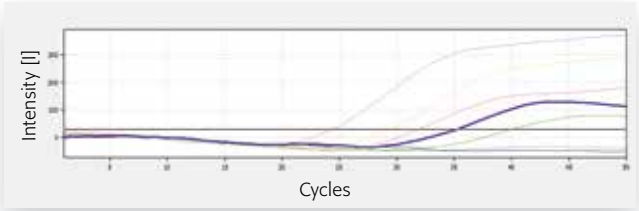
Plastic PCR supplies, positive control, primers, probe, dNTPs, RT enzyme, RT buffer, DDT, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Storage conditions and stability

PCR components of the rapidSTRIPE Influenza A/B Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

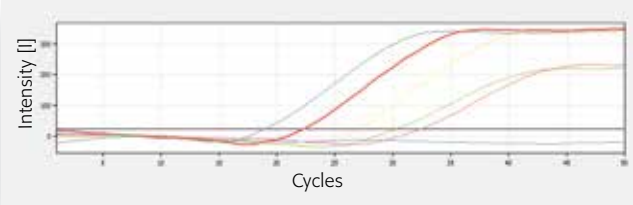
The rapidSTRIPE Influenza A/B Assay was compared with a traditional TaqMan® real-time PCR in 2 dilution series. The sensitivities of each method were found to be comparable.



Detection of influenza A and NTC: TaqMan® real-time PCR curves showing various sample dilutions

Analysis of *rapid*PCR amplification products at various dilutions of the starting template using a lateral flow strip (LFS) for detecting influenza A

No.	Dilution	Ct values	LFS
1	1 : 2	24.5	Positive
2	1 : 10	29.6	Positive
3	1 : 100	31.8	Positive
4	1 : 1.000	35.1	Positive
5	1 : 10.000	40.0	Positive
NTC	NTC	No Ct	Negative



Detection of influenza B and NTC: TaqMan® real-time PCR curves showing various sample dilutions

Analysis of *rapid*PCR amplification products at various dilutions of the starting template using a lateral flow strip (LFS) for detecting influenza B

No.	Dilution	Ct values	LFS
1	1 : 2	18.8	Positive
2	1 : 10	24.1	Positive
3	1 : 100	27.2	Positive
4	1 : 1,000	30.3	Positive
5	1 : 10,000	32.4	Positive
NTC	NTC	No Ct	Negative

RNA isolation products

Order information

Order number		Quantity
rapidSTRIPE Influenza A/B Assay	rapidSTRIPE Detection Assay*	
845-IV-2020010	845-IS-9000010	10 reactions
845-IV-2020025	845-IS-9000025	25 reactions
845-IV-2020050	845-IS-9000050	50 reactions
845-IV-2020100	845-IS-9000100	100 reactions

* The rapidSTRIPE Influenza A/B Assay contains lateral flow strips (LFS) for detecting **both** influenza A and B on a **single** LFS. The rapidSTRIPE Detection Assay, which contains lateral flow strips, running buffer and sample containers, must also be used in order to distinguish between influenza A and B by **separately** applying their corresponding PCR products onto **two** lateral flow strips.

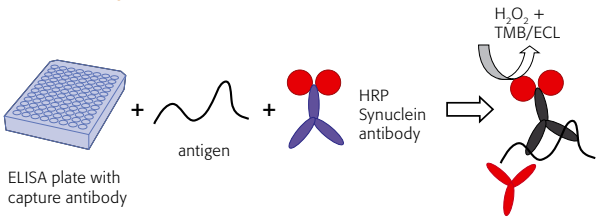
Kits for human Alpha-Synuclein

- Detection of pathological associated α-Synuclein aggregates, multiple epitopes and total α-Synuclein
- Quantification in biological samples (serum, plasma, CSF)
- ELISA in 96-well-format containing controls and standards
- TMB and ECL format

Product description

Immunoassays for detection of patholgical related forms of α–Synucleins (PATHO), multiple epitopes and differ-ent aggregate forms (MULTI) and total α–Synucleins in biological samples from human, especially for Parkinson and Lewy-Body-Diseases. Unique specificity of PATHO kits depends on characteristics of capture antibody 5G4 (Kovacs et al. 2012).

Process sequence

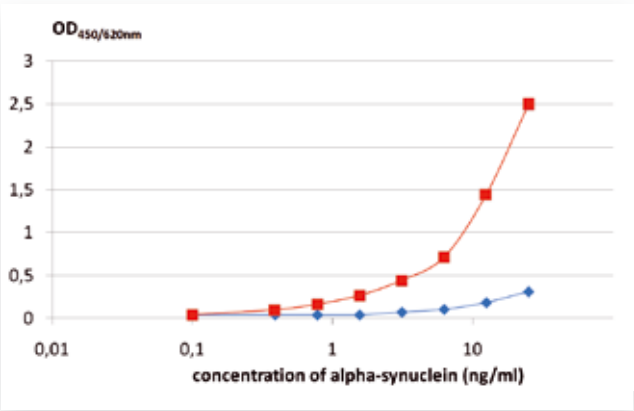


Storage and stability

At 2-10°C. Shelf life time 12 months.

Sample application

Differentiation between monomeric (◆) alpha-Synuclein preparation and aggregated (■) α-Synuclein preparation using HUMAN PATHO SYN ELISA kit.



Specifications

Antigen:
- α-sheet aggregates, multiple epitopes or total human α-Synuclein

Format:
- ELISA, 96 well
- TMB or ECL

Application:
- Detection in human serum, plasma, CSF, biological samples from animal and cell models
- Quantification of antigen

Protocol:
- Sequentially process for 2 - 48 h

Detection limit:
- 100 pg/ml TMB
- 10 pg/ml ECL

Kit components

ELISA plates, Washing buffer, Dilution buffer, standards, Conjugate, Staining buffer, TMB or Enhancer solution, Peroxide solution, Stop solution

Order information

Ordner number	Product
847-0104000108	Human Alpha-Syn PATHO ELISA kit
847-0104400108	Human Alpha-Syn PATHO ELISA kit ECL
847-0104000113	Human Alpha-Syn MONO ELISA kit
847-0104400113	Human Alpha-Syn MONO ELISA kit ECL
847-0104000114	Human Alpha-Syn MULTI ELISA kit
847-0104400114	Human Alpha-Syn MULTI ELISA kit ECL

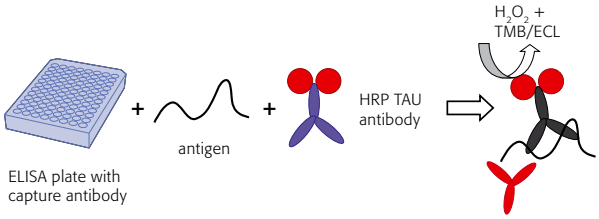
Kits for human TAU protein

- Detection of pathological associated P-TAU (P199, P202, P231), aggregated TAU and TAU total
- Quantification in biological samples (serum, plasma, CSF)
- ELISA in 96-well-format containing controls and standards
- TMB and ECL format

Product description

Immunoassays for detection of phosphorylated forms of human TAU on different positions like P199, P202 and P231, of TAU aggregates and TAU total in biological samples of human especially of forms of Alzheimer dementia.
Specificity of assays depends on specific antibodies to different epitopes as well as phosphorylated amino acids.

Process sequence



Specifications

Antigen:
- Human TAU, P199-, P202- und P231-phosphorylated TAU, aggregated TAU

Format:
- ELISA, 96 well
- TMB or ECL

Application:
- Detection in human serum, plasma, CSF, biological samples from animal and cell models
- Quantification of antigen

Protocol:
- Sequentially process for 2 - 48 h

Detection limit:
- 100 pg/ml TMB
- 10 pg/ml ECL

Kit components

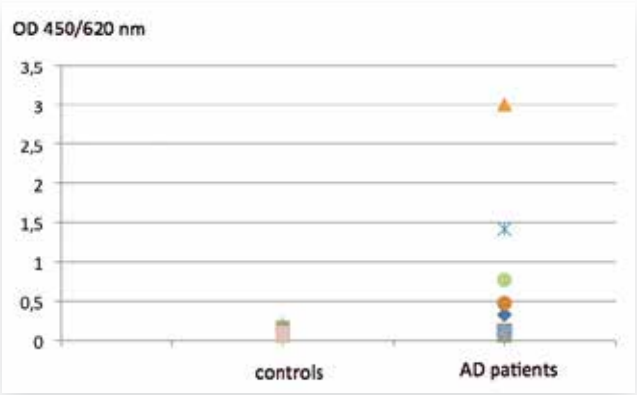
Immunostrips, positive and negative controls, washing buffer concentrate, dilution buffer, HRP-conjugate, staining buffer, TMB/enhancer solution, Peroxide solution, stop solution, sealing tapes, instruction for use.

Storage and stability

At 2-10°C. Shelf life time 12 months.

Sample application

Human P231 TAU kit was used for detection of P231 phosphorylated TAU in AD patient CSF sample cohort in comparison to healthy patient CSF control sample co-hort. Differences between groups were significant (p=0.01).



Order information

Order number	Product
847-0104000110	Human P199 TAU kit
847-0104400110	Human P199 TAU kit ECL
847-0104000111	Human P202 TAU kit
847-0104400111	Human P202 TAU kit ECL
847-0104000112	Human P231 TAU kit
847-0104400112	Human P231 TAU kit ECL
847-0104000113	Human TAU total kit
847-0104400113	Human TAU total kit ECL
847-0104000114	Human TAU aggregate kit
847-0104400114	Human TAU aggregate kit ECL

Kits for prion proteins

- Detection of pathological prion proteins PrP^{res}
- Detection and quantification of prion proteins in biological samples (serum, plasma, CSF)
- ELISA in 96-well-format containing controls and standards
- TMB format

Product description

Immunoassays for detection of prion proteins from different species in biological samples from bovine, ovine and human. EC approved post mortem test for detection of BSE in (RL999/2001 EU). Quantification of human prion protein in CSF, blood and brain samples. Purifcation kits with proteinase K digestion für detection of PrP^{res}.

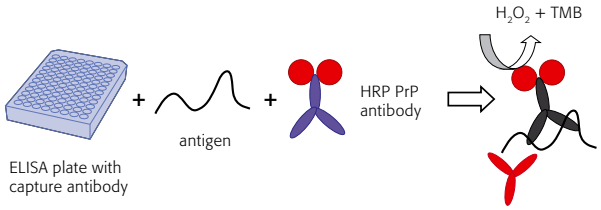
Storage and stability

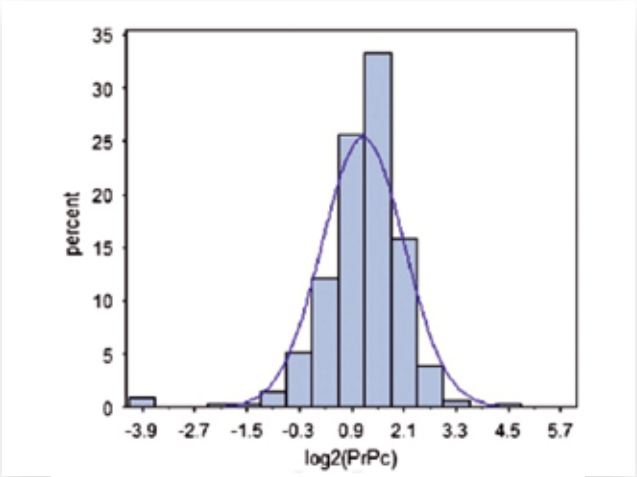
At 2-10°C. Shelf life time 12 months.

Application

Detection and quantification of prions in sera of patients for examination of significance regarding cognitive disorders. (Breitling et al. 2012).

Process sequence





Specifications

Antigen:

- Human prion protein, Scrapie and BSE prion protein (PrP^{res})

Format:

- ELISA, 96 well
- TMB

Applications:

- Detection in human serum, plasma, CSF, biological samples from animal and cell culture models
- Detection in Obex (BSE, Scrapie)
- Quantification of antigen

Protocol:

- Sequential process 2 – 24 h

Detection limit:

- 100 pg/ml TMB

Kit components

Immunostrips, positive and negative controls, washing buffer concentrate, dilution buffer, HRP-conjugate, staining buffer, TMB/enhancer solution, Peroxide solution, stop solution, sealing tapes, instruction for use.
For purification kit homogenisation tubes, proteinase K with buffer, precipitation solution, solubilisation buffer.

Order information

Order number	Product
847-0104000102	BetaPrion BSE EIA test kit, EC approved 999/2001
847-0104000103	BetaPrion SCRAPIE EIA test kit
847-0104000104	BetaPrion HUMAN EIA test kit
847-0104300101	BSE sample syringe, EC approved
847-0104100102	BetaPrion purification kit

Kits for special parameters & staining

- Detection and quantification of tissue tarnsglutaminase (TG2), human and murine IgG
- Detection and quantification in biological samples (serum, plasma, CSF)
- ELISA in 96 well format containing controls and standards
- TMB and ECL format
- PCR-ELISA for detection of PCR products
- Staining kits

Product description

Immunoassays for detection of tissue transglutaminase, human and murine IgG and FITC/Biotin labelled PCR products are also available for quantification of parameters wanted.
Ultrasensitive staining kits based on TMB are useable for ELISA and blot membranes.

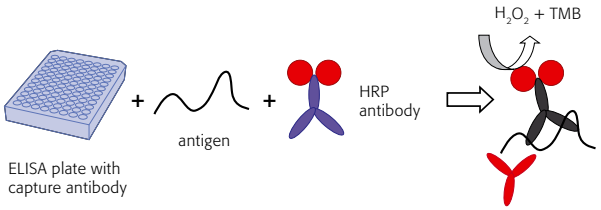
Storage and stability

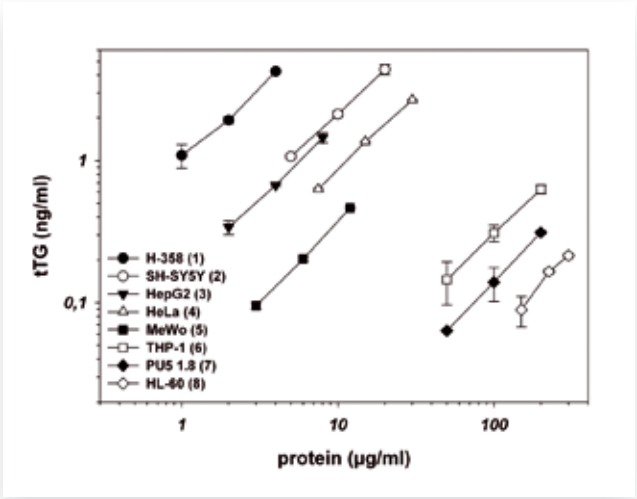
At 2-10°C. Shelf life time 12 months.

Application

Quantification of tissue transglutaminase in several mammalian cell lines using Human tTG Kit ECL (Wolf et al. Anal. Biochem. 2011).

Process sequence





Specifications

Antigen:
- Human tissue transglutaminase (TG2), human and murine IgG, FITC/Biotin PCR products

Format:
- ELISA, 96 well
- TMB, ECL

Applications:
- Detection in human serum, plasma, CSF, biological samples from animal and cell culture models
- Quantification of antigen

Protocol:
- Sequential process 2 – 24 h
- Staining 5 – 15 min

Detection limit:
- 100 pg/ml TMB
- 10 pg/ml ECL

Kit components

Immunostrips, positive and negative controls, washing buffer concentrate, dilution buffer, HRP-conjugate, staining buffer, TMB/enhancer solution, Peroxide solution, stop solution, sealing tapes, instruction for use.

Order information

Order number	Product
847-0104000105	Mouse IgG ELISA
847-0104000106	Human IgG ELISA
847-0104000107	Human tTG Kit
847-0104400107	Human tTG Kit ECL
847-0104000109	PCR ELISA Kit

Sepsis

Molecular diagnostics for life-threatening infections

Statistics show that someone dies of sepsis in Germany every 10 minutes, making this infection the third most common cause of death overall and the top problem in intensive care wards. Also known as blood poisoning, sepsis is a life-threatening infection affecting the entire organism. Fast, well-directed treatment is key if the patient is to survive.

Our innovative diagnostic tools help physicians make fast, precise decisions about the right treatment to pursue.

VYOO®

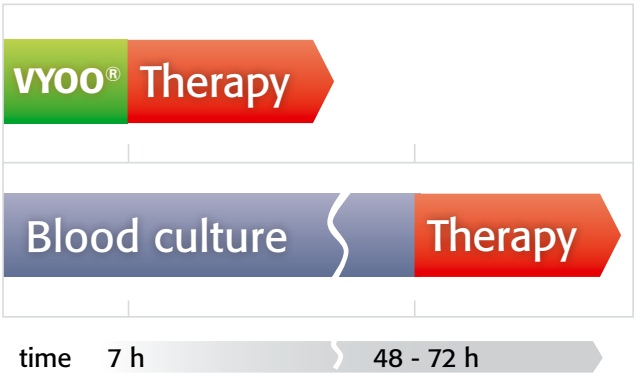
Multiplex PCR pathogen detection (Sepsis)

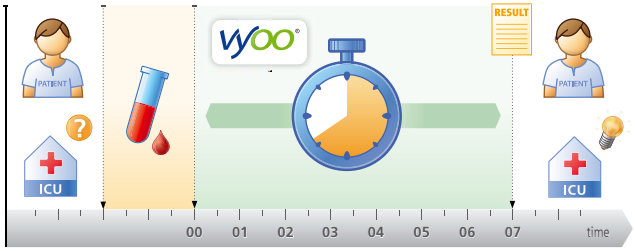
The challenges in sepsis diagnostics

VYOO® is a multiplex PCR assay containing a mechanical lysis step for whole blood, automated totalDNA extraction and a unique patented pathogen DNA enrichment technology VYOO® rapidly identifies sepsis causing bacteria, fungi and antibiotic resistances with high sensitivity and specificity.

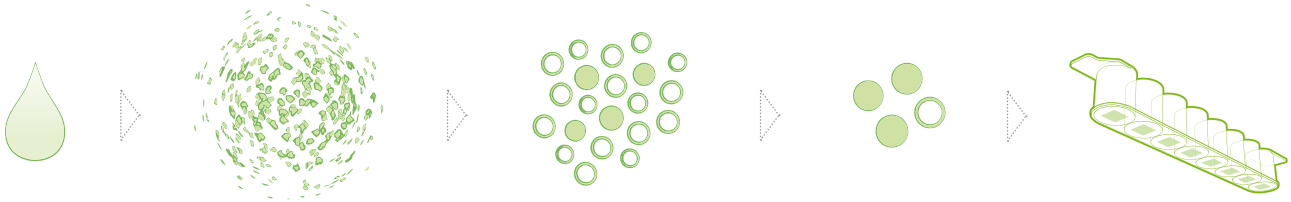
Life-threatening bacterial and fungal infections and their outcome sepsis and consecutive organ failure are one of the most frequent causes of death in the ICU. Initiation of an adequate antibiotic treatment within the first few hours of infection is a crucial step for an effective therapy. Today's gold standard technique for pathogen detection relies on blood culture and needs 2 to 3 days to obtain results. In addition, blood culture fails to detect non-cultivable pathogens and is sensitive to antibiotic treatment prior to sample withdrawal thereby remaining negative in 80-90% of all sepsis incidents.

Early information for targeted antibiotic therapy





VYOO® is approved for In-Vitro Diagnostic use according to IVD Directive 98/79/EC.



Cell disruption from whole blood | Total DNA extraction | DNA enrichment | Multiplex PCR plus microarray

7 hours

- Up to 5 ml whole blood samples
- High accessibility of fungal and bacterial cells
- Internal control
- Internal control ensures technical validity
- Proprietary automated sample preparation on magnetic beads
- > 90% reduction of human DNA background in complex samples
- more pathogen DNA in PCR reaction
- Covers 99% of sepsis relevant species plus major resistances
- Unaffected by anti-biotic pre-treatment
- Automated array readout optional

VYOO®
Innovative add-on to conventional blood culture, delivering early pathogen identification and overcoming deficiencies of culture based methods

VYOO®

- IVD product for detecting sepsis-related pathogens and resistance factors in EDTA whole blood
- DNA-based detection
- Independent of blood cultures
- Results available in 7 hours
- Recommended for use with special instrumentation
- Includes application training at the user's site

Product description

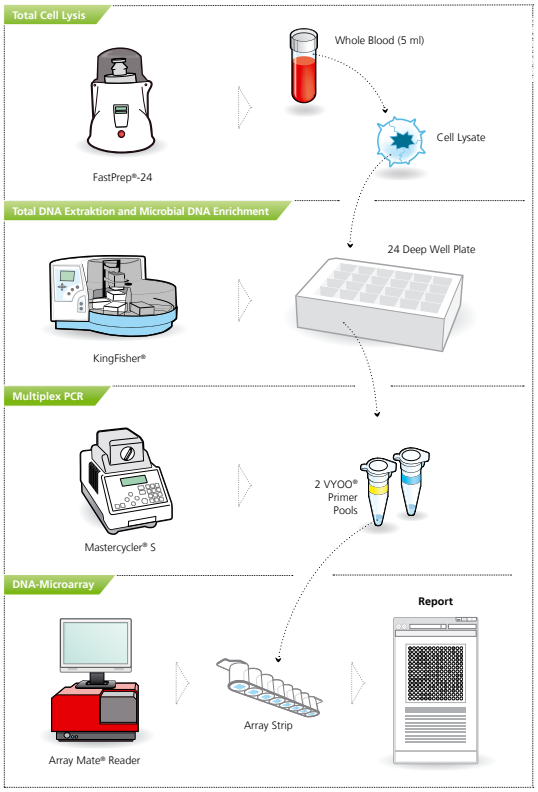
VYOO® is a diagnostic multiplex PCR method for qualitative detection of specific bacteria and fungi in patients' blood when a systemic infection and/or sepsis is suspected. The test requires 1.0 - 5 mL EDTA whole blood.
In addition to total cell lysis, DNA isolation and enrichment of bacterial and fungal DNA (LOOXSTER® technology), the system comprises highly specific, highly sensitive detection of sepsis pathogens (via multiplex PCR).
The test specifically identifies the following 46 sepsis-related pathogens (99% of all sepsis-related pathogens) and resistance genes (34 bacterial species, 7 fungal species and 5 resistances):

Bacteria: *Acinetobacter baumannii, Bacteroides fragilis, Burkholderia cepacia complex, Clostridium perfringens, Enterobacter aerogenes, E. cloacae, Enterococcus faecalis, E. faecium, Escherichia coli, Haemophilus influenzae, H. influenzae* type B capsule, *Klebsiella oxytoca, K. pneumoniae, Morganella morganii, Neisseria meningitidis, Prevotella buccae, P. intermedia, P. melaninogenica, Proteus mirabilis, Pseudomonas aeruginosa, Serratia marcescens, Staphylococcus aureus, S. epidermidis, S. haemolyticus, S. hominis, S. saprophyticus, Stenotrophomonas maltophilia, Streptococcus agalactiae, S. bovis, S. dysgalactiae subsp. equisimilis, S. mutans, S. pneumonia, S. pyogenes, S. sanguinis*

Fungi: Aspergillus fumigatus, Candida albicans, C. dubliniensis, C. glabrata, C. krusei, C. parapsilosis, C. tropicalis

Antibiotic resistances: mecA, vanA, vanB, blaCTX-M15, blaSHV

Product Specifications



Analytical sensitivities (5 mL whole blood):

Bacteria and fungi	DSMZ	ATCC	Sensitivity in CFU/mL
Acinetobacter baumannii	30007^T	19606	10
Aspergillus fumigatus	819	9197	100
Bacteroides fragilis	2151^T	25285	5
Burkholderia cepacia complex	7288^T	25416	50
Candida albicans		MYA-2876	30
Candida dubliniensis	13268		50
Candida glabrata	11226	90030	30
Candida krusei		90878	50
Candida parapsilosis	5784^T	22019	50
Candida tropicalis		90874	90
Clostridium perfringens	756T	13124	5
Enterobacter aerogenes	30053^T	13048	10
Enterobacter cloacae	30054^T	13047	10

Analytical sensitivities (5 mL whole blood):

Bacteria and fungi	DSMZ	ATCC	Sensitivity in CFU/mL
Enterococcus faecalis	20478^T	19433	5
Enterococcus faecium	20477^T	19434	5
Escherichia coli	10806		5
Haemophilus influenzae	4690T	33391	5
H. influenzae type B capsule,	11969		10
Klebsiella oxytoca	5175^T	13182	5
Klebsiella pneumoniae	30104^T	13883	10
Morganella morganii	30164^T	25830	10
Neisseria meningitidis	10036^T	13077	5
Prevotella intermedia	20706	25611	30
Prevotella melaninogenica	7089	25845	5
Prevotella buccae	20615		30
Proteus mirabilis	4479T	29905	5
Pseudomonas aeruginosa	50071^T	10145	5
Serratia marcescens	30121^T	13880	10
Staphylococcus aureus	20231^T	12600	30
Staphylococcus epidermidis	20044^T	14990	30
Staphylococcus haemolyticus	20263^T	29970	30
Staphylococcus hominis	20328^T	27844	100
Staphylococcus saphrophyticus	20229^T	15305	30
Stenotrophomon maltophilia	50170^T	13637	30
Streptococcus agalactiae	2134^T	13813	10
Streptococcus bovis	20480^T	3317	5
Streptococcus dysgalactiae	6176	356	10
Streptococcus mutans	20523^T	25175	10
Streptococcus pneumoniae	20566^T	33400	5
Streptococcus pyogenes	20565^T	12344	5
Streptococcus sanguinis	20567^T	10556	10

Results from VYOO® validation: limits of detection (sensitivities) for bacterial and fungal (type) strains from the collections at the American Type Culture Collection (ATCC, Manassas VA, U.S.) and the German Collection of Microorganisms and Cell Cultures (DSMZ GmbH, Braunschweig, Germany). T = type strain

The analytical sensitivity of individual VYOO® tests was determined via cell spiking in 5 mL EDTA whole blood (donor blood, WBC = 4.3 – 9.6 x 10^9/L). Sensitivity lies between 5 and 100 CFU/mL, depending on the targets in question.

Kit components

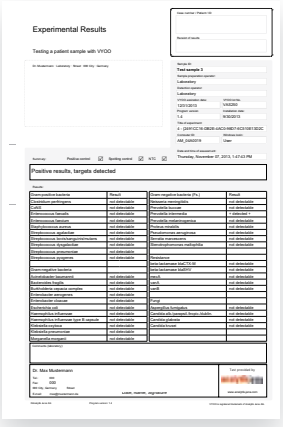
Lysis tubes; protease; prefilled buffer plates and tubes for lysis; binding, washing, elution, hybridization and adjustment buffers; total DNA beads; plastic materials for KingFisher® FLEX, PCR and cleanup; microbial DNA beads; spin columns; multiplex primer pools for PCR; multiplex PCR mix; PCR-grade water; array strips; HRP conjugate; conjugate buffer; HRP substrate; user manual

Storage and stability

Storage: 2-8°C or 15-30°C (room temperature)
Stability: 10 weeks following preparation

Application

Results: Optimized software automatically generates the final assessment and results report. The following is a sample report showing a positive result:



VYOO® test report

Order information

Order number	Product
850-100-007-005	5 reactions

Experimental Results

Testing a patient sample with VYOO

Case number / Patient / ID

Receipt of results

Dr. Mustermann · Laboratory · Street · 000 City · Germany

Sample ID: **Test sample 3**

Sample preparation operator: Laboratory

Detection operator: Laboratory

VYOO expiration date: 12/31/2013

VYOO lot No.: VAS250

Program version: 1.4

Installation date: 9/30/2013

Title of experiment: 4 - {2491CC16-DB2E-4AC0-98D7-6C510E13D2C

Computer ID: AM_04A0019

Windows login: User

Date and time of assessment: Thursday, November 07, 2013, 1:47:43 PM

Summary: Positive control ☑ Spotting control ☑ NTC ☑

Positive results, targets detected

Results:

Gram-positive bacteria	Result
Clostridium perfringens	not detectable
CoNS	not detectable
Enterococcus faecalis	not detectable
Enterococcus faecium	not detectable
Staphylococcus aureus	not detectable
Streptococcus agalactiae	not detectable
Streptococcus bovis/sanguinis/mutans	not detectable
Streptococcus dysgalactiae	not detectable
Streptococcus pneumoniae	not detectable
Streptococcus pyogenes	not detectable
Gram-negative bacteria	
Acinetobacter baumannii	not detectable
Bacteroides fragilis	not detectable
Burkholderia cepacia complex	not detectable
Enterobacter aerogenes	not detectable
Enterobacter cloacae	not detectable
Escherichia coli	not detectable
Haemophilus influenzae	not detectable
Haemophilus influenzae type B capsule	not detectable
Klebsiella oxytoca	not detectable
Klebsiella pneumoniae	not detectable
Morganella morganii	not detectable

Gram-negative bacteria (Fs.)	Result
Neisseria meningitidis	not detectable
Prevotella buccae	not detectable
Prevotella intermedia	+ detected +
Prevotella melaninogenica	not detectable
Proteus mirabilis	not detectable
Pseudomonas aeruginosa	not detectable
Serratia marcescens	not detectable
Stenotrophomonas maltophilia	not detectable
Resistance	
beta-lactamase blaCTX-M	not detectable
beta-lactamase blaSHV	not detectable
mecA	not detectable
vanA	not detectable
vanB	not detectable
Fungi	
Aspergillus fumigatus	not detectable
Candida alb./parapsil./tropic./dublin.	not detectable
Candida glabrata	not detectable
Candida krusei	not detectable

Comments (laboratory):

Dr. Max Mustermann
Tel.: 000
Fax: 000
000 City, Germany Street
E-mail: max@mustermann.de

Date, Name, Signature

Test provided by analytikjena
www.analytik-jena.com

Program version: 1.4

LOOXSTER® **Enrichment** Kit

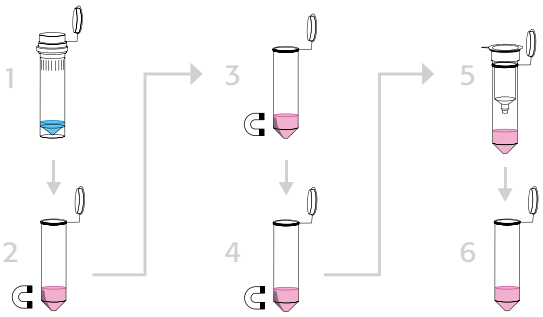
- Enriches bacterial and fungal DNA from predominantly eucaryotic DNA isolates
- Suitable for up to 300 µg of input DNA
- Removes over 95% of eucaryotic DNA
- Includes DNA cleanup

Product description

The LOOXSTER® Enrichment Kit is a sample preparation system for enriching bacterial and fungal deoxyribonucleic acids (DNA) in a DNA isolate of predominantly eucaryotic origin. The specific affinity of the LOOXSTER® protein for non-methylated CpG dinucleotides is what produces the LOOXSTER® enrichment effect. DNA extracts containing a mixture of methylated host DNA and small quantities of double-stranded genomic bacterial or fungal DNA, are incubated with LOOXSTER® in the presence of a stringent buffer. A subsequent wash step can be used for removing unbound DNA. The enriched bacterial DNA is then eluted with the aid of an elution buffer. The PureProve concept: following suitable processes for reducing contamination with DNA, all system components are filled and packaged under clean-room conditions.

Process sequence

1. Reconstitution of LOOXSTER® Magnetic Particles
2. Add LOOXSTER® Magnetic Particles to DNA sample, BINDING and magnetic separation
3. WASHING and magnetic separation
4. ELUTION and magnetic separation
5. Transfer of supernatant (Eluate) to Cleanup
6. Eluate now ready for downstream application



Product specifications

Starting material:
Up to 300 µg of predominantly eucaryotic DNA

Extraction time:
Approx. 75 minutes

Yield:
- No more than 3 µg of enriched DNA
- The concentration of bacterial DNA in the enriched DNA depends on the ratio of eucaryotic DNA to procaryotic DNA.
- **Example:** Less than 5% of the human DNA and approx. 50% of the bacterial DNA (E. coli) were isolated from a 100,000-fold excess of human DNA in the starting sample.

Average purity (A_{260}:A_{280}):
1.7 - 2.0

Kit components

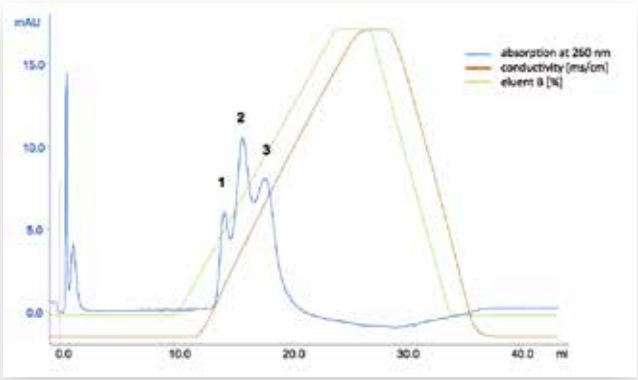
Lyophilized LOOXSTER® Magnetic Particles, LOOXSTER® Binding Buffer, LOOXSTER® Wash Buffer, LOOXSTER® Elution Buffer; tubes with caps, desalting spin columns, collection tubes, desalting binding buffer, desalting wash buffer, desalting elution buffer, water, user manual

Storage conditions and stability

A storage temperature between 2°C and 8°C is recommended for lyophilized LOOXSTER® Magnetic Particles. All other components can be stored at room temperature (15°C to 30°C). The kit will remain stable under these conditions for at least 6 months. Reconstituted LOOXSTER® Magnetic Particles will remain stable for 1 week at 2°C to 8°C.

Sample application

Separation of genomic DNA based on GC-content and cystein-methylation. To demonstrate the selective affinity of LOOXSTER® for non-methylated CpG dinucleotides 1.25 µg of each human, Staphylococcus aureus and Escherichia coli genomic DNA was mixed and applied to a 1 ml LOOXSTER® chromatography column. Chromatography was carried out with a 50-800 mM NaCl gradient. DNA was eluted at conductivities of 19,615 mS/cm (human; **1**), 28,465 mS/cm (S.aureus; **2**) and 39,459 mS/cm (*E.coli*; **3**).



Related products

Magnet rack small for 1.5 ml tubes
MobiLab Order Information 250

Order information

Order number	Quantity
203-001-0010	10 reactions
844-MA205-2	Laboratory Notebook

Food quality control

Are you looking for a highly sensitive tool for identifying and quantifying microorganisms?
Then our innuDETECT and rapidSTRIPE Assays are the kits for you. Based on real-time PCR or endpoint detection, these kits can detect even the tiniest quantities of the most commonly occurring pathogens in food inspection settings.

All of the kits can be used with most commercially available thermocyclers and real-time thermocyclers.

innuDETECT **Salmonella spp.** Assay

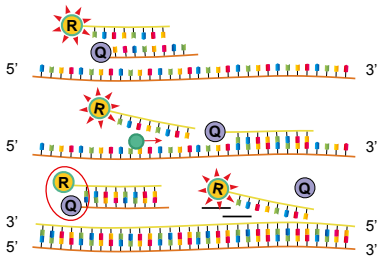
- Highly sensitive, real-time detection of *Salmonella ssp.*
- Patented probe system (rehybridization probes)
- Suitable for universal application, both in real-time rapid thermal cyclers as well as in standard qPCR systems
- For qualitative and quantitative detection

Product description

At the heart of the innuDETECT Salmonella spp. Assay is a patented real-time system utilizing rehybridization probes. Detection of all *Salmonella* serotypes is highly specific, and the sensitivity of the test is comparable to that of real-time TaqMan® PCR. Up to 10 copies can be detected reproducibly per PCR batch. The probe system is universally applicable and the assay can be used in virtually all commercially available real-time thermal cyclers.

Procedure

1. **Denaturation:** All DNA molecules in the sample are present in their single-stranded form.
2. **Annealing/elongation:** The exonuclease activity of the enzyme amplifies the target DNA and breaks down the probe.
3. **Probe rehybridization:** Intact probes are rehybridized and fluorescence is measured.



Product specifications

Starting material:
DNA from food samples after standard culturing

Detection time:
- Rapid qPCR (qTOWER): approx. 50 minutes
- Standard qPCR (qTOWER 2.0 or TOptical): approx. 2 hours

Sensitivity:
- Comparable to real-time TaqMan® PCR
- Detection of 10 target genomes per PCR batch
- Detects all serotypes of *Salmonella* or *Salmonella enterica* respectively

Detection:
innuDETECT Salmonella spp. Assay: the 16s-23S rRNA spacer region and/or hyperinvasive locus A (*hilA*)

Kit components

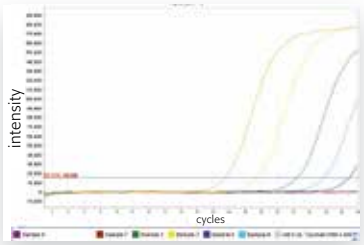
Positive control, primer/probe mix, PCR-grade H_2O
Other chemicals needed: SensiFAST™ Probe Lo-ROX kit (Bioline)

Storage conditions and stability

The components of the innuDETECT Salmonella Assay will remain stable for 6 months when stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided.

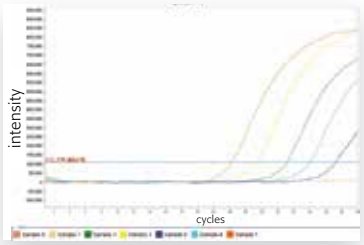
Sample application

A *Salmonella spp.* dilution series (1 to 10^5 copies per PCR batch) was prepared for the purpose of comparing real-time amplification using TaqMan® to amplification with the new rehybridization probe. Both systems yielded comparable plots and sensitivities.



Sample No.	Cell/ initial probe	Cell/ PCR-batch	Ct-value
1	10^7	10^5	23,59
2	10^6	10^4	27,55
3	10^5	10^3	32,31
4	10^4	100	35,64
5	10^3	10	38,83
6	100	1	No Ct
7	NTC	NTC	No Ct

Amplification plots from TaqMan® real-time PCR.



Sample No.	Cell/ initial probe	Cell/ PCR batch	Ct value
1	10^7	10^5	24,19
2	10^6	10^4	27,45
3	10^5	10^3	31,11
4	10^4	100	34,24
5	10^3	10	37,23
6	100	1	No Ct
7	NTC	NTC	No Ct

Amplification plots from real-time PCR using rehybridization probes.

DNA isolation products

blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-ID-0002010	10 reactions
845-ID-0002100	100 reactions

innuDETECT **Listeria spp.** Assay

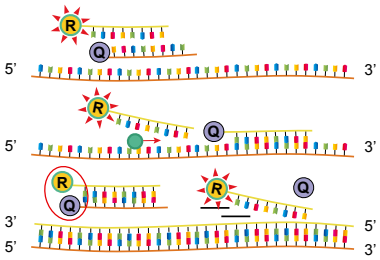
- System for highly specific detection of *Listeria spp.*
- Qualitative and quantitative analysis based on real-time PCR plots
- Use of a patented probe system (rehybridization probes)
- Flexible for use both in rapid and in standard qPCR thermal cyclers

Product description

The innuDETECT Listeria spp. Assay is a molecular test system for detecting *Listeria* cells based on real-time PCR. The patented rehybridization probe system serves as a highly sensitive, specific detection tool delivering results comparable to those from TaqMan® real-time PCR. Both assays are also suitable for universal application in all commonly used real-time thermal cyclers.

Procedure

1. **Denaturation:** All DNA molecules in the sample are present in their single-stranded form.
2. **Annealing/elongation:** The exonuclease activity of the enzyme amplifies the target DNA and breaks down the probe.
3. **Probe rehybridization:** Intact probes are rehybridized and fluorescence is measured.



Product specifications

Starting material:
DNA from food samples after standard culturing

Detection time:
- Rapid qPCR (qTOWER): approx. 50 minutes
- Standard qPCR (qTOWER 2.0 or TOptical): approx. 2 hours

Sensitivity:
- Comparable to real-time TaqMan® PCR
- Detection of 10 target genomes per PCR batch
- Detection of all serotypes of *Listeria*

Detection:
innuDETECT Listeria spp. Assay: invasion associated protein (iap) gene

Kit components

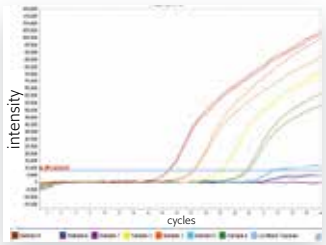
Positive control, primer/probe mix, PCR-grade H_2O
Other chemicals needed: SensiFAST™ Probe Lo-ROX kit (Bioline)

Storage conditions and stability

The components of the innuDETECT *Listeria spp.* Assay will remain stable for 6 months when stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided.

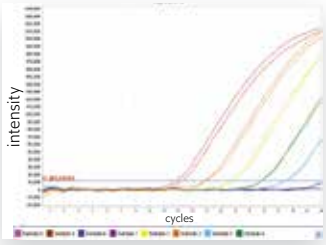
Sample application

The following amplification plots show a comparison between TaqMan®-based, real-time PCR and the use of the new rehybridization probes. This study was performed by using *Listeria ssp.* DNA at different concentrations as the target in the amplification reaction.



Sample No.	Cell/ initial probe	Cell/ PCR-batch	Ct-value 1	Ct-value 2
1	10^7	10^5	18,96	19,04
2	10^6	10^4	22,33	22,39
3	10^5	10^3	26,41	26,1
4	10^4	100	29,6	29,93
5	10^3	10	33,88	33,67
6	100	1	No Ct	No Ct
7	NTC	NTC	No Ct	No Ct

Amplification plots based on TaqMan® real-time PCR.



Sample No.	Cell/ initial probe	Cell/ PCR batch	Ct value 1	Ct value 2
1	10^7	10^5	19,76	20,6
2	10^6	10^4	23,98	23,81
3	10^5	10^3	27,79	27,55
4	10^4	100	31,73	31,85
5	10^3	10	35,11	35,27
6	100	1	No Ct	No Ct
7	NTC	NTC	No Ct	No Ct

Amplification plots based on real-time PCR using rehybridization probes.

DNA isolation products

blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-ID-0001010	10 reactions
845-ID-0001100	100 reactions

innuDETECT **E.coli O104** Assay

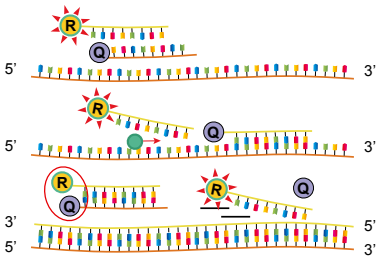
- Molecular diagnostic assay for detecting all O104-positive *E.coli*
- Flexible for use in all commonly used real-time PCR thermal cyclers, both rapid and standard
- Utilizes a real-time chemistry based on the use of rehybridization probes
- Highly sensitive and specific for qualitative and quantitative analyses alike

Product description

The innuDETECT E.coli O104 Assay is a highly sensitive, specific tool for detecting all O104-positive strains of *E.coli*. The assay is based on a patented system of rehybridization probes providing both qualitative and quantitative information that can be used for verifying results. The innuDETECT E.coli O104 Assay is a universal test that can be combined with all commercially available, real-time *rapid*PCR and standard PCR thermal cyclers. Tests parallel to TaqMan® real-time PCR produce comparable Ct values.

Procedure

1. **Denaturation:** All DNA molecules in the sample are present in their single-stranded form.
2. **Annealing/elongation:** The exonuclease activity of the enzyme amplifies the target DNA and breaks down the probe.
3. **Probe rehybridization:** Intact probes are rehybridized and fluorescence is measured.



Product specifications

Starting material:
DNA from food samples after standard culturing

Detection time:
- Rapid qPCR (qTOWER): approx. 50 minutes
- Standard qPCR (qTOWER 2.0 or TOptical): approx. 2 hours

Sensitivity / specificity:
- Comparable to real-time TaqMan® PCR
- Detects all O104-positive *E.coli*

Detection:
WckD gene from the O104 antigen cluster*

(*Wang,L., Briggs,C.E., Rothemund,D., Fratamico,P., Luchansky,J.B. and Reeves,P.R. Sequence of the *E.coli* O104 antigen gene cluster and identification of O104 specific genes JOURNAL Gene 270 (1-2), 231-236 (2001))

Kit components

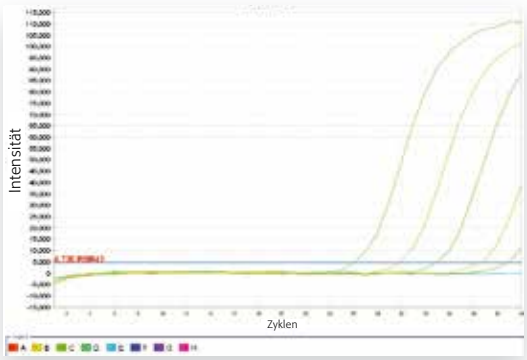
Positive control, primer/probe mix, PCR-grade H_2O
Other chemicals needed: SensiFAST™ Probe Lo-ROX Kit (Bioline)

Storage conditions and stability

The components of the innuDETECT E.coli O104 Assay will remain stable for 6 months when stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided.

Sample application

Different dilutions were performed on *E.coli* DNA (positive for the O104 surface antigen) and then subjected to real-time PCR amplification. The following graph shows the plots obtained from rehybridization probes.



Amplification plots from rehybridization probe systems.

Sample No.	Dilution	Ct value No
1	undiluted	26,18
2	1:10	29,7
3	1:100	33,01
4	1:1.000	36,67
5	1:10.000	38,88
6	NTC	No Ct

DNA isolation products

blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-ID-0003010	10 reactions
845-ID-0003100	100 reactions

rapidSTRIPE **Salmonella** Assay

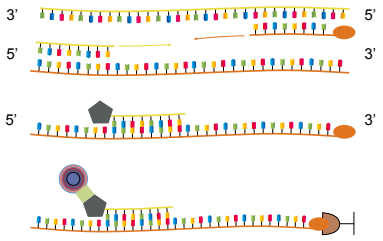
- Highly specific detection of *Salmonella enterica*
- Includes all of the reagents required for the amplification and hybridization reaction and for final detection
- Lateral flow strips for fast, easy yes/no results
- Complete test can be performed in just 1 hour

Product description

The rapidSTRIPE Salmonella Assay has been optimized for fast, highly sensitive detection of *S.enterica*. The DNA is purified (using a blackPREP Food DNA Kit I, for instance) after preparing a standard culture of the food to be studied. The extracted nucleic acids are then introduced into a combined, highly specific amplification and hybridization reaction. If the results are positive, the PCR product will bear a tag and an antigen for final detection on a lateral flow strip (LFS). The appearance of a test line indicates positive results. The strip also includes a conjugate control, which is visible as a second test line and serves as a functional check for the LFS.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

Starting material:
DNA from food samples after standard culturing

Detection time:
- *rapid*PCR (SpeedCycler²): approx. 50 minutes
- Standard PCR: Depends on thermal cyclers, approx. 2–2.5 hours
- Detection: approx. 10–20 minutes

Sensitivity:
Comparable to real-time PCR

Kit components

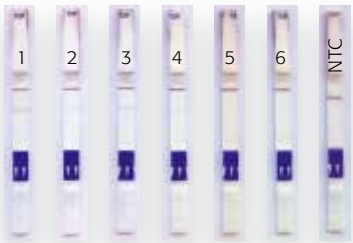
PCR plastic supplies, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Storage conditions and stability

PCR components of the rapidSTRIPE Salmonella Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

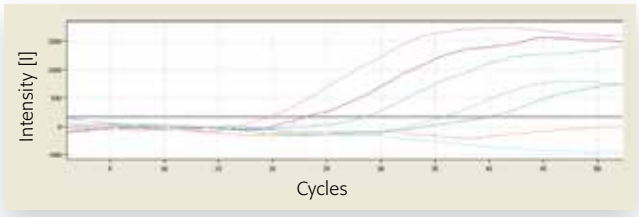
Sample application

Meat samples were first cultured in a Stromacher apparatus, after which the DNA was purified using the blackPREP Food DNA Kit I. Various dilutions were prepared of the extracted DNA, and these were immediately introduced into an amplification and hybridization reaction specific to *S.enterica* (rapidSTRIPE Salmonella Assay). An established real-time PCR method was used in parallel to double check the samples.



Detection of specific amplification products on lateral flow strips

No.	Dilution	Ct values (qPCR)	Lateral Flow Strip (LFS)
1	$1:2\times10^2$	22.05	Positive
2	$1:2\times10^3$	24.7	Positive
3	$1:2\times10^4$	30.5	Positive
4	$1:2\times10^5$	37.25	Positive
5	$1:2\times10^6$	43.25	Negative
6	$1:2\times10^7$	No Ct	Negative
NTC	NTC	No Ct	Negative



An established real-time PCR was used as a crosscheck (determination of Ct values)

DNA isolation products

blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-IS-1004010	10 reactions
845-IS-1004025	25 reactions
845-IS-1004050	50 reactions

rapidSTRIPE **Listeria** Assay

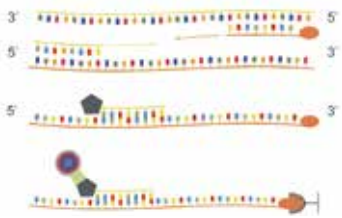
- Ready-to-use kit for highly specific detection of *Listeria monocytogenes* in food
- Final results can be available in less than 1 hour
- Optimized protocols for standard and *rapid*PCR
- Sensitivity comparable to that of real-time PCR

Product description

The rapidSTRIPE Listeria Assay is a fast, highly specific tool for detecting the genus *Listeria monocytogenes* in food after standard culturing. This involves a subsequent, specific amplification reaction in the same reaction vessel, combined with a hybridization step. In the final step, the PCR products are applied to an user-friendly test strip; the appearance of a test line indicates positive results. A second control line (in the form of a conjugate control) confirms that that lateral flow strip (LFS) is working properly. The kit is ready-to-use and contains all of the reagents and consumables needed for the PCR, hybridization and final detection.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with a antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

A validation experiment was performed in which the performance data from the rapidSTRIPE Listeria Assay were compared to that obtained from classic *Listeria monocytogenes* detection methods (samples were cultured and then assessed under a microscope; duration = 5 days). The following table summarizes the data after samples had been cultured for 24 hours:

Matrices	Relative precision	Relative sensitivity	Relative specificity
Meat products	91.50 %	97.00 %	100 %
Fish	93.33 %	89.47 %	100 %
Fruits/vegetables	96.33 %	89.66 %	100 %
Dairy products	91.67 %	87.18 %	100 %
Overall	**92.30 %**	**87.90 %**	**100 %**

Detection with rapidSTRIPE after culturing for 24 hours; percentages derived from a comparison with the classic detection method

Storage conditions and stability

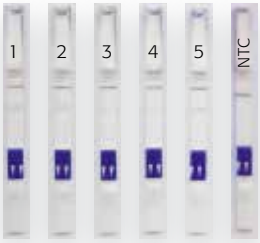
PCR components of the rapidSTRIPE Listeria Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Kit components

Consumables, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, LFS, running buffer, sample containers

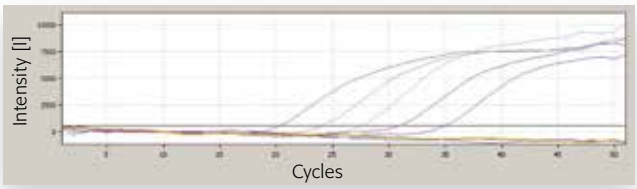
Sample application

The blackPREP Food DNA Kit I was used to isolate DNA from meat samples that had been cultured in a Stomacher apparatus. The rapidSTRIPE Listeria Assay was then used to introduce the nucleic acid (diluted to different concentrations) into an amplification/hybridization reaction specific to *L. monocytogenes*. The results were compared to those obtained using an established qPCR method.



Detection of specific amplification products on lateral flow strips

No.	Dilution	Ct values (qPCR)	Lateral Flow Strip (LFS)
1	Undiluted	20.9	Positive
2	1:10	24.1	Positive
3	1:100	27.7	Positive
4	1:1,000	31.2	Positive
5	1:10,000	35.4	Positive
NTC	NTC	No Ct	Negative



An established real-time PCR was used for a crosscheck (determination of Ct values)

DNA isolation products

blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-IS-1005010	10 reactions
845-IS-1005025	25 reactions
845-IS-1005050	50 reactions

rapidSTRIPE **E.coli O157** Assay

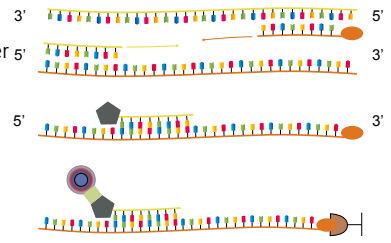
- Highly specific, sensitive detection of all *E.coli* O157 strains
- Detection system based on patented **RAH** technology (**R**apid **A**mplification and **H**ybridization)
- Optimized for rapid and standard PCR thermocyclers
- Final visualization of hybridization products on user-friendly, stable test strips

Product description

The rapidSTRIPE E.coli O157 Assay is a simple, fast molecular biology test system for detecting the O157 surface antigen. The assay is based on a highly specific amplification reaction (PCR), which is followed immediately by a combined hybridization reaction. In the final step, PCR products are visualized in just 10 – 20 minutes on a stable lateral flow strip (LFS). The kit comes with all of the components needed for detection, as well as optimized protocols for rapid and standard PCR thermocyclers.

Process sequence

1. Standard or *rapid*PCR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Product specifications

Starting material:

- Bacterial culture after standard food culturing in a Stomacher
- Swab samples

Time required for amplification and hybridization:

- *rapid*PCR (SpeedCycler²): approx. 40 – 45 min
- Standard PCR: approx. 2 – 2.5 h, depending on the thermocycler

Detection time:

Approx. 10 – 20 minutes

Sensitivity:

- 30 – 40 copies in the PCR batch
- Specific detection of the O157 surface antigen, which is typical of these *E.coli* bacteria

Kit components

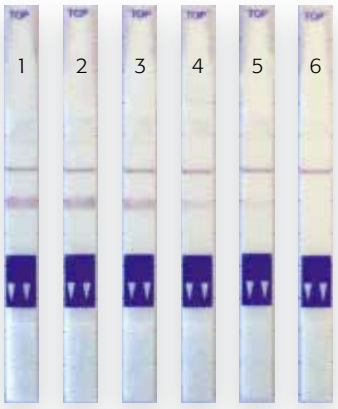
PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

PCR components of the rapidSTRIPE E.coli O157 Assay will remain stable for 6 months if stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4°C.

Sample application

Bacteria from a food sample were first cultured in a Stomacher, after which the bacterial DNA were extracted using the blackPREP Food DNA I kit. The SpeedCycler² and the rapidSTRIPE E.coli O157 Assay were then used for introducing different template concentrations into the amplification/hybridization reaction. The figure below shows the results visualized on lateral flow strips (LFS):



Strip 1: Undiluted
Strip 2: 1:10 dilution
Strip 3: 1:100 dilution
Strip 4: 1:1000 dilution
Strip 5: 1:10,000 dilution
Strip 6: Negative control

DNA isolation products

innuPREP Bacteria DNA Kit 42
blackPREP Food DNA Kit I 48

Related products:

rapidSTRIPE E.coli O104 Assay 209
rapidSTRIPE Shigella Toxin II Assay 210

Order information

Order number	Quantity
845-IS-1011010	10 Reactions
845-IS-1011025	25 Reactions
845-IS-1011050	50 Reactions

rapidSTRIPE **Campylobacter** Assay

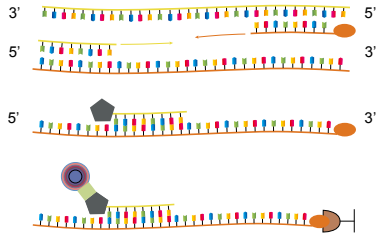
- Assay for specific detection of *Campylobacter* strains such as *Campylobacter jejuni, Campylobacter coli* and *Campylobacter lari*
- Testing is highly sensitive, fast and very easy
- Detection is based on patented **R**apid **A**mplification and **H**ybridization-Technology (**RAH**)

Product description

The rapidSTRIPE Campylobacter Assay has been specially designed as a sensitive detection tool for thermophilic *Campylobacter* strains after cultivation in a Stomacher. The test system is based on specific amplification of the glyA gene region and combined probe hybridization. Hybridization products can then be assessed on a user-friendly test strip, with the appearance of a test line confirming the presence of Campylobacter in the sample. A second line, the control line, indicates whether the lateral flow strip (LFS) is working properly.

Process sequence

1. Standard or *rapid*PCR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Product specifications

Starting material:
Bacterial culture after standard food culturing in a Stomacher

Time required for amplification and hybridization (RAH):
- rapid PCR (SpeedCycler²): approx. 40 – 45 min
- Standard PCR: approx. 2 – 2.5 h, depending on the thermocycler

Detection time:
approx. 10 – 20 minutes

Sensitivity:
- 30 – 40 copies in the PCR batch
- The following *Campylobacter* strains are detected: *Campylobacter jejuni, Campylobacter coli* and *Campylobacter lari*
- Specific detection of the glyA gene for serine hydroxymethyltransferase from thermophilic *Campylobacter* strains

Kit components

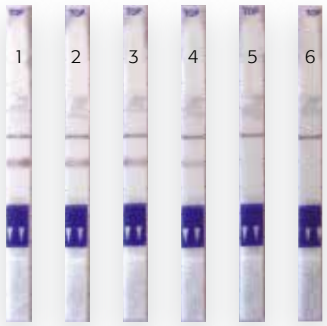
Lysis Solution, Binding Solution, Proteinase K, Washing Solutions, Elution Buffer, Spin Filter, Receiver Tubes, Elution Tubes, PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

PCR components of the rapidSTRIPE Campylobacter Assay will remain stable for 6 months if stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4°C.

Sample application

The blackPREP Food DNA I kit was used to extract DNA from a bacterial cell pellet. The rapidSTRIPE Campylobacter Assay and SpeedCycler² was then used for introducing the DNA at different concentrations as the target of the amplification reaction. The amplification products were subsequently visualized on lateral flow strips (LFS).



Strip 1: Undiluted
Strip 2: Dilution 1:10
Strip 3: Dilution 1:100
Strip 4: Dilution 1:1.000
Strip 5: Dilution 1:10.000
Strip 6: Negative control

DNA isolation products

innuPREP Bacteria DNA Kit 42
blackPREP Food DNA Kit I 48

Order information

Order number	Quantity
845-IS-1010010	10 reactions
845-IS-1010025	25 reactions
845-IS-1010050	50 reactions

rapidSTRIPE **E.coli O104** Assay

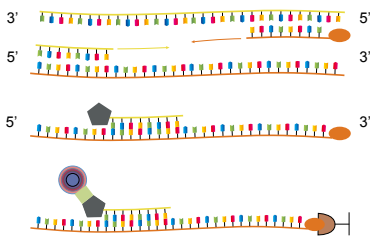
- Quick and simple detection of *E.coli* O104
- Based on the patented **R**apid **A**mplification **H**ybridization (**RAH**) technology
- Includes optimized reagents for the amplification/hybridization and the final, highly sensitive detection on a **l**ateral **f**low **s**trip (**LFS**)
- Ideal for cell cultures and swabs
- Optimized kits for nucleic acid extraction available

Product description

The rapidSTRIPE E.coli O104 Assay is used for the specific detection of all *E.coli* O104 strains. Initially, the DNA is isolated from the starting material and used in an amplification reaction which specifically reproduces the gene region for the surface antigen O104. The amplification is combined in the same vessel through a subsequent hybridization reaction with an *E.coli* O104-specific probe. This reaction format allows the specific detection of those E.coli strains which have the surface antigen O104 and thus prevents the occurrence of false-positive results as a result of a possible mispriming. The detection of the hybridization products then takes place using a lateral flow strip (LFS).

Procedure

1. Standard or *rapidP*CR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Product specifications

Starting material:

- Bacterial culture after subjecting food to a standard culturing process in a Stomacher apparatus
- Swabs

Time for cDNA-Synthese, amplification and hybridization:

- *rapidP*CR (SpeedCycler²): approx. 40 – 45 min
- Standard PCR: Dependent on the thermal cycler approx. 2 – 2.5 h

Detection time:

Approx. 10 – 20 minutes

Sensitivity:

- 30 – 40 copies in the PCR batch
- Positively tested for *E.coli* O104:H4 or *E.coli* O104:H21
- No detection of *E.coli* O157, O103 and O26

Kit components

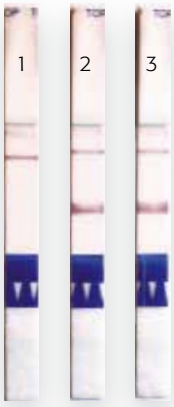
PCR tubes, positive control, primer, probe, dNTP's, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

The PCR components of the rapidSTRIPE E.coli O104 Assay are stored at -20°C and are stable for 6 months under these conditions. Repeated thawing and freezing should be avoided since this will negatively affect the activity of the individual reagents. The test strips including running buffer are stored in a dry place at 4 °C.

Sample application

Two different reference nucleic acids from *E.coli* O104:H4 and *E.coli* O104:H21 were used in the combined amplification and hybridization reaction (rapidSTRIPE E.coli O104 Assay) using the SpeedCycler². The final detection of the hybridization products then took place using a stable, highly sensitive lateral flow stripe (LFS):



LFS 1: Negative control
LFS 2: Positive for *E.coli* O104:H4 (Referenz-DNA)
LFS 3: Positive for *E.coli* O104:H21 (reference DNA)

Products for DNAn purification

innuPREP Bacteria DNA Kit 42
blackPREP Food DNA Kit I 48

Related products:

rapidSTRIPE Shigella Toxin II Assay 210

Order information

Order number	Quantity
845-IS-1006010	10 reactions
845-IS-1006025	25 reactions
845-IS-1006050	50 reactions

rapidSTRIPE **Shigella Toxin II** Assay

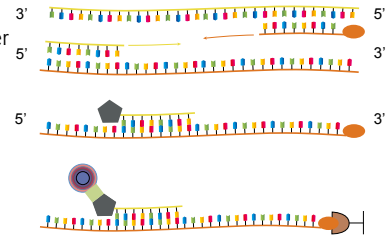
- Highly sensitive assay for detecting lectin verotoxin 2 (i.e., Shiga-like toxin or Shiga toxin-producing bacterial strains).
- Based on a specific, combined amplification/hybridization reaction
- Fast detection on a stable **l**ateral **f**low **s**trip (**LFS**) suitable for archiving
- Includes all of the consumables and reagents needed

Product description

The rapidSTRIPE Shigella Toxin II Assay is a ready-to-use kit for specific detection of the EHEC strains that produce Shiga toxin II. Different EHEC strains have distinguishing serological properties that allow scientists to differentiate, for instance, between bacteria producing lectin verotoxins 1 and 2 (Shiga-like toxins, or Shiga toxins for short). The name is derived from the compounds' considerable similarity to the neurotoxic, necrotizing toxin produced by *Shigella dysenteriae*. The rapidSTRIPE Shigella Toxin II assay contains all of the reagents needed for PCR-based detection and for visualizing amplification products on a user-friendly lateral flow strip.

Process sequence

1. Standard or *rapid*PCR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Product specifications

Starting material:

- Bacterial culture after standard food culturing in a Stomacher
- Swab samples

Time required for amplification and hybridization:

- *rapid*PCR (SpeedCycler²): approx. 40 – 45 min
- Standard PCR: approx. 2 – 2.5 h, depending on the thermocycler

Detection time:

Approx. 10 – 20 minutes

Sensitivity:

- 30 – 40 copies in the PCR batch
- Positive test results for *E.coli* O104:H4 and/or *E.coli* O104:H21

Kit components

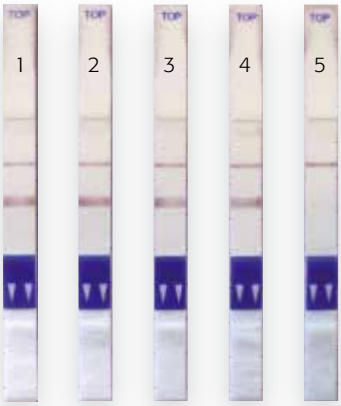
PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

PCR components of the rapidSTRIPE Shigella Toxin II Assay will remain stable for 6 months if stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4°C.

Sample application

The SpeedCycler² was used to introduce two different *E.coli* reference nucleic acids into the combined amplification/hybridization reaction. After just 40 – 50 minutes, the PCR products were applied on a lateral flow strip (LFS) and the final result was visualized as a positive test line.



LFS 1 – 2: Positive for Shigella toxin II (reference DNA: *E.coli* O104:H4)
LFS 3 – 4: Positive for Shigella toxin II (reference DNA: *E.coli* O104:H21)
LFS 5: Negative control

DNA isolation products

innuPREP Bacteria DNA Kit 42
blackPREP Food DNA Kit I 48

Related products:

rapidSTRIPE E.coli O104 Assay 209

Order information

Order number	Quantity
845-IS-1008010	10 reactions
845-IS-1008025	25 reactions
845-IS-1008050	50 reactions

rapidSTRIPE **Pork** Assay

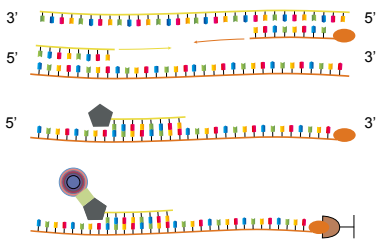
- Ready-to-use assay based on PCR or *rapid*PCR, including endpoint detection on a lateral flow strip
- RAH (rapid amplification and hybridization) technology
- Simple detection of pork in other types of meat
- Low limit of detection: identifies *Sus scrofa* in samples at concentrations of only 5%
- Includes all of the reagents and consumables needed

Product description

The rapidSTRIPE Pork Assay is a fast, uncomplicated tool for detecting the presence of pork in other types of meat, and delivers a positive result for pork at concentrations as low as 5%. The reaction is based on amplification of a sequence specific to *Sus scrofa*, followed immediately by hypridization with a labeled probe. Both reactions take place one after the other in a single cavity that does not need to be opened. The final result is visualized by the appearance of a test line on a lateral flow strip and confirmed by a control line.

Process sequence

1. Standard or rapid PCR with a tagged primer
2. Hybridization with a sequence-specific, antigen-marked probe
3. Detection on a lateral flow strip (LFS) via antigen-antibody interaction



Product specifications

Starting material:
Successfully tested for lamb, turkey, chicken, beef and pork

Time required for amplification and hybridization:
- *rapid*PCR (on a SpeedCycler², etc.): approx. 50 minutes
- Standard PCR: approx. 2 – 2.5 h, depending on the thermocycler

Detection time:
Approx. 10 – 20 minutes

Sensitivity:
Tests conducted on various types of meat (beef, lamb and poultry) indicated that pork can be detected at concentrations as low as 5%.

Detection:
Sus scrofa, detection of species-specific mitochondrial DNA

Kit components

PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessels

Storage conditions and stability

PCR components of the rapidSTRIPE Pork Assay will remain stable for 12 months if stored at -20°C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4°C.

Sample application

The first step was to use the innuPREP DNA Mini Kit in order to extract the DNA from different types of meat, some pure and some with added pork. This was followed by *Sus scrofa*-specific amplification and hybridization. The final step was to visualize the results on a lateral flow strip.

Strips 1 and 2: lamb;
strips 3 and 4: turkey;
strips 5 and 6: chicken;
strip 7: 5% added pork;
strip 8: 10% added pork;
strips 9 and 10: beef

Order information

Order number	Quantity
845-IS-1001010	10 reactions
845-IS-1001025	25 reactions
845-IS-1001050	50 reactions

Environmental analysis

Analytik Jena also offers specific, optimized assays delivering reliable detection reactions and fast results for applications in environmental diagnostics.

See for yourself what the "Made in Germany" seal of quality really means—test the assays of your choice today!

rapidSTRIPE **Mycoplasma** Assay

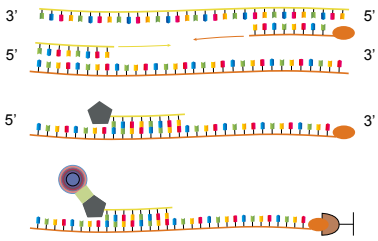
- Rapid and highly specific detection of *mycoplasmas* in cell cultures
- Ready-to-use assay consisting of extraction, amplification/ hybridization and final detection
- Optimized for both *rapid*PCR technology and standard PCR
- Archivable documentation of the results, stable over the long term

Product description

The rapidSTRIPE Mycoplasma Assay is a kit for the highly sensitive detection of *Mycoplasma species* in cell cultures. The assay - as a complete detection system - already contains all components (reagents and consumables), from nucleic acid purification and the amplification and hybridization reaction to detection on a lateral flow strip. The DNA purification in this case is based on the well-established Spin Filter technology. A *mycoplasma*-positive result appears as a violet test line on the easy-to-use strips. In addition, a control line confirms the proper function of the lateral flow strips.

Procedure

1. Standard or *rapid*PCR with tag-marked primer
2. Hybridization with sequence-specific antigen-marked probe
3. Detection on a lateral flow strip (LFS) via an antigen-antibody interaction



Product specifications

The rapidSTRIPE Mycoplasma Assay is a molecular diagnostic test system to detect *Mycoplasma species* in cell cultures. To do so, a *mycoplasma*-specific 16S RNA sequence is detected.
The following species can be detected:

- *M. fermentans*
- *M. hyorhinis*
- *M. arginini*
- *M. orale*
- *M. salivarium*
- *M. hominis*
- *M. pulmonis*
- *M. pirum.*

Time for cDNA-Synthese, amplification and hybridization:

- *rapid*PCR (SpeedCycler²): approx. 50 min
- Standard PCR: Dependent on the thermal cycler approx. 2 – 2.5 h

Detection time:
Approx. 10 – 20 minutes

Sensitivity:
Detection of approx. 30 – 40 copies per PCR preparation

Kit components

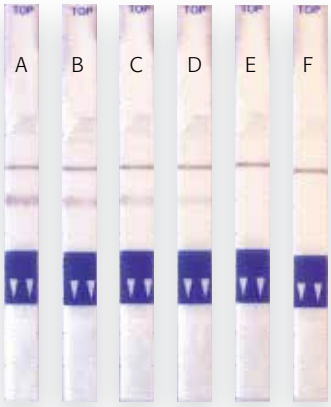
Prep A tube, prep B tube, PCR tubes, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample vessel

Storage conditions and stability

The PCR components of the rapidSTRIPE Mycoplasma Assay are stored at -20°C and are stable for 5 months under these conditions. Repeated thawing and freezing should be avoided since this will negatively affect the activity of the individual reagents. The test strips including running buffer are stored in a dry place at 4°C.

Sample application

Using extraction chemistry which is already contained in the rapidSTRIPE Mycoplasma Assay, *mycoplasma* DNA is isolated from a cell culture in a first step. The nucleic acid was then used in different dilution stages in a specific amplification/hybridization reaction in the SpeedCycler². The visualization and evaluation on the lateral flow strips (LFS) contained in the rapidSTRIPE Mycoplasma Assay was performed as the final step.



Strip A: Undiluted
Strip B: 1:10 dilution
Strip C: 1:100 dilution
Strip D: 1: 1.000 dilution
Strip E: 1:10.000 dilution
Strip F: Negative control

Order information

Order number	Quantity
845-IS-7000010	10 reactions
845-IS-7000025	25 reactions
845-IS-7000050	50 reactions

rapidSTRIPE **Bacillus Anthracis** Assay

- Multiplex assay for simultaneous detection of the pXO1 and pXO2 virulence plasmids
- Easy to use
- Reaction volume of only 10 µL
- Sensitivity: < 100 target copies

Product description

The rapidSTRIPE Bacillus Anthracis Assay is a molecular biological test system (internal progress control included) for fast, easy detection of the pXO1 and pXO2 virulence plasmids. The assay is based on a highly specific, multiplex amplification reaction (PCR), which is followed immediately by a combined hybridization reaction (rapid amplification and hybridization technology, or RAH). PCR products are then visualized within 30 minutes on a stable lateral flow strip (LFS). The assay can reproducibly detect up to < 100 copies per PCR batch. The assay does not detect cross-contamination with *B. cereus* and B. *thuringiensis*.

Product specifications

Starting material:
Bacterial DNA

Amplification and hybridization time (RAH):
Approx. 150 minutes

Detection time:
Approx. 30 minutes

Sensitivity:
< 100 target copies

Kit components

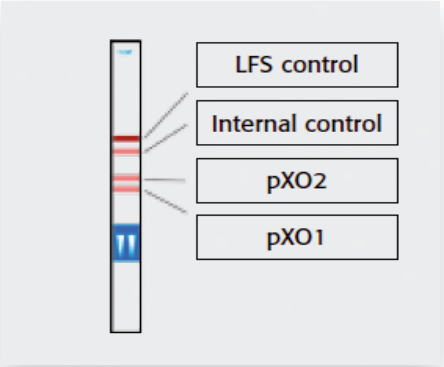
PCR tubes, primer, probes, ready-to-use reaction mix, PCR-grade H_2O, progress control, lateral flow strips, running buffer, sample containers, user manual

Storage conditions and stability

The rapidSTRIPE Bacillus Anthracis Assay will remain stable for at least 12 months if stored in a dry place at room temperature (14°C – 25°C).

Sample application

Sensitivity was tested by preparing a dilution series comprised of 500 to 10 copies of isolated *B. anthracis* DNA. Lateral flow strips were used for detection following amplification and hybridization.



Picture 1: Arrangement of test and control lines on the lateral flow strip

LFS 1: 500 copies
LFS 2: 200 copies
LFS 3: 100 copies
LFS 4: 75 copies
LFS 5: 50 copies
LFS 6: 10 copies

Order information

Order number	Quantity
848-MX-1004010	10 reactions
848-MX-1004025	25 reactions
848-MX-1004050	50 reactions
848-MX-1004100	100 reactions

Veterinary diagnostics

With the new PRRSV assays we have a unique solution for fast PRRSV antibody detection and distinction in the market for a target-oriented and eradication of contagious, economically devastating disease.

Analytik Jena recently obtained the approval for two new assays for screening of swine sera for PRRSV (porcine reproductive and respiratory syndrome virus) antibodies and for evaluation. The new ELISA-based tests differentiate into PRRSV Type I (Europe-Type) and Type II (North America-Type).

PRRSV **DETECT** ELISA

- PRRSV antibody detection in pig sera
- Detection of IgG positive reactions to antigens of PRRSV type 1 and 2
- Analysis of max. 92 sera
- Testduration 90 min
- Possible to combine with PRRSV NA/EU TYPE ELISA

Product description

The porcine reproductive and respiratory syndrome virus (PRRSV) causes the most important economical loss in pig industry. Several vaccination programs are trying to raise immunity of the flocks. PRRSV DETECT ELISA detects in sera of pigs antibodies to dieffer-ent virus antigens and could analyze type 1 and type 2 antibodies as well as significant differentiate positive from negative sera.

Product specifications

PRRSV detection kit bases on direct ELISA with bound PRRSV antigenes on plate as mixture of different recombinant proteines specific für NA and EU type, respectively, that are recognized and bound by anti-PRRSV antibodies in pig sera. For discrimination of unspecific reactions in pig sera a control protein is coated onto plate. Positive control with specific anti-PRRSV antibodies to NA and EU and negative control without antibodies to both PRRSV types are used for calculation of raw data. Bound antibodies are detected using HRP anti pig-IgG via TMB/H_2O_2 staining.

Approval according to German TSG § 17c

- Approval number FLI-B 609

Kit components

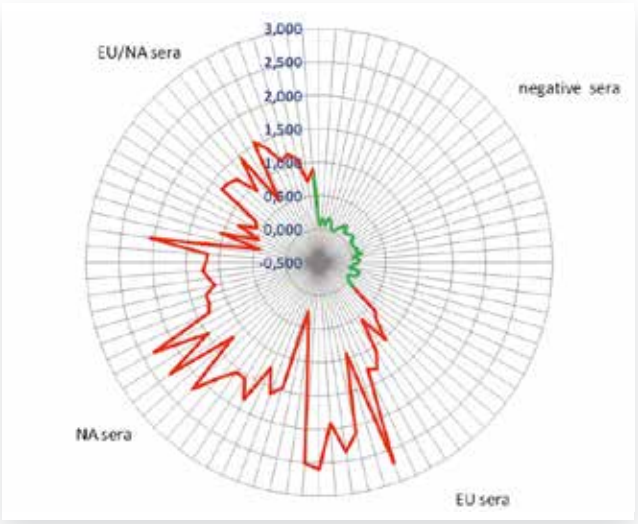
Immunostrips, positive and negative controls, wash-ing buffer con-centrate, dilution buffer, HRP-conjugate, staining buffer, TMB solution, Peroxide solution, stop solution, sealing tapes, instruction for use.

Storage conditions and stability

At 2 - 10°C. Shelf life time 6 months.

Sample application

Detection of PRRSV antibodies in sera of different origin (n=56 field sera) in contrast to negative sera without antibodies (n=32).



Order information

Ordner number	Product
847-0104000120	Test for analysis of 92 pig sera

PRRSV **NA/EU TYP** ELISA

- PRRSV antibody differentiation in pig sera
- Differentiation of IgG positive reactions into PRRSV type 1 and/or type 2 response
- Analysis of max. 26 sera
- Testduration 90 min
- Possible to combine with PRRSV DETECT ELISA

Product description

The porcine reproductive and respiratory syndrome virus (PRRSV) could be discriminated into 2 main serotypes, type 1 – EU (European type) and type 2 – NA (Northamerican type), that normally could be detected using PCR.
PRRSV NA/EU-TYP ELISA is able to differentiate antibodies in sera of pigs kann into type 1 and/or type 2 specific if no virus nucleic acid won't still detectable.

Product specifications

PRRSV differentiation kit bases on direct ELISA with bound PRRSV antigenes on plate as mixture of different recombinant proteines specific für NA and EU type, respectively, that are recognized and bound by anti-PRRSV antibodies in pig sera specific to NA and/or EU type antigens. For discrimination of unspecific reactions in pig sera a control protein is coated onto plate. Positive control with specific anti-PRRSV antibodies to NA and EU and negative control without antibodies to both PRRSV types are used for calculation of raw data. Bound antibodies are detected using HRP anti pig-IgG via TMB/H_2O_2 staining.

Approval according to German TSG § 17c

- Approval number FLI-B 610

Kit components

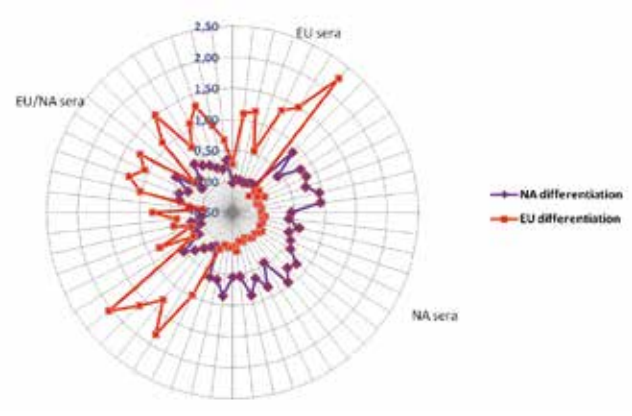
Immunostrips, positive and negative controls, washing buffer concentrate, dilution buffer, HRP-conjugate, staining buffer, TMB solution, Peroxide solution, stop solution, sealing tapes, instruction for use.

Storage conditions and stability

At 2 - 10°C. Shelf life time 6 months.

Sample application

Differentiation of antibodies in n=56 PRRSV positive field sera from pigs.



Order information

Ordner number	Product
847-0104000121	Test for analysis of 46 pig sera

Diagnostics for tick-born diseases

With every bite of a tick a variety of pathogens can be transmitted to humans. To estimate the infection risk we have developed a number of highly sensitive rapid assays to test the appropriate tick for the most common pathogens.

Why is fast ticks diagnosis important?
Each year we have thousands of cases of meningitis. The sign of the tick induced disease can`t be treated causally. It often leaves permanent physical damage such as paralysis or speech problems, the mortality rate are one percent.

rapidSTRIPE **Rickettsia** Assay

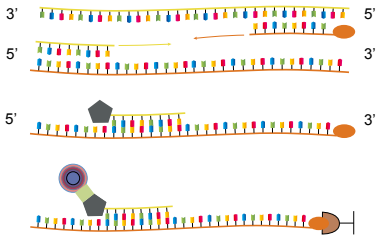
- Test system for fast, uncomplicated detection of *Rickettsia* in ticks
- Final detection performed on a stable lateral flow strip (LFS) suitable for archiving
- Kit contains all consumables and solutions needed, including the positive control
- Kit has been optimized for rapid and standard PCR thermal cyclers

Product description

The rapidSTRIPE Rickettsia Assay can be used as a fast, simple, highly sensitive tool for testing ticks for the presence of *Rickettsia*. The system is based on RAH technology, which uses a sequence-specific probe to link PCR amplification with hybridization. Both reactions proceed in the same reaction vessel. The RAH product is applied to a lateral flow strip in the final step; the appearance of a visible test line confirms the presence of *Rickettsia*. The ready-to-use kit contains all of the necessary reagents and plastic materials.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

The rapidSTRIPE Rickettsia Assay was used to test 400 ticks. Rickettsia-positive results were then sequenced for final verification and classification. The following species of tick were tested:

- Marsh tick (Dermacentor reticulatus)
- European dog tick (Ixodes hexagonus)
- Haemaphysalis concinna
- Castor bean tick (Ixodes ricinus)

The following table provides an overview of the study results:

Tick species	Quantity		*Rickettsia* species
	Total	Positive	
Dermacentor reticulatus	36	16	R. raoultii (subtype: Chabarowsk)
Ixodes hexagonus	1	–	
Haemaphysalis concinna	5	–	
Ixodes ricinus	358	39	R. helvetica
Total	**400**	**55**	

Kit components

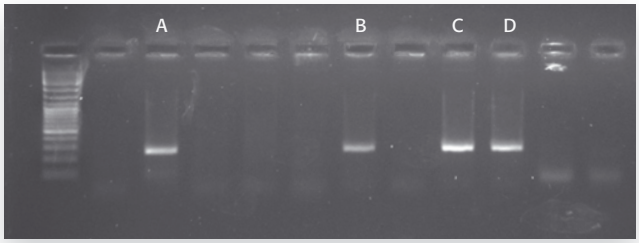
Plastic PCR supplies, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

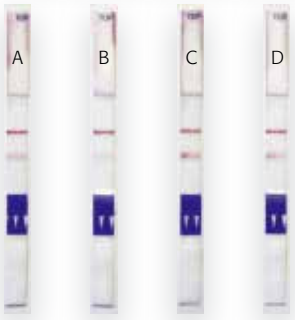
Storage conditions and stability

PCR components of the rapidSTRIPE Rickettsia Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

DNA was first isolated from various ticks and/or tick species. The nucleic acids were then introduced into the specific RAH reaction using the rapidSTRIPE Rickettsia Assay and applied to lateral flow strips for evaluation. Amplification was also performed with no probe by way of comparison. The resulting PCR products were visualized on an agarose gel.





Lane 1: DNA ladder
Lane 3, 7 and 9 – 10: *Rickettsia*-specific PCR products and the corresponding bands on lateral flow strips
Lane 2, 4 – 6, 8 and 11 – 12: *Rickettsia*-negative samples

DNA isolation products

Order information

Order number	Quantity
845-IS-1001010	10 reactions
845-IS-1001025	25 reactions
845-IS-1001050	50 reactions

rapidSTRIPE **Borrelia** Assay

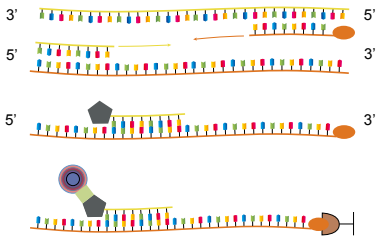
- Rapid detection of *Borrelia* in ticks
- Ready-to-use kit includes all consumables and reagents needed for PCR and detection
- Based on a highly specific, rapid amplification/hybridization reaction (RAH)
- Detection performed on a stable lateral flow strip suitable for archiving

Product description

The rapidSTRIPE Borrelia Assay can be used for direct detection of *Borrelia* from DNA isolated from ticks. The kit contains all of the consumables and reagents needed for the combined amplification/hybridization reaction and for final detection on a lateral flow strip. The reaction format thus allows specific detection of *Borrelia* DNA and prevents false positive results due to mispriming. Protocols for detection are available either for using *rapid*PCR or standard PCR. In addition, kits that optimize nucleic acid extraction from ticks are offered as part of the blackPREP product line.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

The rapidSTRIPE Borrelia Assay was used to examine 400 ticks. Positive test results were then sequenced for the purpose of classifying the specimens by *Borrelia* species.

The following table provides an overview of the study results:

Tick species	Quantity		*Borrelia* species
	Total	Positive	
Dermacentor reticulatus	36	2	B. afcelii
Ixodes hexagonus	1	–	
Haemaphysalis concinna	5	–	
Ixodes ricinus	358	56	B. afcelii, B. garinii
Total	**400**	**58**	

Kit components

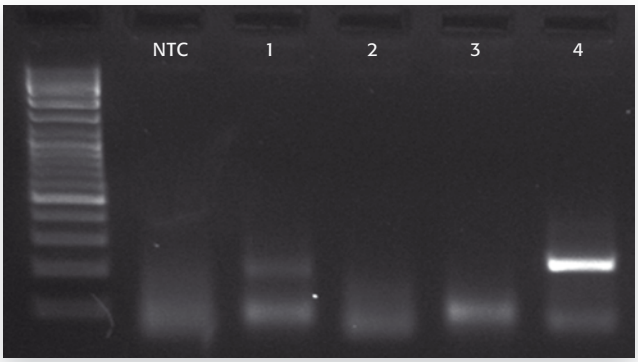
Plastic PCR supplies, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

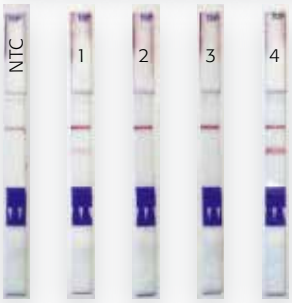
Storage conditions and stability

PCR components of the rapidSTRIPE Borrelia Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

The first step was to use the blackPREP Tick DNA Kit to isolate the DNA from a variety of different ticks. A specific PCR was then performed in parallel with the combined amplification/hybridization reaction (using the rapidSTRIPE Borrelia Assay). The PCR amplification products were visualized on an agarose gel. Hybridization products were assessed on lateral flow strips (LFS).





Lane 1: DNA ladder
Lane 2: Negative control
Lane 3 and 6: *Borrelia*-positive samples and the corresponding bands on Lateral flow strips
Lane 4 – 5: *Borrelia*-negative samples and the corresponding lateral flow strips

DNA isolation products

blackPREP Tick DNA Kit 49
blackPREP Tick DNA/RNA Kit 50

Order information

Order number	Quantity
845-IS-1002010	10 reactions
845-IS-1002025	25 reactions
845-IS-1002050	50 reactions

rapidSTRIPE **TBE** Assay

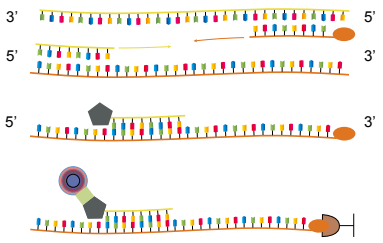
- Assay for specific, sensitive detection of TBE in ticks
- Detects European (FSME) as well as Far-Eastern (RSSEV) TBEV strains
- Ready-to-use kit for cDNA synthesis, amplification, hybridization and final detection
- Contains all of the necessary consumables and reagents

Product description

The rapidSTRIPE TBE Assay is a ready-to-use kit for fast, sensitive detection of tick-borne encephalitis (TBE), including conclusive identification of European and Far-Eastern viral strains. The kit contains reagents for cDNA synthesis, the combined amplification/hybridization reaction (using a thermal cycler) and materials for final visualization on a lateral flow strip (LFS). Analytik Jena also offers an extraction kit in its blackPREP product line that isolates tick DNA and RNA in parallel. This means that one sample can be tested both for TBE viral RNA as well as for DNA from bacterial pathogens such as *Borrelia*, *Rickettsia*, *Anaplasma* and *Babesia*.

Procedure

1. Perform cDNA synthesis
2a. Perform PCR using a tag-labelled primer
2b. Hybridize with antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

Primer sequences have been optimized for the assay and make it posible to identify European strains of TBEV (FSME) as well as Far-Eastern strains (RSSEV). The rapidSTRIPE TBE Assay can also be used to amplify *louping-ill*.

The assay has been validated for the following TBEV strains:

- Tick-borne encephalitis virus, K23 strain
- Tick-borne encephalitis virus, Sofjin strain
- Tick-borne encephalitis virus, Neudörfl strain
- Louping-ill virus

Time required for cDNA synthesis, amplification and hybridization:

- cDNA synthesis: approx. 30 minutes
- *rapid*PCR (SpeedCycler²): approx. 50 minutes
- Standard PCR: Depends on thermal cycler, approx. 2–2.5 hours

Detection time:
Approx. 10–20 minutes

Sensitivity:
Comparable to TaqMan® real-time PCR

Kit components

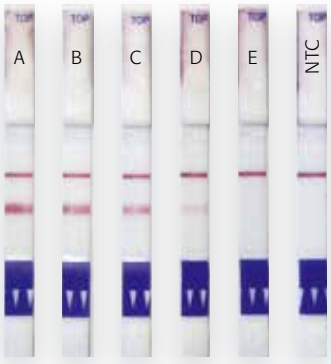
Plastic PCR supplies, positive control, primer, probe, dNTPs, RT enzyme, RT buffer, DDT, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Storage conditions and stability

PCR components of the rapidSTRIPE TBE Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

The blackPREP Tick DNA/RNA Kit was used to extract nucleic acids from ticks. The isolated RNA was then transcribed in cDNA synthesis reactions, after which the combined amplification/hybridization reaction was performed on several different cDNA dilutions. Products were loaded onto a lateral flow strip for final detection.



LFS A: TBEV-positive, dilution 1:100
LFS B: TBEV-positive, dilution 1:1,000
LFS C: TBEV-positive, dilution 1:10,000
LFS D: TBEV-positive, dilution 1:100,000
LFS E: TBEV-negative, dilution 1:1,000,000
LFS NTC: Negative control

DNA isolation products

blackPREP Tick DNA/RNA Kit 50

Order information

Order number	Quantity
845-IS-1003010	10 reactions
845-IS-1003025	25 reactions
845-IS-1003050	50 reactions

rapidSTRIPE **Anaplasma** Assay

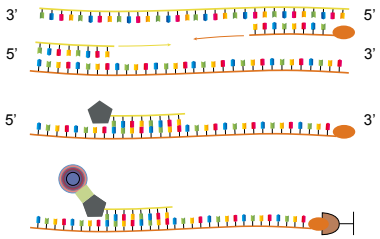
- Highly specific detection of *Anaplasma phagocytophilum* following DNA extraction from ticks.
- Includes all PCR reagents and consumables
- Easily combined with the blackPREP Tick DNA Kit
- Stable lateral flow strips used to evaluate results in a very short time

Product description

The rapidSTRIPE Anaplasma Assay is a ready-to-use PCR kit for sensitive, highly specific detection of *Anaplasma phagocytophilum*. The test is performed using bacterial DNA that was previously isolated from ticks using the blackPREP Tick DNA Kit (for example). Nucleic acids are then introduced into a combined amplification and hybridization reaction. If the results are positive, the PCR product will be detected on a lateral flow strip (LFS) in a final step. A test line will appear in just 10–20 minutes, confirming the presence of *A. phagocytophilum*. In addition, the LFS contains a conjugate control for testing the reaction and making certain that the strip is working properly.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with a antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

400 ticks were examined as part of the validation process for the rapidSTRIPE Anaplasma Assay and tested for infection with *Anaplasma phagocytophilum*. Positive test results were then sequenced to verify the results.

The following table provides an overview of the study results:

Tick species	Quantity	
	Total	Positive
Dermacentor reticulatus	36	–
Ixodes hexagonus	1	–
Haemaphysalis concinna	5	–
Ixodes ricinus	358	2
Total	**400**	**2**

Storage conditions and stability

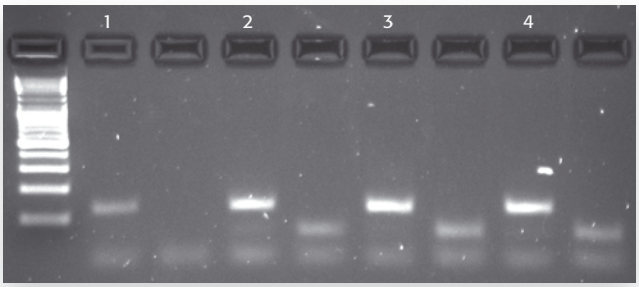
PCR components of the rapidSTRIPE Anaplasma Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

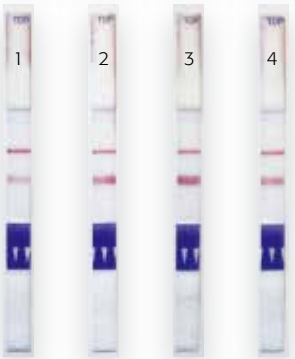
Kit components

PCR plastic items, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Sample application

The blackPREP Tick DNA Kit was used to isolate DNA from various ticks; the rapidSTRIPE Anaplasma Assay was then used to test for *Anaplasma phagocytophilum*. Parallel detection on the agarose gel consisted of a PCR performed with no hybridization step. The following figures show 4 independent reproducibility studies (each with a negative control) performed on a tick determined to be anaplasma positive.





Analysis on agarose gel (no hybridization step)

Analysis on lateral flow strips (LFS)

DNA isolation products

blackPREP Tick DNA Kit 49
blackPREP Tick DNA/RNA Kit 50

Order information

Order number	Quantity
845-IS-1007010	10 reactions
845-IS-1007025	25 reactions
845-IS-1007050	50 reactions

rapidSTRIPE **Babesia** Assay

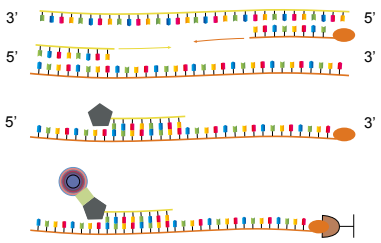
- System for fast, sensitive detection of *Babesia* following DNA extraction from ticks
- Includes all of the plastic supplies and reagents required for amplification, hybridization and detection
- Based on RAH (rapid amplification and hybridization) technology
- Protocols for standard and *rapid*PCR thermal cyclers

Product description

The rapidSTRIPE Babesia Assay has been optimized for detecting *Babesia* DNA. Once the nucleic acid has been extracted from ticks (using the blackPREP Tick DNA Kit, for instance), the DNA is introduced into a specific combination reaction consisting of amplification and subsequent hybridization. Both of these reactions occur uninterrupted within the same reaction vessel. The final step involves loading the hybridized amplification product onto a lateral flow strip. A positive test result for *Babesia* is confirmed by the appearance of a test line. The strip also includes a control line (conjugate control) to ensure the reaction is working properly. The lateral flow strips developed for this assay are stable for long periods and can be archived.

Procedure

1. Perform PCR using a tag-labelled primer
2. Hybridize with a sequence-specific, antigen-tagged probe
3. Detect on a lateral flow strip (LFS)



Product specifications

The test was used to examine 400 ticks for *Babesia* infections. Positive test results were then sequenced to verify the results and to classify the *Babesia* specimens.

Tick species	Quantity	
	Total	Positive
Dermacentor reticulatus	36	–
Ixodes hexagonus	1	–
Haemaphysalis concinna	5	–
Ixodes ricinus	358	18
Total	**400**	**18**

Kit components

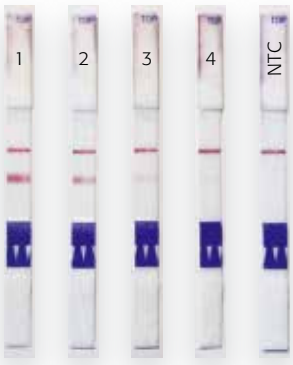
Plastic PCR supplies, positive control, primer, probe, dNTPs, PCR buffer, PCR-grade H_2O, polymerase, lateral flow strips, running buffer, sample containers

Storage conditions and stability

PCR components of the rapidSTRIPE Babesia Assay will remain stable for 6 months if stored at –20 °C. Repeated freezing and thawing will significantly reduce the activity of individual reagents and should be avoided. Store test strips and running buffer in a dry place at 4 °C.

Sample application

Once the DNA had been isolated from a *Babesia*-bearing tick, the rapidSTRIPE Babesia Assay was used to introduce the isolated nucleic acid (various dilutions) into the specific amplification/hybridization reaction. Final detection was performed on lateral flow strips.



LFS 1: *Babesia*-positive, dilution 1:100
LFS 2: *Babesia*-positive, dilution 1:1,000
LFS 3: *Babesia*-positive, dilution 1:10,000
LFS 4: *Babesia*-positive, dilution 1:100,000
LFS 5: Negative control

DNA isolation products

Order information

Order number	Quantity
845-IS-1009010	10 reactions
845-IS-1009025	25 reactions
845-IS-1009050	50 reactions

Antibodies and proteins

The epitope specificity of the monoclonal and polyclonal antibodies available from our Proteins and Antibodies product line has been well characterized. These antibodies react with various antigens, especially with the proteins associated with neurodegenerative diseases.

We also offer recombinant proteins and synthetic proteins for use in research on neurodegenerative diseases.

Antibodies for human alpha-Synuclein

- Detection of pathological associated α-Synuclein aggregates
- Application in ELISA, WB, Dot Blot, IHC, ICC, FACS
- Characterized Epitopes
- AC purified

Product description

Monoclonal antibodies (mab) are offered that all specifi-cally for human alpha-Synuclein and well characterized regarding their binding to antigen especially their epitope specificity.
Mab 5G4 recognizes α-sheets of amino acids 47-53 of alpa-Synuclein that is described as amyloidogenic rea-gion and pathologic related structure for detection of synucleopathies (Kovacs 2012).
Mab 10D2 binds to amino acids 118-125 within c-terminal part of the protein and is very suitable for detection of all alpha-Synuclein forms in different applications. Mab 10C3 is reactiv to amino acids 98-105. Additionally, polyclonal rabbit anti-bodies to alpha-Synuclein are available.

Specifications

Antibody:
- monoclonal, polyclonal

Host:
- mouse
- rabbit

Isotyp:
- IgG

Immunogen:
- Alpha-Synuclein peptides
- Alpha-Synuclein recombinant protein

Purification:
- Affinity chromatography

Solution:
- PBS ph 7.4 without additives
- serum

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
Human alpha-Synuclein

Cross-reactivity:
not known

Units

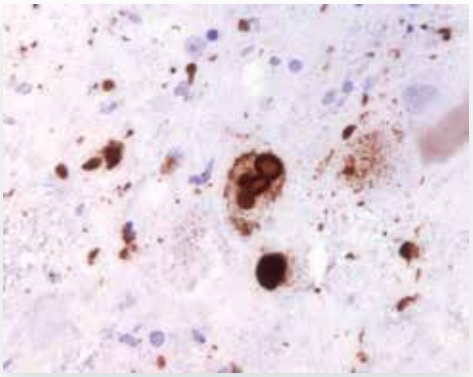
- 100 µg
- 1 mg

Storage and stability

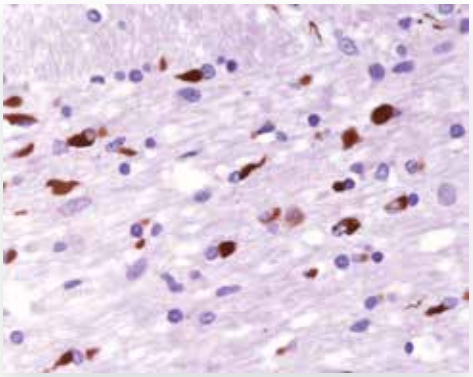
At 2-10°C. Shelf life time 12 months.

Application

Specifically detection of pathologic related structures by mab 5G4 in PD L. Coeruleus (picture **1**) and MSA (picture **2**) without un-specifically background staining (Kovacs et al. 2012).



Picture 1



Picture 2

Order information

Order number	Product
847-010200…	All mabs are listed in product finder page 231

Antibodies for human TAU and phospho-TAU

- Detection of pathological associated phosphory-lation sites of TAU
- Application in ELISA, WB, Dot Blot, IHC, ICC, FACS
- Characterized Epitopes
- AC purified

Product description

Monoclonal antibodies (mab) are offered that all specifically for human TAU and well characterized regarding their binding to antigen especially their epitope specificity.
Mabs to phosphorylated amino acids 181, 199, 202, 199/202, 231, 231/235 as well as different TAU antibodies recognize specific amino acid sequences of TAU inclusive exon 2 and exon 2+3 are high sensitive and specific in different immunochemical techniques. Addi-tionally, polyclonal rabbit antibodies to TAU are available.

Specifications

Antibody:
- monoclonal, polyclonal

Host:
- mouse
- rabbit

Isotyp:
- IgG

Immunogen:
- TAU peptides phosphorylated
- TAU recombinant protein

Purification:
- Affinity chromatography

Solution:
- PBS ph 7.4 without additives
- serum

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
- P181, P199, P202, P199/202, P231, P231/235
- TAU all isoforms
- TAU Exon 2/3

Cross-reactivity:
not known

Units

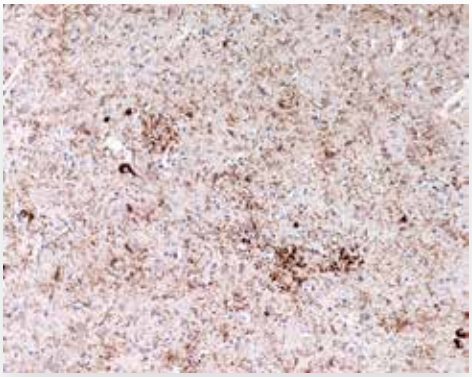
- 100 µg
- 1 mg

Storage and stability

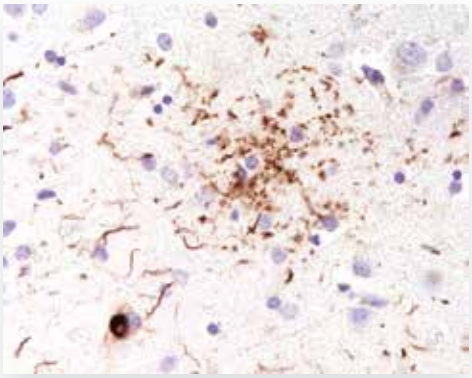
At 2-10°C. Shelf life time 12 months.

Application

Specific detection of astrocytic plaques using mab 9D8 (picture **1**) or mab 4C10 (picture **2**) in brain of patient with Alzheimers disease (Prof. Dr. Kovacs, Vienna).



Picture 1



Picture 2

Order information

Ordner number	Product
847-010200...	All mabs are listed in product finder page 231

Antibodies for Beta-Amyloid

- Monoclonal antibody
- β-amyloid spezifical
- Useful for ELISA, WB and IHC
- Suitable for human and transgenic mouse tissue

Product description

Monoclonal antibodies (mab) are available here the epitopes are well described as well as the reactivity of each antibody in different techniques.
Presentation of monoclonal antibody 6D11 which recognizes deposits of β-amyloid in brains of Alzheimer' disease patients and transgenic mouse models very specifically.
The 6D11 antibody appears to be suitable for the detection of disease-associated β-amyloid in senile plaques and associated with cerebral blood vessel in brain tissue from Alzheimer's disease patients and from transgenic mouse models with β-amyloid pathology

Specifications

Antibody:
Monoclonal

Host:
Mouse

Isotyp:
IgG, IgM

Immunogen:
Peptides

Purification:
Affinity chromatography

Solution:
PBS ph 7.4 without additives

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
beta-amyloid

Cross-reactivity:
not known

Units

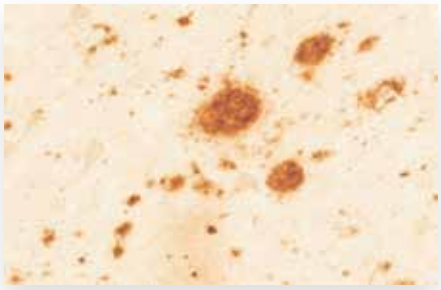
- 100 µg
- 1 mg

Storage and stability

At 2-10°C. Shelf life time 12 months.

Sample application

Detection of β-amyloid pathological related deposits in Cortex tissue of an Alzheimer disease patient using mab 6D11 1:100 diluted.*



Picture A

Picture B

* Immunohistochemical analysis were kindly performed by group of Prof. Dr. Steffen Rossner, Paul-Flechsig-Institute Leipzig.

Order information

Ordner number	Product
847-0102…	All mabs are listed in product finder page 231

Antibodies prion protein

- Detection of prion protein
- Application in ELISA, WB, Dot Blot, IHC, ICC, FACS
- Characterized Epitopes
- AC purified

Product description

Monoclonal antibodies (mab) are available here the epitopes are well described as well as the reactivity of each antibody in different techniques. Most of them were used by different reasearch groups or in actually used diagnostic kits around the world.
Mabs to bovine, ovine, human or murine prion proteins are high sensitive and specific in different immunochem-ical techniques.
Additionally, polyclonal rabbit antibodies to TAU are available.

Specifications

Antibody:
monoclonal, polyclonal

Host:
mouse, rabbit

Isotyp:
IgG

Immunogen:
Prion protein recombinant

Purification:
Affinity chromatography

Solution:
PBS ph 7.4 without additives, serum

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
Cattle, human, sheep, deer

Cross-reactivity:
Between species

Units

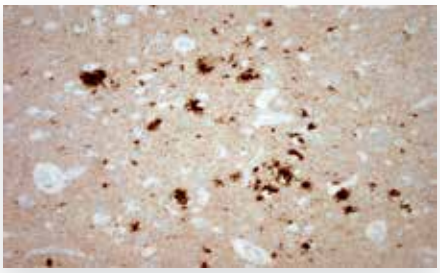
- 100 µg
- 1 mg

Storage and stability

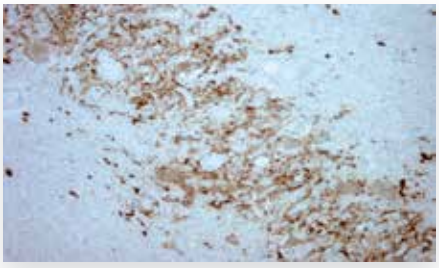
At 2-10°C. Shelf life time 12 months.

Sample application

Immunohistochemical detection of plaque-like deposits in peri-vacuolar areas of cortical grey matter and deep nuclei [A] and fine synaptic accumulation in some nuclei such as the dentate nucleus of the cerebellum [B] in sections from a patient with proven clas-sicform of CJD using mab 14D11.



Picture A



Picture B

Order information

Order number	Product
847-0102…	All mabs are listed in product finder page 231

Antibodies for human Tissue Transglutaminase

- Monoclonal & poylclonal antibodies
- TG2 spezifical
- Useful for ELISA, WB and IHC
- Suitable for human and mouse tissue and cell lines

Product description

Monoclonal antibodies (mab) are offered all specific for human tissue transglutaminase and well characterized regarding their binding to specific epitopes on the antigen.
Mab 3C10 recognizes amino acids 350 –359 of human tissue transglutaminase (TG2) and is suitable for detec-tion of enzyme within several techniques (Wolf et al. Anal. Biochem. 2011). Mab 10F3 recognizes amino acids 457–462 + 389–394 of human tissue transglutam-inase (TG2) and is suitable for detection of enzyme within several techniques. Additionally polyclo-nal rabbit antibodies to TG2 are available.

Specifications

Antibody:
Monoclonal, polyclonal

Host:
Mouse, rabbit

Isotyp:
IgG

Immunogen:
Recombinant protein

Purification:
Affinity chromatography

Solution:
PBS ph 7.4 without additives

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
TG2

Cross-reactivity:
Not known

Units

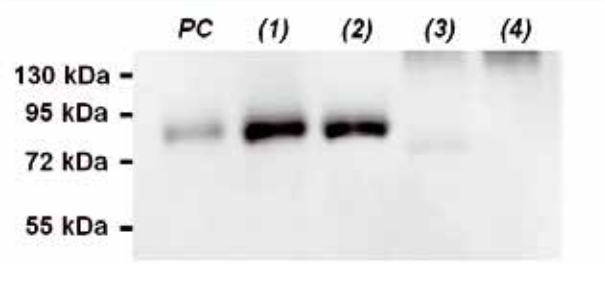
- 100 µg
- 1 mg

Storage and stability

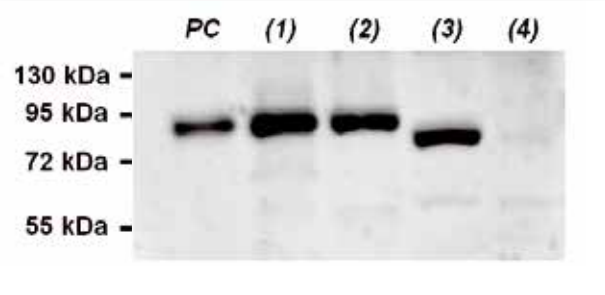
At 2-10°C. Shelf life time 12 months.

Application

Estimation of in isolated erythrocytes and cerebral cortex of human as well as liver and cebral cortex of mice. Western blot using mab 10F3 after separation of 10 µg or 20 µg of protein from tissue homogenates by means of SDS-PAGE (Wolf et al. Anal. Biochem. 2011).



Picture 1



Picture 2

Order information

Ordner number	Product
847-0102…	All mabs are listed in product finder page 231

Special monoclonal antibodies

- Monoclonal antibodies
- Cyclooxygenase 1 and 2
- Calpain 2
- HANTA and DENGUE virus
- BSA, FITC, DIG
- Useful for ELISA, WB and IHC

Product description

Monoclonal antibodies (mabs) are offered specifically to human Cyclooxygenase 1 or 2, Calpain 2, HANTA virus (Dobrava, Puumala), Dengue virus (NS1), FITC, DIG and BSA.
MAk 5F6 is specifically for human COX 1 and can be used in different immunochemical techniques. Mab 5E10 recognizes isoform COX 2 and is suitable for immuno-chemical assays. Mab 1E8 is specifically für protease Calpain 2.
For HANTA virus exist mabs which are specifically for or cross reactive between Dobrava and Puumala, respec-tively.
Antibodies to FITC, DIG or BSA bind spezifically their antigen.
For DENGUE virus mabs are available which recognize C-terminal or N-terminal NS1, respectively.

Specifications

Antibody:
Monoclonal

Host:
Mouse

Isotyp:
IgG

Immunogen:
Recombinant proteins, peptides, carrier hap-tens

Purification:
Affinity chromatography

Solution:
PBS ph 7.4 without additive

Applications:
- ELISA
- Western and Dot Blot
- Immunoprecipitation
- Immunohistochemistry, Immunocytochemistry
- FACS

Specificity:
See product finder

Cross-reactivity:
Not known

Units

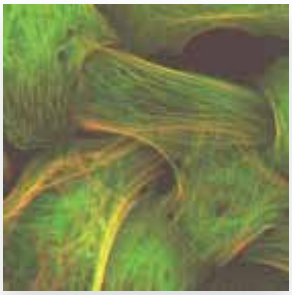
- 100 µg
- 1 mg

Storage and stability

At 2-10°C. Shelf life time 12 months.

Application

Immunoflurescence of intracellular calpain in bovine lens epithel cells using mab 1E8 (green).



Order information

Order number	Product
847-0102…	All mabs are listed in product finder page 231

Product finder Antibodies

Product name	Cataloge number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Antibodies to human alpha-Synuclein							
Anti-human a-Synuclein 10C3, monoclonal	847-0102001801	100 µg	x	x	x	n.t.	human alpha-Synuclein
	847-0102001803	1 mg	x	x	x	n.t.	
Anti-human a-Synuclein 5G4, monoclonal	847-0102004001	100 µg	x	x	x	n.t.	human alpha-Synuclein pathological related forms only
	847-0102004003	1 mg	x	x	x	n.t.	
Anti-human a-Synuclein, monoclonal antibody 10D2	847-0102004701	100 µg	x	x	x	n.t.	human alpha-Synuclein
	847-0102004703	1 mg	x	x	x	n.t.	
Anti-human tau total pAB 64, polyclonal	847-0103001001	100 µl	x	x	n.t.	n.t.	human alpha-Synuclein
	847-0103001003	1 ml	x	x	n.t.	n.t.	
TAU & Phospho-TAU antibodies							
Anti-human phospho-181 tau-1E7, monoclonal	847-0102003801	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 181 (T)
	847-0102003803	1 mg					
Anti-human phospho-181 tau-8B11, monoclonal	847-0102003901	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 181 (T)
	847-0102003903	1 mg					
Anti-human phospho-181 tau-8D2, monoclonal	847-0102006201	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 181 (T)
	847-0102006203	1 mg					
Anti-human phospho-181 tau-10D3, monoclonal	847-0102006201	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 181 (T)
	847-0102006203	1 mg					
Anti-human phospho-199 tau-1F3, monoclonal	847-0102003201	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 199 (S), TAU
	847-0102003203	1 mg					
Anti-human phospho-199/202 tau-9C8, monoclonal	847-0102004601	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 199 (S) and 202 (S), TAU
	847-0102004603	1 mg					
Anti-human phospho-202 tau-10F8, monoclonal	847-0102004501	100 µg	x	x	x	x	PHF TAU, phosphorylated TAU at amino acid position 202 (S), TAU
	847-0102004503	1 mg					
Anti-human phospho-231 tau-2B11, monoclonal	847-0102003501	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 231 (T)
	847-0102003503	1 mg					

Product finder Antibodies

Product name	Catalogue number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Anti-human phospho-231 tau-5G7, monoclonal	847-0102003601	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 231 (T)
	847-0102003603	1 mg					
Anti-human phospho-231 tau-9D8, monoclonal	847-0102003701	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 231 (T)
	847-0102003703	1 mg					
Anti-human phospho-231 tau-4C10, monoclonal	847-0102003101	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 231 (T)
	847-0102003103	1 mg					
Anti-human phospho-231/235 tau-3G3, monoclonal	847-0102004401	100 µg	x	x	x	n.t.	PHF TAU, phosphorylated TAU at amino acid position 231 (T) and 235 (S)
	847-0102004403	1 mg					
Anti-human TAU total, monoclonal antibody 4B5	847-0102004801	100 µg	x	x	x	n.t.	PHF TAU, TAU 441
	847-0102004803	1 mg					
Anti-human TAU total, monoclonal antibody 8F10	847-0102005101	100 µg	x	x	x	x	PHF TAU, TAU 441
	847-0102005103	1 mg					
Anti-human TAU total, monoclonal antibody 12C2	847-0102005201	100 µg	x	x	x	n.t.	PHF TAU, TAU 441
	847-0102005203	1 mg					
Anti-human TAU total, monoclonal antibody 18B5	847-0102005301	100 µg	x	x	x	n.t.	PHF TAU, TAU 441
	847-0102005303	1 mg					
Anti-human TAU total, monoclonal antibody 7E5	847-0102006301	100 µg	x	x	x	n.t.	TAU 441 all isoforms, TAU total in CSF
	847-0102006303	1 mg					
Anti-human TAU-E3, monoclonal antibody 2B6	847-0102006401	100 µg	x	x	n.t.	n.t.	Exon 3 human TAU
	847-0102006403	1 mg					
Anti-human TAU-E2+E3, monoclonal antibody 9E11	847-0102006601	100 µg	x	x	n.t.	n.t.	Exon 2 + 3 humanTAU
	8470102006603	1 mg					
Anti-human tau total pAB 64, polyclonal	847-0103001001	100 µl	x	x	n.t.	n.t.	human TAU
	847-0103001003	1 ml					
Tau, rabbit polyclonal antibody, to all 6 isoforms (rP-Ref: T-1308-1)	847-0103000801	100 µg	x	x	x	n.t.	Recognizes recombinant and native tau protein; Reactive to human, pig, rat. Others not tested.
Tau, DC 25, Mab, to all 6 isoforms (rP-Ref: T-1301-1)	847-0102001901	100 µg	x	x	x	x	Recognizes tau protein, shows no cross-reactivity with other MAPs or tubulin; Reactive to human, pig, rat, mouse, cow, rabbit. Reacts with the non-phosphorylated as well as phosphorylared tau forms
Tau, DC 39N1, Mab, to 1st N-terminal insert (rP-Ref: T-1302-1)	847-0102002001	100 µg	x	x	x	n.t.	Recognizes N1 insert in tau proteins (2N4R, 1N4R, 2N3R, 1N3R); Reactive to human. Stains pretangles present in the brains of patients in preclinical (2nd stage) as well as late stages of Alzheimer's disease (6th stage)

Product name	Cataloge number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Tau, DC 11, Mab to AD Tau (rP-Ref: T-1303-1)	847-0102002101	100 µg	n.t.	x	x	x	No cross-reactivity with MAPs or tubulin; Reactive to human. Recognizes only Alzheimer's tau, that is conformationally different from normal tau. Does not react with tau from age- matched control brains or with six recombinant tau isoforms
Tau, DC 39, Mab to C terminus (rP-Ref: T1304-1)	847-0102002201	100 µg	x	x	x	x	Shows no cross-reactivity with other MAPs or tubulin; Reactive to human, pig, rat, bovine, rabbit, mouse. Recognizes C-terminus of tau protein. Reacts with the non-phosphorylated as well as phosphorylated tau isoforms
Tau, DC 4R, Mab to second repeat (rP-Ref: T-1305-1)	847-0102002301	100 µg	x	x	x	n.t.	Recognizes 4 - repeat isoforms of tau; Reactive to human, pig, rat.
Beta-Amyloid antibodies							
Anti-human ABETA, monoclonal antibody 6D11	847-0102006501	100 µg	x	x	x	n.t.	Beta-Amyloid
	847-0102006503	1 mg					
Beta-Amyloid DC 1 monoclonal antibody (rP-Ref: A-1301-1)	847-0102002601	100µg	n.t.	n.t.	x	n.t.	all stages of amyloid deposits in AD brains
Antibodies to prion proteins							
Anti-bovine prion protein 4F7, monoclonal	847-0102000701	100 µg	x	x	x	n.t.	bovine and human prion protein, PrPres
	847-0102000703	1 mg					
Anti-bovine prion protein 1E5, monoclonal	847-0102000801	100 µg	x	x	x	n.t.	bovine and human prion protein, PrPres
	847-0102000803	1 mg					
Anti-bovine prion protein 3E7, monoclonal	847-0102000901	100 µg	x	x	x	n.t.	bovine, human and ovine prion protein, PrPres
	847-0102000903	1 mg					
Anti-bovine prion protein 3B8, monoclonal	847-0102001001	100 µg	x	x	n.t.	n.t.	bovine and ovine prion protein, PrPres
	847-0102001003	1 mg					
Anti-bovine prion protein 7B6, monoclonal	847-0102001101	100 µg	x	x	n.t.	n.t.	bovine, human, sheep and deer prion protein
	847-0102001103	1 mg					
Anti-bovine prion protein pAB R10, polyclonal	847-0103000101	100 µl	x	x	n.t.	n.t.	sheep, human, cattle, deer and mouse prion protein
	847-0103000103	1 ml					
Anti-bovine prion protein pAB M01, polyclonal	847-0103000401	100 µl	x	x	n.t.	n.t.	bovine and human prion protein
	847-0103000403	1 ml					
Anti-human prion protein 5C4, monoclonal	847-0102001201	100 µg	x	x	n.t.	n.t.	human, cattle, sheep and deer prion protein
	847-0102001203	1 mg					

Product finder Antibodies

Product name	Cataloge number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Anti-human prion protein 1E2, monoclonal	847-0102001301	100 µg	x	x	n.t.	n.t.	human and cattle prion protein
	847-0102001303	1 mg					
Anti-human prion protein 15B6, monoclonal	847-0102001401	100 µg	n.t.	x	n.t.	n.t.	human and cattle prion protein
	847-0102001403	1 mg					
Anti-human prion protein 6G3, monoclonal	847-0102001501	100 µg	x	x	n.t.	n.t.	human, cattle, sheep and deer prion protein
	847-0102001503	1 mg					
Anti-human prion protein 5B9, monoclonal	847-0102001601	100 µg	x	x	n.t.	n.t.	human and bovine prion protein
	847-0102001603	1 mg					
Anti-human prion protein 3F3, monoclonal	847-0102003301	100 µg	x	x	n.t.	n.t.	human and bovine prion protein
	847-0102003303	1 mg					
Anti-human prion protein 15F5, monoclonal	847-0102003401	100 µg	x	x	n.t.	n.t.	human and bovine prion protein
	847-0102003403	1 mg					
Anti-human prion protein 6E2, monoclonal	847-0102004101	100 µg	x	x	n.t.	n.t.	human and cattle prion protein
	847-0102004103	1 mg					
Anti-human prion protein 7D5, monoclonal	847-0102004201	100 µg	x	x	n.t.	n.t.	human and cattle prion protein
	847-0102004203	1 mg					
Anti-human prion protein 5G11, monoclonal	847-0102004301	100 µg	x	x	n.t.	n.t.	human and cattle prion protein
	847-0102004303	1 mg					
Anti-human prion protein 14D11, monoclonal	847-0102001704	50 µg	x	x	x	n.t.	human, sheep and cattle prion protein
Anti-human prion protein pAB M02, polyclonal	847-0103000501	100 µl	x	x	n.t.	n.t.	cattle, human, sheep, deer and mouse prion protein
	847-0103000503	1 ml					
Anti-mouse prion protein T188, monoclonal	847-0102002701	100 µg	x	x	x	n.t.	murine and ovine prion protein
	847-0102002703	1 mg					
Anti-mouse prion potein T325, monoclonal	847-0102002801	100 µg	n.t.	x	x	n.t.	murine, cervid, bovine and ovine prion protein
	847-0102002803	1 mg					
Anti-ovine prion protein 683, monoclonal	847-0102002901	100 µg	x	x	x	n.t.	"PrP of murine sequence and ovine PrP sequences other than the ARR genotype"
	847-0102002903	1 mg					
Anti-ovine prion protein A516, monoclonal	847-0102003001	100 µg	x	x	x	n.t.	ovine and murine prion protein
	847-0102003003	1 mg					
Anti-sheep prion protein pAB M03, polyclonal	847-0103000601	100 µl	x	x	n.t.	n.t.	sheep, human, cattle and deer prion protein
	847-0103000603	1 ml					

Product name	Cataloge number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Anti-deer prion protein pAB M04, polyclonal	847-0103000701	100 µl	x	x	n.t.	n.t.	sheep, human, cattle and deer prion protein
	847-0103000703	1 ml					
tTG Antibodies							
Anti-human tissue transglutaminase (TG2), monoclonal antibody 3C10	847-0102004901	100 µg	x	x	x	x	human tissue transglutaminase
	847-0102004903	1 mg					
Anti-human tissue transglutaminase (TG2), monoclonal antibody 10F3	847-0102005001	100 µg	x	x	x	x	human tissue transglutaminase
	847-0102005003	1 mg					
Anti-human tissue transglutaminase pAB R08, polyclonal	847-0103000201	100 µl	x	x	x	x	human tissue transglutaminase
	847-0103000203	1 ml					
Anti-human tissue transglutaminase pAB R24, polyclonal	847-0103000301	100 µl	n.t.	x	n.t.	x	human tissue transglutaminase
	847-0103000303	1 ml					
Other Antibodies							
Anti-Cyclooxygenase-1 5F6, monoclonal	847-0102000101	100 µg	x	x	x	n.t.	COX-1 from human, mouse, rat;
	847-0102000103	1 mg					
Anti-Cyclooxygenase-2 5E10, monoclonal	847-0102000201	100 µg	x	x	n.t.	n.t.	COX-2 from human, mouse, rat
	847-0102000203	1 mg					
Anti-Calpain-2 1E8, monoclonal	847-0102000601	100 µg	x	x	x	x	Calpain-2 from cattle and human
	847-0102000603	1 mg					
Anti-HANTA Puumala 7C10, monoclonal	847-0102005401	100 µg	x	x	n.t.	n.t.	HANTA virus protein strain Puumala
	847-0102005403	1 mg					
Anti-HANTA Puumala 10G11, monoclonal	847-0102005501	100 µg	x	x	n.t.	n.t.	HANTA virus protein strain Puumala
	847-0102005503	1 mg					
Anti-HANTA Puumala 1D11, monoclonal	847-0102005601	100 µg	x	x	n.t.	n.t.	HANTA virus protein strain Puumala
	847-0102005603	1 mg					
Anti-HANTA Dobrava 8F10, monoclonal	847-0102005701	100 µg	x	x	n.t.	n.t.	HANTA virus protein strain Dobrava
	847-0102005703	1 mg					
Anti-HANTA Dobrava 4B7, monoclonal	847-0102005801	100 µg	x	x	n.t.	n.t.	HANTA virus protein strain Dobrava
	847-0102005803	1 mg					
Anti-HANTA 5D8, monoclonal	847-0102005901	100 µg	x	x	n.t.	n.t.	HANTA virus protein strains Dobrava and Puumala
	847-0102005903	1 mg					
Anti-FITC 7F4, monoclonal	847-0102006001	100 µg	x	x	n.t.	n.t.	FITC, PCR products and proteins labelled with FITC
	847-0102006003	1 mg					

Product finder Antibodies

Product name	Cataloge number	Size	Tested application				Reactive to:
			ELISA	WB	IHC	IF	
Anti-DIG, monoclonal antibody 11C8	847-0102006701	100 µg	x	n.t.	n.t.	n.t.	Digoxygenin
	847-0102006703	1 mg					
Anti-Dengue NS1, monoclonal antibody 4B2	847-0102006801	100 µg	x	x	n.t.	n.t.	NS1 protein Dengue-virus type 2, C-terminal
	847-0102006803	1 mg					
Anti-Dengue NS1, monoclonal antibody 6B2	847-0102006901	100 µg	x	x	n.t.	n.t.	NS1 protein Dengue-virus type 2, N-terminal
	847-0102006903	1 mg					
Anti-Dengue NS1, monoclonal antibody 5C3	847-0102007001	100 µg	x	x	n.t.	n.t.	NS1 protein Dengue-virus type 2, N-terminal
	847-0102007003	1 mg					
GFAP, DC 47, Mab	847-0102002401	100 µg	n.t.	x	n.t.	x	Recognizes glial fibrillary acidic protein; Reactive to human, rat. DC47 recognizes both fibrous and protoplasmic astrocytes in the rat and human brain tissues.
Mouse Anti-Beta-Tubulin, DC 126, Mab	847-0102002501	100 µg	x	x	n.t.	x	Recognizes beta tubulin; Reactive to human, pig.

Synucleins

Product description

Recombinant Synuclein proteins are offered for use in research e. g. aggregation experiments or analysis of Lewy body disease pathology.

Specifications and order information

Product Description	Catalogue no.	Size	Reference
Alpha-Synuclein	847-0101005402	0.5 mg	S-1001-1
Alpha-Synuclein	847-0101005403	1.0 mg	S-1001-2
Alpha-Synuclein, 1 – 60	847-0101005502	0.5 mg	S-1011-1
Alpha-Synuclein, 1 – 95	847-0101005602	0.5 mg	S-1012-1
Alpha-Synuclein, 61 – 140	847-0101005702	0.5 mg	S-1013-1
Alpha-Synuclein, 96 – 140	847-0101005802	0.5 mg	S-1014-1
Alpha-Synuclein, A53T mutant	847-0101005902	0.5 mg	S-1002-1
Alpha-Synuclein, A53T mutant	847-0101005903	1.0 mg	S-1002-2
Alpha-Synuclein, A30P mutant	847-0101006002	0.5 mg	S-1005-1
Alpha-Synuclein, A30P mutant	847-0101006003	1.0 mg	S-1005-2
Alpha-Synuclein, A30P, A53T mutant	847-0101006102	0.5 mg	S-1006-1
Alpha-Synuclein, A30P, A53T mutant	847-0101006103	1.0 mg	S-1006-2
Alpha-Synuclein, E46K mutant	847-0101006202	0.5 mg	S-1008-1
Alpha-Synuclein, E46K mutant	847-0101006203	1.0 mg	S-1008-2
Beta-Synuclein	847-0101006302	0.5 mg	S-1003-1
Beta-Synuclein	847-0101006303	1.0 mg	S-1003-2
15N Alpha-Synuclein, Uniform label	847-0101006402	0.5 mg	S-1004-1
15N Alpha-Synuclein, Uniform label	847-0101006403	1.0 mg	S-1004-2
Gamma-Synuclein	847-0101006502	0.5 mg	S-1007-1
Gamma-Synuclein	847-0101006503	1.0 mg	S-1007-2
Gamma Synuclein, Mouse	847-0101008102	0.5 mg	S-1009-1
Gamma Synuclein, Mouse	847-0101008103	1.0 mg	S-1009-2
Alpha-Synuclein, Delta-NAC	847-0101006602	0.5 mg	S-1015-1
Alpha-Synuclein, 112 (NACP112)	847-0101006702	0.5 mg	S-1016-1
human α-Synuclein, His tagged	847-0101008501	100 µg	
	847-0101008502	500 µg	
	847-0101008503	1 mg	
human α-Synuclein	847-0101008601	100 µg	
	847-0101008602	500 µg	
	847-0101008603	1 mg	

TAU proteins

Product description

Recombinant Tau proteins are offered for research use e. g. researching projects about Alzheimer disease.

Specifications and order information

Product description	Cat. no.	Size	Reference
Tau-441, Human, Recombinant	847-0101004304	50µg	T-1001-1
Tau-441, Human, Recombinant	847-0101004301	100 µg	T-1001-2
Tau-410, Human, Recombinant	847-0101004404	50µg	T-1002-1
Tau-410, Human, Recombinant	847-0101004401	100 µg	T-1002-2
Tau-412, Human, Recombinant	847-0101004504	50µg	T-1003-1
Tau-412, Human, Recombinant	847-0101004501	100 µg	T-1003-2
Tau-381, Human, Recombinant	847-0101004604	50µg	T-1004-1
Tau-381, Human, Recombinant	847-0101004601	100 µg	T-1004-2
Tau-383, Human, Recombinant	847-0101004704	50µg	T-1005-1
Tau-383, Human, Recombinant	847-0101004701	100 µg	T-1005-2
Tau-352, Human, Recombinant	847-0101004804	50µg	T-1006-1
Tau-352, Human, Recombinant	847-0101004801	100 µg	T-1006-2
Tau Protein Ladder, of all 6 isoforms	847-0101004904	50µg	T-1007-1
Tau Protein Ladder, of all 6 isoforms	847-0101004901	100 µg	T-1007-2
Tau-441, (2N4R), R406W mutant	847-0101005004	50 µg	T-1011-1
Tau-441, (2N4R), V337M mutant	847-0101005104	50 µg	T-1012-1
Tau-441, (2N4R), G272V mutant	847-0101005204	50 µg	T-1013-1
Tau-441, (2N4R), P301L mutant	847-0101005304	50 µg	T-1014-1

Prion proteins

Product description

Recombinant prion proteins are offered for research use e. g. researching projects about TSE.

Specifications and order information

Product description	Cat. no.	Size
recombinant bovine prion protein	847-0101000101	100 µg
	847-0101000102	500 µg
	847-0101000103	1 mg
recombinant human prion protein	847-0101000301	100 µg
	847-0101000302	500 µg
	847-0101000303	1 mg
recombinant sheep prion protein	847-0101000601	100 µg
	847-0101000602	500 µg
	847-0101000603	1 mg
recombinant deer prion protein	847-0101000701	100 µg
	847-0101000702	500 µg
	847-0101000703	1 mg
recombinant mouse prion protein	847-0101007101	100 µg
	847-0101007102	500 µg
	847-0101007103	1 mg
recombinant sheep prion protein, genotype ARR	847-0101007201	100 µg
	847-0101007202	500 µg
	847-0101007203	1 mg
recombinant sheep prion protein, genotype AF141RQ	847-0101007301	100 µg
	847-0101007302	500 µg
	847-0101007303	1 mg

Product description	Cat. no.	Size
recombinant sheep prion protein, genotype AL141RQ	847-0101007401	100 µg
	847-0101007402	500 µg
	847-0101007403	1 mg
recombinant sheep prion protein, genotype AHQ	847-0101007501	100 µg
	847-0101007502	500 µg
	847-0101007503	1 mg
recombinant sheep prion protein, genotype VRQ	847-0101007601	100 µg
	847-0101007602	500 µg
	847-0101007603	1 mg

Beta-Amyloid proteins

Product description

Recombinant and synthetic Beta-Amyloid proteins are offered for research use e. g. researching projects about Alzheimer disease.

Specifications and order information

Product description	Cat. no.	Size	Reference
Beta-Amyloid (1-40), Ultra Pure, TFA	847-0101000802	0.5 mg	A-1001-1
Beta-Amyloid (1-40), Ultra Pure, TFA	847-0101000803	1.0 mg	A-1001-2
Beta-Amyloid (1-40), Ultra Pure, HFIP	847-0101000902	0.5 mg	A-1153-1
Beta-Amyloid (1-40), Ultra Pure, HFIP	847-0101000903	1.0 mg	A-1153-2
Beta-Amyloid (1-40), Ultra Pure, NaOH	847-0101001002	0.5 mg	A-1155-1
Beta-Amyloid (1-40), Ultra Pure, NaOH	847-0101001003	1.0 mg	A-1155-2
Beta-Amyloid (1-40), Ultra Pure, HCl	847-0101001102	0.5 mg	A-1156-1
Beta-Amyloid (1-40), Ultra Pure, HCl	847-0101001103	1.0 mg	A-1156-2
Beta-Amyloid (1-40) Starter Kit	847-0101100102	4 x 0.5 mg	A-1150-1
Beta-Amyloid (1-40) Starter Kit	847-0101100103	4 x 1 mg	A-1150-2
Beta-Amyloid (1-40), Mouse/Rat, TFA, new	847-0101001902	0.5 mg	A-1007-1
Beta-Amyloid (1-40, scrambled), TFA	847-0101001602	0.5 mg	A-1003-1
Beta-Amyloid (1-40, scrambled), TFA	847-0101001603	1.0 mg	A-1003-2
Beta-Amyloid (1-42), Ultra Pure, TFA	847-0101001202	0.5 mg	A-1002-1
Beta-Amyloid (1-42), Ultra Pure, TFA	847-0101001203	1.0 mg	A-1002-2
Beta-Amyloid (1-42), Ultra Pure, HFIP	847-0101001302	0.5 mg	A-1163-1
Beta-Amyloid (1-42), Ultra Pure, HFIP	847-0101001303	1.0 mg	A-1163-2

Product description	Cat. no.	Size	Reference
Beta-Amyloid (1-42), Ultra Pure, NaOH	847-0101001402	0.5 mg	A-1165-1
Beta-Amyloid (1-42), Ultra Pure, NaOH	847-0101001403	1.0 mg	A-1165-2
Beta-Amyloid (1-42), Ultra Pure, HCl	847-0101001502	0.5 mg	A-1166-1
Beta-Amyloid (1-42), Ultra Pure, HCl	847-0101001503	1.0 mg	A-1166-2
Beta-Amyloid (1-42) Starter Kit new	847-0101100202	4 x 0.5 mg	A-1160-1
Beta-Amyloid (1-42) Starter Kit new	847-0101100203	4 x 1 mg	A-1160-2
Beta-Amyloid (1-42), Mouse/Rat, TFA, new	847-0101002002	0.5 mg	A-1008-1
Beta-Amyloid (1-42), Mouse/Rat, TFA, new	847-0101002003	1.0 mg	A-1008-2
Beta-Amyloid (1-42, scrambled), TFA	847-0101001702	0.5 mg	A-1004-1
Beta-Amyloid (1-42, scrambled), TFA	847-0101001703	1.0 mg	A-1004-2
Beta-Amyloid (1-43), Ultra Pure, TFA	847-0101001802	0.5 mg	A-1005-1
Beta-Amyloid (1-43), Ultra Pure, TFA	847-0101001803	1.0 mg	A-1005-2
Beta-Amyloid (1-46), TFA, new	847-0101007701	0.1 mg	A-1083-1
Beta-Amyloid (1-46), TFA	847-0101007702	0.5 mg	A-1083-2
Beta-Amyloid (1-40, F4W), TFA	847-0101002101	100 ug	A-1011-1
Beta-Amyloid (1-40, F4W), TFA	847-0101002103	1.0 mg	A-1011-2

Beta-Amyloid proteins

Product description	Cat. no.	Size	Reference
Beta-Amyloid (1-40, Y10W), TFA	847-0101002201	100 ug	A-1012-1
Beta-Amyloid (1-40, Y10W), TFA	847-0101002203	1.0 mg	A-1012-2
Beta-Amyloid (1-40, D23N), TFA	847-0101002301	100 ug	A-1013-1
Beta-Amyloid (1-40, D23N), TFA	847-0101002303	1.0 mg	A-1013-2
Beta-Amyloid (1-42, M35V), TFA	847-0101002401	100 ug	A-1021-1
Beta-Amyloid (1-42, M35V), TFA	847-0101002403	1.0 mg	A-1021-2
Beta-Amyloid (1-42, R5G), TFA	847-0101002501	100 ug	A-1022-1
Beta-Amyloid (1-42, R5G), TFA	847-0101002503	1.0 mg	A-1022-2
Beta-Amyloid (1-42, Y10A), TFA	847-0101002601	100 ug	A-1023-1
Beta-Amyloid (1-42, Y10A), TFA	847-0101002603	1.0 mg	A-1023-2
Beta-Amyloid (1-42, F4W), TFA	847-0101002701	100 ug	A-1024-1
Beta-Amyloid (1-42, F4W), TFA	847-0101002703	1.0 mg	A-1024-2
Beta-Amyloid (1-42, H6A), TFA	847-0101002801	100 ug	A-1025-1
Beta-Amyloid (1-42, H6A), TFA	847-0101002803	1.0 mg	A-1025-2
Beta-Amyloid (1-42, H13A), TFA	847-0101002901	100 ug	A-1026-1
Beta-Amyloid (1-42, H13A), TFA	847-0101002903	1.0 mg	A-1026-2
Beta-Amyloid (1-42, H14A), TFA	847-0101003003	1.0 mg	A-1027-2
15N Beta-Amyloid (1-38), U. label	847-0101007801	0.1 mg	A-1147-1
15N Beta-Amyloid (1-38), U. label	847-0101007803	1.0 mg	A-1147-2
15N Beta-Amyloid (1-40), Uniform label	847-0101003101	0.1 mg	A-1101-1
15N Beta-Amyloid (1-40), Uniform label	847-0101003103	1.0 mg	A-1101-2
15N Beta-Amyloid (1-40), Rat U. label	847-0101003403	1.0 mg	A-1131-1
15N Beta-Amyloid (1-42), Uniform label	847-0101003201	0.1 mg	A-1102-1
15N Beta-Amyloid (1-42), Uniform label	847-0101003203	1.0 mg	A-1102-2

Product description	Cat. no.	Size	Reference
15N Beta-Amyloid (1-42), Rat U. label	847-0101003501	0.1 mg	A-1134-1
15N Beta-Amyloid (1-42), Rat U. label	847-0101003503	1.0 mg	A-1134-2
15N Beta-Amyloid (1-43), Uniform label	847-0101003603	1.0 mg	A-1107-1
15N Beta-Amyloid (1-46), U. label	847-0101007903	0.1 mg	A-1179-1
15N Beta-Amyloid (1-46), U. label	847-0101008003	0.5 mg	A-1179-2
15N Beta-Amyloid (11-40), U. label	847-0101003303	1.0 mg	A-1137-1
15N Beta-Amyloid (11-40), Rat, U. label	847-0101008303	1.0 mg	A-1140-1
15N Beta-Amyloid (11-42), U. label	847-0101008403	1.0 mg	A-1120-2
13C, 15N Beta-Amyloid (1-40), U. label	847-0101003702	0.5 mg	A-1103-1
13C, 15N Beta-Amyloid (1-40), U. label	847-0101003703	1.0 mg	A-1103-2
13C, 15N Beta-Amyloid (1-42), U. label	847-0101003802	0.5 mg	A-1104-1
13C, 15N Beta-Amyloid (1-42), U. label	847-0101003803	1.0 mg	A-1104-2
13C, 15N Beta-Amyloid (1-43), U. label	847-0101003902	0.5 mg	A-1108-1
13C, 15N Beta-Amyloid (1-43), U. label	847-0101003903	1.0 mg	A-1108-2
13C Beta-Amyloid (1-40), Uniform label	847-0101004002	0.5 mg	A-1105-1
13C Beta-Amyloid (1-40), Uniform label	847-0101004003	1.0 mg	A-1105-2
13C Beta-Amyloid (1-42), Uniform label	847-0101004102	0.5 mg	A-1106-1
13C Beta-Amyloid (1-42), Uniform label	847-0101004103	1.0 mg	A-1106-2
13C, Beta-Amyloid (1-43), U. label	847-0101004202	0.5 mg	A-1109-1
13C, Beta-Amyloid (1-43), U. label	847-0101004203	1.0 mg	A-1109-2
Biotin-Beta-Amyloid (1-40)	847-0107000102	0.5 mg	A-1111-1
Biotin-Beta-Amyloid (1-40)	847-0107000103	1.0 mg	A-1111-2
Biotin-LC-Beta-Amyloid (1-40)	847-0107000202	0.5 mg	A-1112-1
Biotin-LC-Beta-Amyloid (1-40)	847-0107000203	1.0 mg	A-1112-2

Product description	Cat. no.	Size	Reference
Fluorescein-Beta-Amyloid (1-40)	847-0107000302	0.5 mg	A-1113-1
Biotin-Beta-Amyloid (1-42)	847-0107000402	0.5 mg	A-1117-1
Biotin-LC-Beta-Amyloid (1-42)	847-0107000502	0.5 mg	A-1118-1
Fluorescein-Beta-Amyloid (1-42)	847-0107000602	0.5 mg	A-1119-1
Beta-Amyloid (1-11)	847-0107000703	1 mg	A-1051-1
Beta-Amyloid (1-11)	847-0107000706	5 mg	A-1051-2
Beta-Amyloid (1-16)	847-0107000803	1 mg	A-1052-1
Beta-Amyloid (1-16)	847-0107000806	5 mg	A-1052-2
Beta-Amyloid (1-28)	847-0107000902	0.5 mg	A-1053-1
Beta-Amyloid (1-28)	847-0107000903	1.0 mg	A-1053-2
Beta-Amyloid (1-38)	847-0107002102	0.5 mg	A-1078-1
Beta-Amyloid (11-22)	847-0107001003	1.0 mg	A-1055-1
Beta-Amyloid (11-22)	847-0107001006	5.0 mg	A-1055-2
Beta-Amyloid (11-40)	847-0107001102	0.5 mg	A-1061-1
Beta-Amyloid (11-40), Mouse/Rat,	847-0107001201	100 ug	A-1062-01
Beta-Amyloid (11-40), Mouse/Rat,	847-0107001202	0.5 mg	A-1062-1
Beta-Amyloid (11-42)	847-0107002202	0.5 mg	A-1063-1
Beta-Amyloid (12-28)	847-0107001302	0.5 mg	A-1056-1
Beta-Amyloid (12-28)	847-0107001303	1.0 mg	A-1056-2
Beta-Amyloid (17-40)	847-0107001402	0.5 mg	A-1057-1
Beta-Amyloid (17-40)	847-0107001403	1.0 mg	A-1057-2
Beta-Amyloid (17-42)	847-0107001502	0.5 mg	A-1058-1
Beta-Amyloid (17-42)	847-0107001503	1.0 mg	A-1058-2
Beta-Amyloid (22-35)	847-0107001603	1.0 mg	A-1059-1
Beta-Amyloid (22-35)	847-0107001606	5.0 mg	A-1059-2
Beta-Amyloid (25-35)	847-0107001703	1 mg	A-1060-1
Beta-Amyloid (25-35)	847-0107001706	5 mg	A-1060-2
Beta-Amyloid Precursor Protein, CTF-31	847-0107001802	250 ug	A-1201-1
Beta-Amyloid Precursor Protein, CTF-50	847-0107001902	250 ug	A-1202-1
Beta-Amyloid Precursor Protein, CTF-57	847-0107002002	250 ug	A-1203-1

Recombinant and synthetic proteins

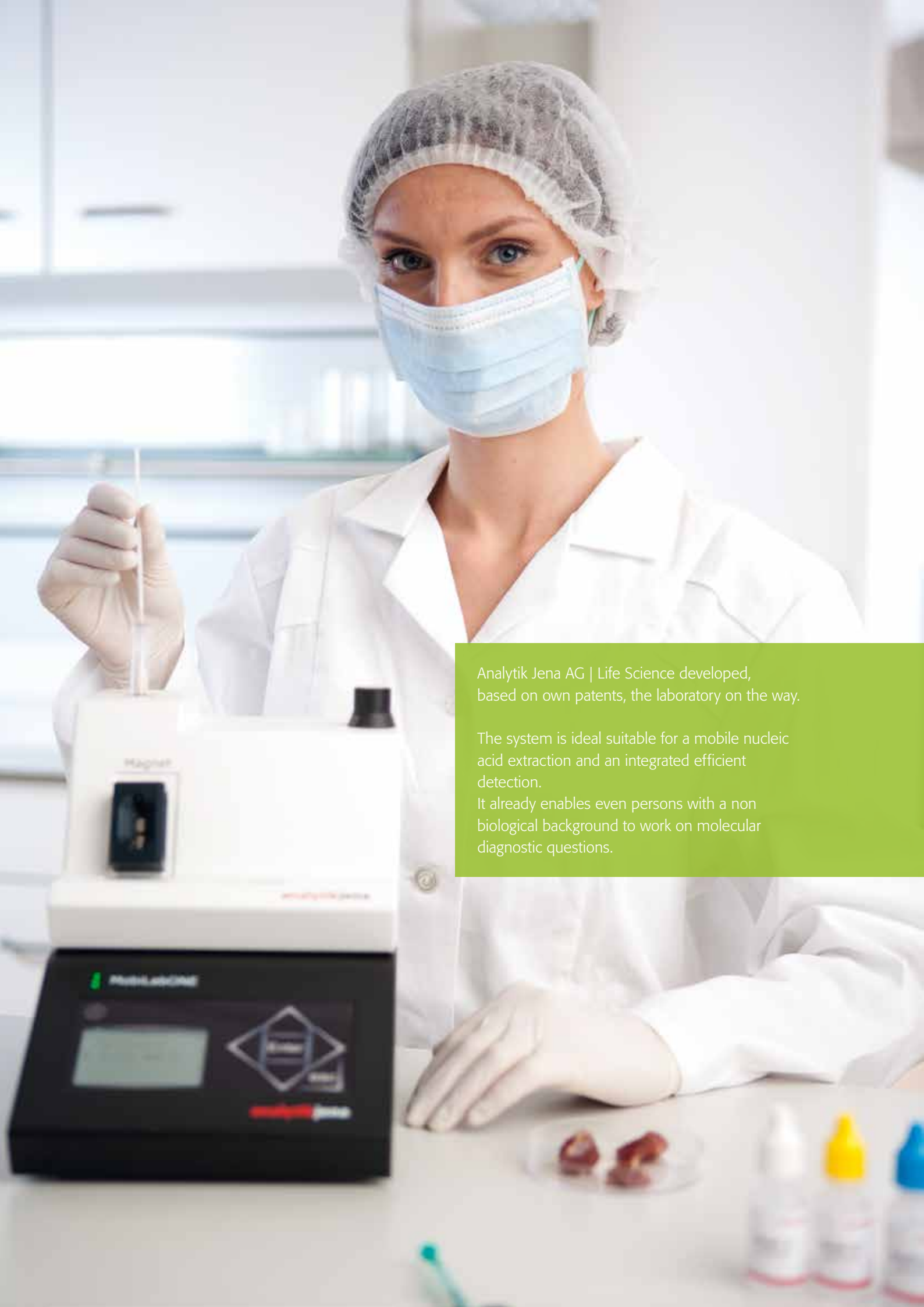
Product description

Recombinant and synthetic proteins are offered for research use e. g. researching projects about neurodegenerative diseases.

Specifications and order information

Product description	Cat. no.	Size	Reference
Apolipoprotein E, Human Plasma, VLDL	847-0106000104	50 ug	A-2001-1
Tubulin, Porcine	847-0106000203	1 mg	T-1201-1
Mouse Anti-Beta-Tubulin, DC 126, Mab	847-0102002501	100 ug	T-1307-1
Alpha 1 Antichymotrypsin	847-0106000501	100 ug	A-2002-1
Alpha 1 Antitrypsin	847-0106000603	1 mg	A-2003-1
Alpha 2 Macroglobulin	847-0106000703	1 mg	A-2004-1
Chymotrypsin	847-0106000801	100 ug	A-2005-1
Haptoglobin	847-0106000903	1 mg	A-2006-1
Myeloperoxidase	847-0106001001	100 ug	A-2007-1
Plasmin	847-0106001103	1 mg	A-2008-1
Plasminogen	847-0106001203	1 mg	A-2009-1
Transferrin	847-0106001305	10 mg	A-2010-1
Amylin	847-0101006802	0.5 mg	R-1001-1
Amylin	847-0101006803	1.0 mg	R-1001-2
15N, Amylin, Uniform Label	847-0101006901	0.1 mg	R-1101-1
15N, Amylin, Uniform Label	847-0101006903	1.0 mg	R-1101-2
13C, 15N, Amylin, Uniform Label	847-0101007003	1.0 mg	R-1102-1

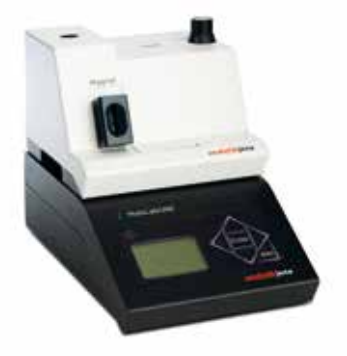
Product description	Cat. no.	Size	Reference
Calmodulin, Porcine	847-0106000303	1 mg	C-1001-1
Calmodulin, Porcine, Biotinylated	847-0106100301	100 ug	C-1002-1
Calmodulin, Porcine, Fluorescein	847-0106200301	100 ug	C-1003-1
Calmodulin, Porcine, Rhodamine	847-0106300301	100 ug	C-1004-1
Calmodulin, Porcine, ImmobilizedAgarose	847-0106400303	2 ml	C-1005-1
Calmodulin,Wheat (T. aestivum) Porcine	847-0106400501	200 ul	C-1006-1
Calmodulin-SH, Wheat (Triticum aestivum)	847-0106000402	250 ug	C-1007-1
Calmodulin, Wheat, Biotinylated	847-0106100404	50 ug	C-1008-1
Calmodulin, Wheat, Fluorescein	847-0106200404	50 ug	C-1009-1
Calmodulin, Wheat, Rhodamine	847-0106300404	50 ug	C-1010-1
Calmodulin-SH, Wheat, Immobilized	847-0106400401	200 ul	C-1011-1



Analytik Jena AG | Life Science developed, based on own patents, the laboratory on the way.

The system is ideal suitable for a mobile nucleic acid extraction and an integrated efficient detection.
It already enables even persons with a non biological background to work on molecular diagnostic questions.

Mobile diagnostics



MobiLab | The lab-to-go for fast and mobile on-site molecular diagnostics of biological pathogens

MELANIE TRENKMANN, ELMARA GRASER, KATJANA DASKALOW, STEPHAN ROBST, TIMO HILLEBRAND, CLAUS KNIPPSCHILD, ALEXANDER BERKA, ANALYTIK JENA AG, BUSINESS UNIT "LIFE SCIENCE"

The demands for a molecular pathogen diagnostic under field conditions and the associated robust and fast analytic are increasing. Currently available pathogen detections require proof testing of samples in a qualified laboratory by trained personnel, whereby manpower, time and money are enormous. In order to reduce waiting times and to enable a low-cost sample analysis in the field, Analytik Jena has developed a device platform that meets these requirements. The overall system is very easy to use which makes the operation for laymen possible and as well reliable. The system also provides state-of-the-art, highly specific pathogen detection in less than one hour.

MobiLab Case

Simple, robust and mobile: The operative words for the entire design concept, whether you're using MobiLab One or MobiLab Case. Both instruments combine an entire laboratory, including extraction, thermal mixer and *rapid*PCR thermal cycler in a single unit.

MobiLab One

Ultramodern instrument platform: MobiLab

The MobiLab is designed so that even non-specialists will be guided step by step through a computerized manual from beginning of the sampling to the specific pathogen detection. This can be done easily and quickly, as the MobiLab combines nucleic acid extraction, thermal mixer and *rapid*PCR cycler in an expedient way.
On the basis of an integrated high performance battery and supply in a robust case the system allows very flexible applications – future-oriented in the field. Due to the external power supply the MobiLab can be operated indoor on a surface of a sheet of DIN A4 paper to replace an entire laboratory. On the position, where normally one laptop finds its place, now two fully equipped workplaces can be established. The overall concept offers enormous variety and is therefore suitable for different applications.

Both the robust housing and the soft-touch control panel are optimized for the outdoor use and realize an easy and thorough cleaning and disinfecting.

"A well-thought-out product line offering tremendous variety"

To meet the requirements of every user and various applications the MobiLab is available in two versions. Both devices combine an entire laboratory, including extraction, thermal mixer and PCR thermal cycler in a suitcase. If a simple Yes/No statement of a single sample or a sample pool is needed the MobiLab One is the right choice. With its removable Blocksystem Combi it allows easy storage and building up at lowest place. If samples should be analyzed under field conditions or even in a wet-wet environment the MobiLab Case is the best system. The operation takes place by a 5.7'' touchscreen and an integrated Windows CE computer.

Mature technology for on-site analyses

This is the first ever mobile system for nucleic acid isolation followed by targeted *rapid*PCR amplification and final detection.

Yet another highlight: the system saves an enormous amount of time. The full process is typically completed in less than 60 minutes. The MobiLab system includes an integrated thermal shaker for effective sample lysis of different starting materials. DNA/RNA extraction is based on patented DC technology and proceeds by binding the nucleic acids to magnetic particles. A specially designed magnetic trap rapidly separates bound nucleic acids from other cellular components.

The device also includes a *rapid*PCR thermal cycler in which the sequence of interest is quickly amplified using **RAH**-(**R**apid **A**mplification and **H**ybridization) technology and then hybridized in the same reaction.

Redefining pathogen detection

Ready-to-use kits, containing all of the reagents and consumables needed to detect different pathogens, have been perfectly adapted to the MobiLab system.
Kits include, among other materials, sampling vessels and materials (such as swabs), reagents for nucleic acid extraction and PCR components in a pre-formulated and storable form.
Novel reaction cartridges, in which the entire amplification and detection process takes place, are also included.

This closed system reduces operating errors and contamination to an absolute minimum. Final pathogen detection is highly sensitive and is performed on a Lateral Flow Strip (LFS) containing an additional conjugate control to verify the reaction.

All included. MobiLab kits combine all of the reagents and consumables needed for nucleic acid extraction, combined *rapid*PCR/hybridization reaction and final detection on a single, stable Lateral Flow Strip.

Perfectly equipped

*Rapid*PCR technology makes it possible to perform full pathogen detection in just one hour. This makes MobiLab unique in terms of flexibility and the speed with which results are made available: if the results are positive, users now have the option of taking preliminary action before the final report from the lab is finished.

This makes fast, reliable selfmonitoring an option for an extremely wide variety of users. Furthermore, the protocols are extraordinarily easy to process, which means that a wide variety of pathogens can be detected by individuals who do not possess a profound knowledge of molecular biology a pioneering step in on-site analysis.

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Order information

Order number	Description
844-10001-2	**MobiLab ONE – Base unit** for use with block systems of Analytik Jena, including battery pack, power supply and power cable, delivered in a robust and impact resistant case
844-10002-0	**MobiLab ONE – Block system Combi** Block system to be used with MobiLab ONE - Base unit and Analytik Jena's ready-to-use kits, including thermal mixer, *rapidP*CR thermal cycler and Magnetrack for 1.5 – 2.0 ml tubes
844-10002-2	**MobiLab CASE** Stand alone mobile instrument system, including battery pack, power supply and power cable, thermal mixer, *rapidP*CR thermal cycler and Magnetrack for 1.5 – 2.0 ml tubes, delivered in a robust and impact resistant case, to be used with Analytik Jena's ready-to-use kits
	The Magnetracks are used to wash, incubate and to seperate magnetic beads for volumes from 1.5 till 2.0 ml, 15 ml and 50 ml. They are suitable for all microbiological and molecularbiological applications with Magnetic Beads, like cell seperation, mRNA isolation, sequencing reactions, single strand seperation, etc...
845-MG-2000002 	**Magnetrack small for 1.5 till 2.0 ml tubes** ▪ Suitable for single 0.5 and 2.0 ml micro screwed cap tubes and 1.5 ml reaction tubes ▪ Contains 2 powerful neodymium iron boron permanent magnets for the magnetic particle seperation ▪ Material: aluminium alloy
845-MG-2000015 	**Magnetrack middle for 15 ml tubes** ▪ Suitable for single 15 ml Falcon and reaction tubes ▪ Contains 2 powerful neodymium iron boron permanent magnets for the magnetic particle seperation ▪ Material: aluminium alloy
845-MG-2000050 	**Magnetrack big for 50 ml tubes** ▪ Suitable for single 50 ml Falcon and reaction tubes ▪ Contains 4 powerful neodymium iron boron permanent magnets for the magnetic particle seperation ▪ Material: aluminium alloy

Kits for MobiLab

Fast, safe, on-site pathogen detection is becoming increasingly indispensable, and Analytik Jena offers the perfect platforms to meet these demands in the fields of human diagnostics, food safety, environmental analysis and toxin detection.

The systems combine the speed for which Analytik Jena is known along with innovative, user-friendly detection systems that make them suitable even for non-specialists.

MobiLab **Influenza A/H1N1** Assay

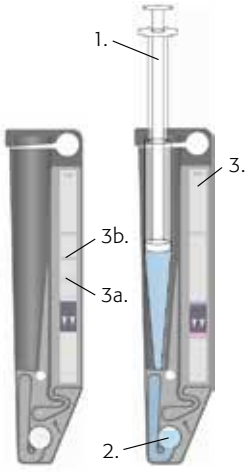
- Kit is ready to use with the MobiLab
- For mobile, on-site diagnosis of influenza A/H1N1 with very small space requirements
- Includes all reagents and PCR materials for sampling, nucleic acid extraction, amplification and final detection
- Patented cartridge serves as a closed reaction chamber both for amplification and for detection

Product description

The MobiLab Influenza A/H1N1 Assay is a molecular diagnostic test system for mobile detection of influenza A/H1N1 (swine flu) and allows for fast, highly specific detection in pharyngeal swabs and lavage fluid. This easy-to-use test completely eliminates the need not only for additional equipment and consumables, but also for quantitative pipetting. The PCR product is applied to a lateral flow strip following nucleic acid extraction and the combined amplification/hybridization reaction, with the appearance of a test line confirming a positive result. A second line parallel to the first line serves as a control line indicating whether the strip is working properly.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Swab specimens (pharyngeal)
- Pharyngeal lavage fluid (up to 400 µL)

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:

Approx. 10^5 cells per swab and/or per 400 µL

Detection:

Influenza A / H1N1 (swine flu)

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab Influenza A/H1N1 assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

Combining MobiLab and the MobiLab Influenza A/H1N1 Assay allows users to detect viruses quickly and easily. RNA was extracted from swab samples and used to reconstitute the master mix, which is in solid form. The resulting mixture was then transferred to the reaction cartridge and subjected to amplification. This was followed by visualizing the results on the integrated test strip.

Reaction cartridge 1:
two bands (control and test lines) = the sample tested positive for influenza A/H1N1

Reaction cartridge 2:
one band (control line) = negative control

Order information

Order number	Starting material	Quantity
845-ML-0112025	Swab	25 reactions
845-ML-0114025	Pharyngeal lavage fluid	25 reactions

MobiLab **Salmonella spp.** Assay

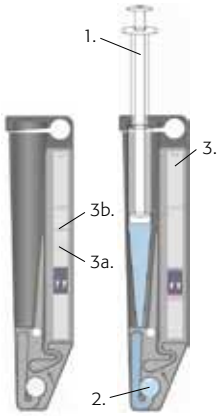
- Quick and easy on-site detection of *Salmonella spp.*
- Includes DNA extraction, amplification/hybridization and final detection on a lateral flow strip (LFS)
- Highly specific, sensitive detection
- Ready-to-use assay comes with all required reagents and consumables

Product description

The MobiLab Salmonella spp. Assay is a molecular diagnostic test system for mobile detection of the genus *Salmonella*, including reliable detection of all serotypes of the two subspecies (*S. enterica and S. bongori*), in a variety of matrices. The assay comes with nucleic acid extraction reagents and all PCR components in a preformulated, stable form. Also included are novel reaction cartridges in which the entire amplification/hybridization and detection processes occur. Final detection is highly sensitive and takes place on a test strip located within the reaction cartridges. Because detection is performed within a closed system, operator error and contamination during the testing process can be reduced to an absolute minimum.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces
- Water samples (up to 200 mL)
- Animal feed samples (up to 2 g)

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx 50 minutes
- Detection: approx 20 minutes

Sensitivity:

- Swab and Stomacher samples: approx. 3000 – 4000 copies/mL
- Water samples: approx. 10 copies/mL
- Animal feed samples: approx. 5000 copies/sample

Detection:

- *Salmonella spp.*
- All serotypes of the Subspezies *S. enterica* and *S. bongori*

Kit components

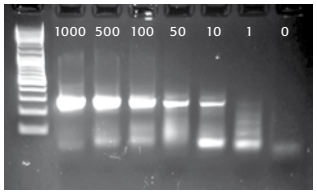
Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab Salmonella spp. Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

A dilution series containing 50,000, 5000, 500 and/or 50 *Salmonella* cells per 100 µL eluate was first prepared for detecting the specific pathogen. One fiftieth of each was then introduced into an amplification reaction (PCR). DNA was also isolated from real samples in order to monitor the extraction process. Reproducibility and sensitivity of the mobile instrument version were compared to those of an established detection system.



The gel electrophoresis separation in fig. 1 shows the results of the *Salmonella* dilution series, while fig. 2 shows the results from application on a lateral flow strip. Each number represents the theoretical number of copies of *Salmonella* DNA contained in the sample prior to the amplification reaction.

By way of comparison, fig. 3 shows the results visible on the lateral flow strip (LFS) integrated into the cartridge.

One band (control line): the sample tested negative for *Salmonella*

Two bands (control and test lines): the sample tested positive for *Salmonella*

Order information

Order number	Starting material	Quantity
845-ML-0011025	Stomacher culture	25 reactions
845-ML-0012025	Swab	25 reactions
845-ML-0013025	Water	25 reactions
845-ML-0014025	Animal feed	25 reactions

MobiLab **Listeria spp.** Assay

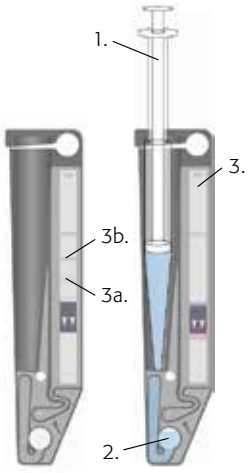
- Ready-to-use kit for mobile detection using the MobiLab
- Fast, sensitive detection of *Listeria spp.* in various matrices
- Includes all reagents and PCR materials for sampling, nucleic acid extraction, amplification, hybridization and final detection.
- Optimized step-by-step instructions on the MobiLab

Product description

Developed for performing mobile, on-site diagnostic testing using the MobiLab, the MobiLab *Listeria spp.* Assay gives researchers a fast, highly specific tool for detecting Listeria spp. in cell cultures, swab specimens and water samples. This easy-to-use test completely eliminates the need not only for additional equipment and consumables, but also for quantitative pipetting. Following DNA extraction and amplification/hybridization, final detection is performed on a lateral flow strip (LFS) within a reaction cartridge. The appearance of a test line confirms a positive result. A second line parallel to the first line serves as a control line indicating whether the strip is working properly.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces
- Water samples (up to 200 mL)

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx 50 minutes
- Detection: approx 20 minutes

Sensitivity:

Water samples: approx. 10 copies/mL

Detection:

Listeria spp.

Kit components

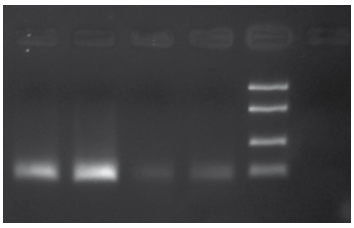
Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

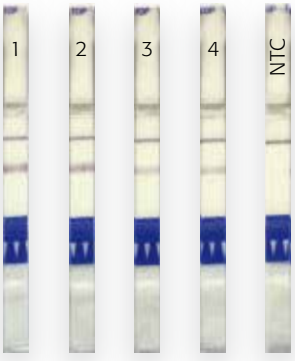
Store the MobiLab Listeria spp. assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

The MobiLab Listeria spp. Assay was used to isolate Listeria DNA from swab samples. Once extracted, the nucleic acid was then diluted in various stages and introduced in the specific amplification/hybridization reaction in the MobiLab. Double determinations were performed on each sample, final detection was performed once by loading the sample onto an agarose gel and once using a reaction cartridge with an integrated lateral flow strip.



Lane 1: Undiluted
Lane 2: 1:10 dilution
Lane 3: 1:100 dilution
Lane 4: 1:1000 dilution
Lane 5: DNA control
Lane 6: Negative control



Strip 1: Undiluted
Strip 2: 1:10 dilution
Strip 3: 1:100 dilution
Strip 4: 1:1000 dilution
Strip NTC: Negative control

Order information

Order number	Starting material	Quantity
845-ML-0021025	Stomacher culture	25 reactions
845-ML-0022025	Swab	25 reactions
845-ML-0023025	Water	25 reactions

MobiLab **E.coli O157** Assay

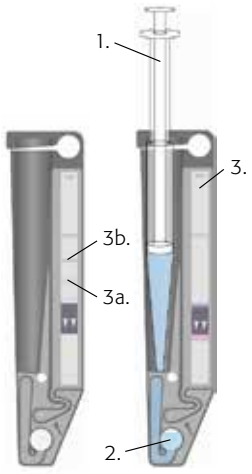
- Mobile, on-site detection of ***E. coli*** O157 using MobiLab
- Processes different matrices, such as surface swabs or cell cultures
- Ready-to-use assay includes all consumables and reagents, from DNA isolation to the specific detection
- No quantitative pipetting required
- Contains an optimized, wizard-based protocol

Product description

When used in combination with the MobiLab, the E.coli O157 Assay provides a fast, easy tool for detecting all EHEC strains bearing the typical O157 surface antigen. The kit contains all of the components required, from sampling and nucleic acid extraction to the highly specific amplification/hybridization reaction and final detection. This is accomplished with a patented reaction cartridge that, as a closed system, reduces any potential contamination to an absolute minimum. The detection strip located within the cartridge can be removed after the reaction and archived to document the results.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:

30 – 40 copies in the PCR batch

Detection:

- *E.coli* O157
- Specific detection of the O157 surface antigen typical of those bacteria

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab E.coli O157 Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

Magnetic particle separation using a magnetic trap is the basis for the first step, in which the MobiLab E.coli O157 Assay and the MobiLab were used for extracting DNA from an *E.coli* cell pellet. The stable, dry PCR reagents were then reconstituted with the eluate and the mixture was transferred to the reaction cartridge. Amplification/hybridization took place in the PCR module of the MobiLab. In the final step, the amplification product was washed by injecting the running buffer into the reaction cartridge and onto the test strip. The results were visualized after just 15 – 20 minutes.

Reaction cartridge 1: One band (control line) = the sample tested negative for *E.coli* O157

Reaction cartridge 2: Two bands (control and test lines) = the sample tested positive for *E.coli* O157

Order information

Order number	Starting material	Quantity
845-ML-0041025	Stomacher culture	25 reactions
845-ML-0042025	Swab	25 reactions

MobiLab **Campylobacter** Assay

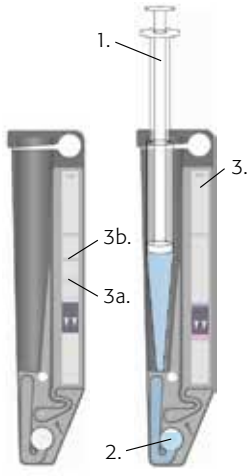
- Fast and mobile on-site detection of various *Campylobacter* strains
- Easy-to-use with the MobiLab
- Wizard-driven protocol with no quantitative pipetting
- Includes all of the components required, from sample preparation to final detection on a lateral flow strip (LFS)

Product description

The MobiLab Campylobacter Assay has been specially designed and optimized for the MobiLab. Combining these two products gives users a mobile tool for detecting different *Campylobacter* strains from a variety of matrices. The assay is based on a very simple structure and contains all of the consumables and reagents needed, not only for DNA extraction, but also for the specific amplification reaction, subsequent probe hybridization and final detection on a user-friendly test strip. No quantitative pipetting is required for any part of the procedure.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:

30 – 40 copies in the PCR batch

Detection:

- The following *Campylobacter* strains were detected: *Campylobacter jejuni*, *Campylobacter coli* and *Campylobacter lari*
- Specific detection of the glyA gene for serine hydroxymethyltransferase from thermophilic *Campylobacter* strains

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab Campylobacter Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

The MobiLab and MobiLab Campylobacter Assay were used to isolate the DNA from a bacterial cell pellet, after which the combined amplification and hybridization reaction proceeded in the reaction cartridge. This required first reconstituting the stable master mix using the DNA sample and then transferring it to the PCR chamber. Subsequent detection was performed on a lateral flow strip integrated in the cartridge.

Reaction cartridge 1: One band (control line) = negative control

Reaction cartridge 2: Two bands (control and test lines) = the sample tested positive for *Campylobacter* in der Probe

Order information

Order number	Starting material	Quantity
845-ML-0051025	Stomacher culture	25 reactions
845-ML-0052025	Swab	25 reactions

MobiLab **E.coli O104** Assay

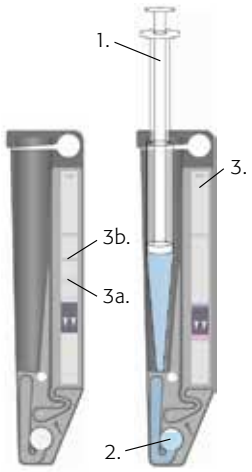
- Specific detection of ***E. coli*** O104 via the surface antigen
- Optimized for mobile detection using the MobiLab
- Contains all of the reagents and consumables needed, from nucleic acid extraction to final detection
- Wizard-driven protocol makes all components easy to use
- No quantitative pipetting

Product description

As a detection system for on-site analysis, the MobiLab E.coli O104 Assay combines all molecular diagnostic steps, from nucleic acid isolation to amplification/hybridization and PCR product detection. The work sequence for the overall detection process is very simple: the user is given step-by-step instructions for carrying out the protocol, which requires neither quantitative pipetting nor an in-depth background in molecular biology. DNA extraction is based on magnetic particle separation using a magnetic rack, after which the nucleic acid is introduced into a specific amplification reaction, hybridized with a probe and applied to a lateral flow strip for final detection. The test strip developed for this assay is stable and can be archived for documenting the results.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:

30 – 40 copies in the PCR batch

Detection:

- *E.coli* O104
- Specific detection of the *E.coli* bacteria O104 surface antigen

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab E.coli O104 Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

A reference nucleic acid from *E.coli* O104 was used to reconstitute the dry reagents of the master mix contained in the kit. This mixture was then transferred to the reaction cartridge. The combined amplification and hybridization reaction proceeded exclusively in the MobiLab. This was followed by detection of the hybridization products on the highly sensitive lateral flow strip (LFS) integrated within the cartridge.

Reaction cartridge 1: Two bands (control and test lines) = the sample tested positive for the *E. coli* O104 reference DNA

Reaction cartridge 2: One band (control line) = negative control

Order information

Order number	Starting material	Quantity
845-ML-0041025	Stomacher culture	25 reactions
845-ML-0042025	Swab	25 reactions

MobiLab **Shigella Toxin II** Assay

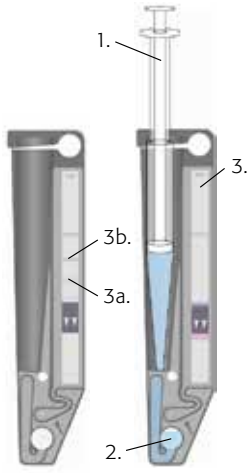
- Test system for mobile detection of Shiga toxin II formers (as well as lectin verotoxin II or Shiga-like toxin)
- Optimized, wizard-driven operation via MobiLab
- Very easy to use with no additional equipment or consumables
- Optimized for a variety of starting materials

Product description

Using the MobiLab Shigella-Toxin II Assay in conjunction with the MobiLab instrument system gives users a simple, highly specific tool for detecting bacterial strains that produce Shiga toxin II. The assay requires users to perform 3 steps in succession: a magnetic particle separation step to isolate DNA from the starting sample, followed by a highly sensitive amplification reaction and subsequent hybridization. The overall reaction process takes place in a closed, patented cartridge. This cartridge also contains a lateral flow strip (LFS) for final detection, a feature that virtually eliminates potential cross-contamination.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:

- Food samples after standard culturing in a Stomacher
- Swab specimens from various surfaces

Reaction time:

- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:

30 – 40 copies in the PCR batch

Detection:

Positive test results for *E.coli* O104:H4 and/or *E.coli* O104:H21

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab Shigella Toxin II Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

Reference DNA was used for checking the reaction sequence of the MobiLab Shigella Toxin II Assay. After the amplification and hybridization reaction, the PCR product was transferred to the integrated test strip. The result could then be seen on the lateral flow strip (LFS) as shown below.

Reaction cartridge 1: Two bands (control and test lines) = the sample tested positive for *Shigella* toxin II

Reaction cartridge 2: One band (control line) = negative control

Order information

Order number	Starting material	Quantity
845-ML-0221025	Stomacher culture	25 reactions
845-ML-0222025	Swab	25 reactions

MobiLab **Pork** Assay

- Uncomplicated, on-site detection of pork in other types of meat
- Low limit of detection: identifies *Sus scrofa* in samples at concentrations of only 5%
- Includes DNA extraction, amplification and detection reaction
- No quantitative pipetting
- The MobiLab includes step-by-step instructions that guide users through the protocol

Product description

When used in conjunction with the MobiLab, the MobiLab Pork Assay is a fast, reliable tool for detecting the presence of pork in other types of meat. The results are of interest any time there is a need for monitoring imported food or for auditing cleaning routines in the meat industry. The MobiLab Pork Assay can also be used for quality control/assurance purposes in food retail or for food labeling. The simple step-by-step instructions and the comprehensive kit components allow even lay persons to test materials easily and assess the results with no additional equipment or consumables.

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

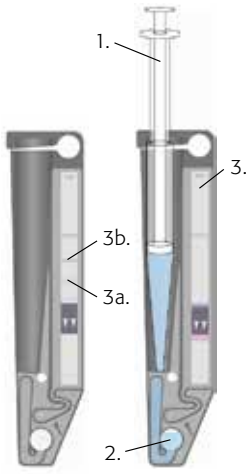
Store the MobiLab Pork Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4°C) and for 2 weeks at room temperature (14°C – 25°C).

Sample application

The MobiLab Pork Assay was used to test a ground beef mixture for the presence of pork.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Reaction cartridge 1: two bands (control and test lines) = the sample tested positive for pork

Reaction cartridge 2: one band (control line) = negative control

Product specifications

Starting material:
Successfully tested for lamb, turkey, chicken, beef and pork

Reaction time:
- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:
Tests conducted on various types of meat (beef, lamb and poultry) indicated that pork can be detected at concentrations as low as 5%.

Detection:
Sus scrofa, detection of species-specific mitochondrial DNA

Order information

Order number	Starting material	Quantity
MobiLab Pork Assay 845-ML-0210025	Meat samples	25 reactions
MobiLab Startup Kit 845-ML-1000001	Homogenizer, 25x bags	25 reactions

MobiLab **Mycoplasma** Assay

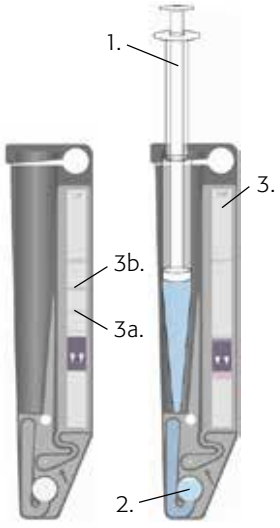
- Mobile detection of mycoplasmas in cell culture supernatants
- Optimized for use with the MobiLab instrument system
- Absolutely no need for additional equipment and/or PCR materials
- Provides simple, step-by-step instructions during testing
- Based on a combined, highly specific amplification/hybridization reaction

Product description

The MobiLab Mycoplasma Assay is a tool for simple, on-site detection of mycoplasmas in cell culture supernatants. With a footprint the size of a DIN A4 sheet of paper, the MobiLab instrument system combines nucleic acid extraction, including a specific amplification/hybridization reaction, with final detection. The kit contains all reagents, including the master mix (in solid form) and all consumables. No other equipment is needed. In addition, the patented reaction cartridge in which detection takes place eliminates virtually all potential contamination. The closed system also reduces hands-on time and manual steps to an absolute minimum.

MobiLab reaction cartridge

1. Syringe for filling the cartridge
2. PCR chamber
3. Integrated lateral flow strip (LFS) for detection (3a = test line, 3b = control line)



Product specifications

Starting material:
Cell culture supernatant

Reaction time:
- DNA extraction: approx. 40 – 50 minutes
- Amplification and hybridization: approx. 50 minutes
- Detection: approx. 20 minutes

Sensitivity:
Detection of approx. 30 – 40 copies per PCR batch

Detection:
- Selective detection of a mycoplasma-specific 16S RNA sequence.
- The following species can be detected:
  - *M. fermentans*
  - *M. hyorhinis*
  - *M. arginini*
  - *M. orale*
  - *M. salivarium*
  - *M. hominis*
  - *M. pulmonis*
  - *M. pirum.*

Kit components

Sampling material, extraction reagents, sample and reaction vessels, Pasteur pipettes, reaction cartridges, syringe with attachment, stable master mix (dry reagents), running buffer

Storage conditions and stability

Store the MobiLab Mycoplasma Assay in a dry place. The assay will remain stable for 6 months under cool conditions (+4 °C) and for 2 weeks at room temperature (14 °C – 25 °C).

Sample application

Magnetic particle separation was used as a basis for initial isolation of DNA from a 200 µL cell culture. The eluate was then used for reconstituting the stabilized master mix and transferred to the reaction chamber of the cartridge. This was followed by amplification and hybridization in the MobiLab. The running buffer was used to wash PCR products onto the lateral flow strip in the cartridge, and the final results could be seen after approx. 20 minutes.

Reaction cartridge 1:
Two bands (control and test lines) = the sample tested positive for mycoplasmas

Reaction cartridge 2:
One band (control line) = negative control

Order information

Order number	Starting material	Quantity
845-ML-0036025	Cell culture supernatant	25 reactions

ePaTOX II | Fast, sensitive, chip-based detection of toxins and pathogens

The ePaTOX II is a versatile instrument for highly sensitive, chip-based detection of proteins, toxins, nucleic acids and other biomolecules in a wide range of samples. Suitable for use in the laboratory, this instrument can also be integrated into mobile detection systems.

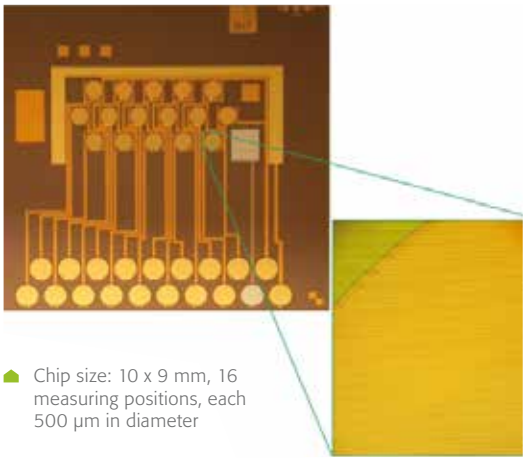
Operators are able to use the instrument after only a brief introduction thanks to uncomplicated, ready-to-use kits and user-friendly control/analysis software. Full detection of nucleic acids or proteins typically takes 8 or 20 minutes, respectively.

- Identification and quantification of toxins and pathogens
- Fully automated, stable, electrochemical detection on microarrays
- Plug & play operation using disposable one way chipsticks
- User-friendly operation and data analysis, incl. alarm feature
- Robust housing for mobile NBC detection systems such as those found in emergency management vehicles or for stationary monitoring systems used in public buildings
- In-house production of monoclonal antibodies for quantification and detection
- Samples are easy to handle
- Short measurement times (approx. 20 minutes for toxins/proteins; approx. 10 minutes for DNA/RNA)
- Limit of detection = approx. 0.5 ng/mL

ePaTOX II with a laptop

Detection principle

The principle of Chip-detection with the ePaTOX II is based on an electrochemical reaction. The process utilizes chips with extremely fine, nanoscale electrode structures produced using the state of the art silicon semiconductor technology. A biochip of this kind includes 16 measuring positions which are then loaded with various receptor molecules specific to the application. Depending on how the biochip is configured, this allows scientists to detect multiple toxins or pathogens in parallel on a single chip. The sample to be studied is automatically pumped across the chip during the detection process, allowing the target molecules in the sample to bind to their complementary receptor molecules (e.g., antibodies, oligonucleotides), which are immobilized on the surface of the chip. This step is followed by enzyme



Chip size: 10 x 9 mm, 16 measuring positions, each 500 µm in diameter

marking. Fixed on the chip in this way, the enzyme then converts a substrate that can be detected in an electrochemical reaction. The electrode structures on the chip make it possible to measure an electrical signal – the size of the signal is directly proportional to the concentration of the target molecules in the sample. This electrochemical detection principle makes it possible to achieve high analytical sensitivity, and the resulting detection system is immune to the effects of turbidity and other sources of optical interference.

Clearly structured and intuitive

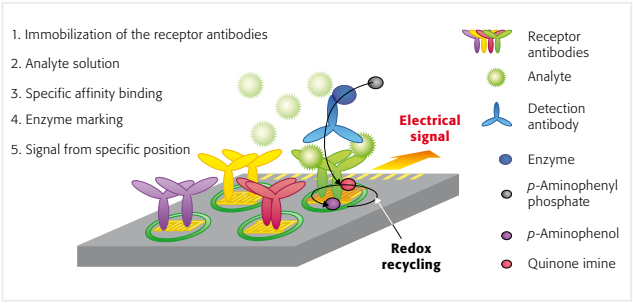
The ePaTOX II is particularly easy to use: its fully automated, user-friendly software controls the analytical process, provides the user with necessary instructions and analyzes the test results. The system also displays important notes for error-free routines. A simple syringe filtration step is used for preparing protein or toxin samples. Appropriate, ready-to-use kits are also available.

Ready-to-use Kits

Chart showing the test results produced by the user-friendly software

Array-based test format

Simultaneous analysis of multiple electrode positions is the test principle underlying an array-based, electrical biochip. For detection to occur, the target molecules must bind to the specific receptor molecules immobilized on the chip. To this end, each of the 16 measuring positions have been modified with corresponding receptor oligonucleotides and/or antibodies, thereby enabling detection of multiple biomolecules in parallel within a single sample. Because an exceptionally wide variety of receptor molecules can be immobilized on the chip, a considerable number of solid-phase-bound detection systems (such as ELISA, i.e., enzyme-linked immunosorbent assay") can be transferred to the biochip.



Schematic representation of array-based detection using electric detection

The ePaTOX II is ideal for integration into mobile ABC systems and for the monitoring systems used in public buildings such as airports, harbors and subways or laboratories. The system offers extensive, group-specific detection options for toxins and/or pathogens. Toxins detected include ricin, staphylococcus enterotoxin B and botulinum toxin A, B and E. The system can detect the following pathogens after appropriate DNA extraction and PCR: *Bacillus anthracis*, *Yersinia pestis*, *Francisella tularensis* and *Orthopoxvirus*. One special feature of the system is its high tolerance to a variety of different sample matrices (such as water, milk, starch, flour, juice, soil, aerosols, etc.)

Target and detection limits:

ePaTOX Toxin Kit I

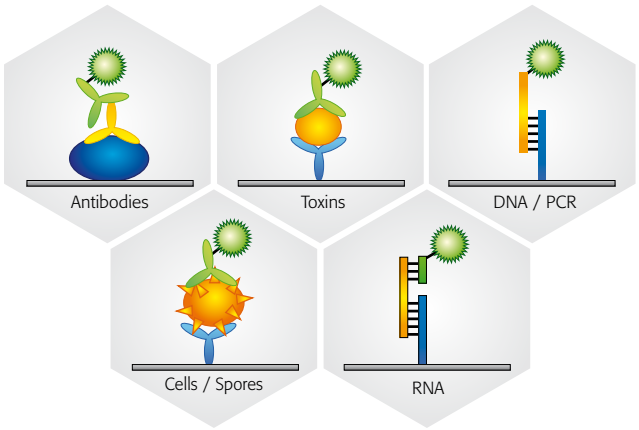
- Botulinum toxin A: 2 ng/mL (30 ng/mL complex)
- Botulinum toxin B: 2 ng/mL (20 ng/mL complex)
- Botulinum toxin E: 5 ng/mL (50 ng/mL complex)
- SEB: 0.5 ng/mL
- Ricin: 2 ng/mL
-

ePaTOX Toxin Kit II

- Botulinum toxin A: 2 ng/mL (30 ng/mL complex)
- Botulinum toxin B: 2 ng/mL (20 ng/mL complex)
- Botulinum toxin F: 5 ng/mL (50 ng/mL complex)
- SEB: 0.5 ng/mL
- Ricin: 2 ng/m

ePaTOX Pathogen DNA Kit I

- *Bacillus anthracis*
- *Yersinia pestis*
- *Francisella tularensis*
- *Orthopoxvirus*
- Detection limit: 10 – 100 DNA copies in the starting material



Basic detection system for the ePaTOX II

Technical specifications

Features	
Weight	13,7 kg
Dimensions (WxHxD)	350 x 300 x 340 mm
Power source	24 V DC / 100 – 240 V AC
Protection class	IP 42
Interface	RS 232
Data analysis	separate PC (Win XP and up)
Detection principle	electrochemical
Operating temperature	10 – 35°C
Sample volume	diluted to 500 µL
Shelf life of consumables	approx. 6 months at 4°C

Order information

Order number	Description
847-20101-2	**ePaTOX II** Instrument system (not including PC), including control and analysis software, 2 reagent holders and 1 sample holder
847-30250-0	**ePaTOX Toxin Kit I** ▪ Detection of 5 toxins in parallel: SEB/ ricin/ BoNT A,B,E ▪ Includes reagents for 5 individual tests ▪ Total number of tests: 5x 5 targets
847-30251-0	**ePaTOX Toxin Kit II** ▪ Detection of 5 toxins in parallel: SEB/ ricin/ BoNT A,B,F ▪ Includes reagents for 5 individual tests ▪ Total number of tests: 5x 5 targets
847-30260-0	**ePaTOX Pathogen DNA Kit I** ▪ Detection of 4 pathogens in parallel: *Bacillus anthracis*, *Yersinia pestis*, *Francisella tularensis* and *Orthopoxvirus* ▪ Includes reagents for 5 individual tests ▪ Total number of tests: 5x 4 targets ▪ Includes specifications for DNA extraction and PCR reports
847-30270-0	**ePaTOX Demo & Control Kit** ▪ Simple test for checking performance or demonstrating the ePaTOX II with non-toxic target molecules ▪ For training users in the analysis process with non-toxic sample material ▪ Includes reagents for 2 tests
847-30340-0	**ePaTOX Maintenance Kit** ▪ For thoroughly cleaning the instrument after analyzing toxic samples ▪ Before storing or transporting the instrument
847-30350-0	**ePaTOX Washing Kit** ▪ For cleaning the instrument after analyses
847-30360-0	**ePaTOX Conditioning Kit** ▪ For improving signal intensity and reproducibility of the results ▪ Use when the instrument has been in storage or has not been used for a relatively long period of time

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Order information

Order number	Quantity
844-MA205-2	1 piece

Instruments

Introduction

Thermal mixers are the basic equipment of every laboratory. We offer several high-end instruments making it easy to find the appropriate mixer for different applications. All instruments of the BioShake series are perfect for mixing small volumes in microplates as well as for daily routine using tubes or glass vials. As all thermal mixers offer a choice of several different blocks, every requirement can be met.

BioShake-Series

High-speed mixer and thermal mixer in compact design

The BioShake series puts the traditional way of thinking upside down and defines completely new the requirements of a laboratory mixer – a category which, in the light of downsizing of reaction volumes and upsizing of the well numbers in microplates, is faced permanent increasing demands.

The BioShake series meets exactly these new requirements: The instruments are mixing also smallest volumes in shortest time, offer a simple handling, outstanding comfort and a maximum of safety, advantages unknown by then. In contrast to that the required space is minimized.

Integrated 3D-Shake-Control and Anti-Vibration-Technology enable high-precise and effective shaking on even smallest benches. Time consuming centrifugation steps after mixing can be cut down. Annoying vibration and noise are things of the past.

3D-Shake-Control

Rapid and gentle mixing with 2 mm orbit and up to 3,000 rpm for optimal results of even sensitive samples and liquids.

Anti-Spill-Technology

Controlled planar mixing avoids wetting of lids, sample spillage and sample contamination with close-by samples.

Anti-Vibration-Technology

Outstanding smooth running conditions without any vibration and any noise.

BioShake iQ (High-Speed Thermal Mixer)

BioShake XP (High-Speed Mixer)

Effective mixing without sample loss

The adjustment of the optimal mixing frequency for microplates or reaction tubes should always be done depending on the basis of the well size and the filling volume. Only this way optimal results without loss of samples can be achieved highly reproducible and in shortest time.

Recommended mixing frequencies for reaction tubes

Recommended mixing frequencies [rpm] for tubes against filling volume [%] for aqueous substances

Filling volume	0.2 ml tubes	0.5 ml tubes	1.5 ml tubes	2.0 ml tubes
10 % - 50 %	1,400 – 1,800	1,200 – 1,600	1,000 – 1,300	1,000 – 1,300
50 % - 75 %	1,200 – 1,500	1,100 – 1,300	1,000 – 1,200	900 – 1,200
75 % - 100 %	1,000 – 1,300	1,000 – 1,200	900 – 1,100	900 – 1,100

Recommended mixing frequencies for microplates

Recommended mixing frequencies [rpm] for microplates against filling volume [%] for aqueous substances

Filling volume	96 well (standard)	384 well (standard)	384 well (small volumes)	1536 well (standard)
10 %	1,800 – 2,200	2,200 – 2,600	2,800 – 3,000	2,800 – 3,000
25 %	1,600 – 2,000	2,000 – 2,400	2,400 – 3,000	2,600 – 3,000
50 %	1,400 – 1,800	1,800 – 2,200	2,200 – 2,600	2,400 – 2,600
75 %	1,200 – 1,600	1,600 – 2,000	2,000 – 2,400	2,200 – 2,600

BioShake series | High-speed mixer and thermal mixer for small and very small volumes in microplates and reaction tubes

The **BioShake series** allows for the first time high precise and efficient mixing in the microliter scale for a wide range of applications. Assays in microplates or reaction vessels can be realized fast and safe with using adjustable speed of 200 up to 3,000 rpm. The BioShake mixing-technology is obviously more robust, vibration free and needs less maintenance compared to classical mixers.

- Fast shaking and mixing up to 3,000 rpm
- For microplates, PCR plates, deep well plates, tubes and glass vials
- Sample preparation for Next Generation sequencing (e.g. bead-technology)
- Customized adapters on request
- Vortex and Short-mix function
- 3D-Shake-Control: rapid and gentle mixing in orbits for sensitive samples
- Anti-Spill-Technology: controlled planar mixing
- Anti-Vibration-Technology: outstanding smooth running conditions without vibration and noise
- Compact and lightweight aluminum design

BioShake XP (High-Speed Mixer)

BioShake iQ (High-Speed Thermal Mixer)

Programming the BioShake XP and BioShake iQ works via direct touch buttons. In addition two buttons for start and storage of time and mixing modes enable the instrument to run complex applications. This opens new points of view on the daily laboratory work and optimizes routine application enormously.

The short mix button allows short and fast mixing in between.

The two line LCD display guarantees simultaneous and safe reading of all programmed and measured parameters as time, mixing frequency and for BioShake iQ additional temperature.

The BioShake iQ is the high end thermal mixer of the BioShake series. In addition to the technical specifications of the model BioShake XP, the BioShake iQ comes with an very accurate heating technology. This allows highly reproducible results. The temperature range from RT to 99 °C is adjustable in 0.1 °C steps.

The temperature accuracy is ±0.1 °C, the temperature uniformity through all samples is better than ±1 °C.

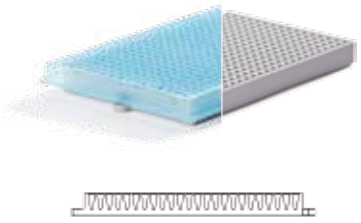
The BioShake series is characterized by minor space requirement.

The BioShake series comes with a variety of standardized and specific adapter plates. The adapters allow an optimal fit for standard tubes, lysis tubes, microplates, conical 15 and 50 ml tubes, glass vials and other sample vessels. An excellent temperature uniformity and homogeneity is guaranteed by using these adapters.

Customized adapters!
You need an adapter plate for specially shaped microplates, tubes or vials?
Please send us a sample and detailed information about manufacturer, description and article number.
You will receive your special formed adapter plate!

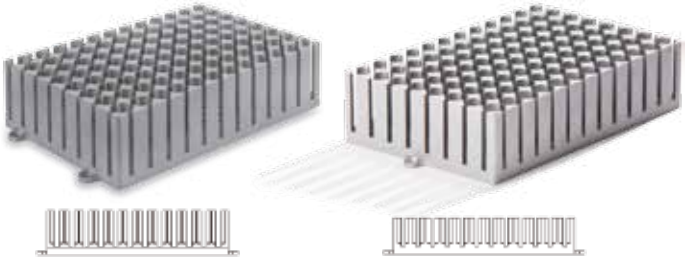
Adapters for microplates (MTP)

- Flat bottom, high base
- Flat bottom, high base
- 96 well round bottom, universal
- 96 well standard PCR plate



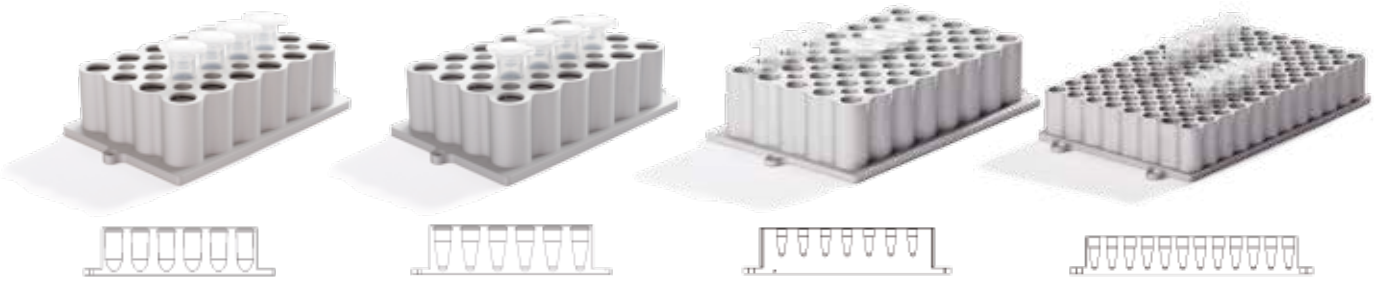
- 384 well standard PCR plate

Adapters for deep well plates



- 96 well, 1,000 µl (Eppendorf)
- 96 well, 500 µl (Eppendorf)

Adapters for tubes



- 24 × 2.0 ml and 15 × 0.5 ml
- 24 × 1.5 ml and 15 × 0.5 ml
- 40 × 0.5 ml and 28 × 0.2 ml
- 96 × 0.2 ml

- 35 × 2.0 ml and 24 × 0.5 ml
- 35 × 1.5 ml and 24 × 0.5 ml
- 35 × Lysis Tubes, 0.5 – 2.0 ml

Customized Adapters

- For individual reaction vessels

Adapters for glass vials

- 30 × 2.0 ml
- 20 × 4.0 ml
- 4 x 50 ml Falcon tubes
- 12 x 15 ml Falcon tubes

Technical data

	BioShake XP	BioShake iQ
Removable Adapter Plates		
Microplates	96-, 384- and 1536 well microplates, deep well plates and PCR plates	96-, 384- and 1536 well microplates, deep well plates and PCR plates
Tubes	0.2 up to 2.0 ml standard and lysis tubes (with skirt), 5 ml conical tubes	0.2 up to 2.0 ml standard and lysis tubes (with skirt), 5 ml conical tubes
Glass vials	2.0 and 4.0 ml glass vials	2.0 and 4.0 ml glass vials
Falcon tubes	15 ml and 50 ml Falcon	15 ml and 50 ml Falcon
Others	On request	On request
Tempering function		
Temperature regulation range	–	Ambient to 99 °C
Temperature setting	–	0,1 °C increments, adjustable from 0 °C to 99 °C
Temperature regulation accuracy	–	± 0.1 °C
Temperature uniformity	–	▪ ±0.5 °C up to 45 °C ▪ ±0.7 °C from 45°C to 75 °C ▪ ±1.0 °C from 75°C to 95 °C
Heat-up time	–	▪ Approx. 7 °C/min ▪ Approx. 10 min from ambient to 95 °C
Mixing function		
Microplates	200 up to 3,000 rpm	200 up to 3,000 rpm
Reaction tubes, glass vials	200 up to 1,800 rpm	200 up to 1,800 rpm
Falcon tubes	200 up to 1,000 rpm	200 up to 1,000 rpm
Mixing orbit	Constant 2 mm	Constant 2 mm
Speed setting resolution	50 rpm increments	50 rpm increments
Mixing regulation accuracy	± 25 rpm	± 25 rpm
Short-mix function	Yes	Yes
Timer function		
Timer setting	1 min to 99 h with automatic switch to stand-by	1 min to 99 h with automatic switch to stand-by
Timer setting resolution	1 minute steps	1 minute steps
Readabaility	Minutes, seconds	Minutes, seconds
Continous working	Yes	Yes
Audible alarm	Yes when program finished	Yes when program finished
Programming		
Programs stored	2	2
Definable buttons	P1, P2	P1, P2
Individual program capacity	3 steps	3 steps

	BioShake XP	BioShake iQ
Display		
Display	2-line LCD-Display	2-line LCD-Display
Set values and present values	Time and mixing frequency	Time, mixing frequency and temperature
Electrical parameters	XP	iQ
Controller	Micro controller	Micro controller
Power switch	Yes	Yes
Operating Voltages	24 V DC input,100 Watt	24 V DC input,100 Watt
Power Supply	External, 100 – 240 V AC (input), 50 – 60 Hz, 24 V DC (output)	External, 100 – 240 V AC (input), 50 – 60 Hz, 24 V DC (output)
Properties		
Housing material	Aluminum (anodized)	Aluminum (anodized)
Environment operating range	+5 °C to 45 °C (80 % max. relative humidity)	+5 °C to 45 °C (80 % max. relative humidity)
Dimensions (W × D × H)	142 × 170 × 80 mm	142 × 170 × 80 mm
Weight	2.7 kg	2.7 kg

Order information

Order No.	Description
848-1808-0505	**BioShake XP** (Europe power cable)
848-1808-0555	**BioShake XP** (USA power cable)
848-1808-0565	**BioShake XP** (Japan power cable)
848-1808-0506	**BioShake iQ** (Europe power cable)
848-1808-0556	**BioShake iQ** (USA power cable)
848-1808-0566	**BioShake iQ** (Japan power cable)

Accessories	
848-1808-1021	Adapter for microplates – flat bottom
848-1808-1022	Adapter for microplates – flat bottom, high base
848-1808-1031	Adapter for microplates – 96 well round bottom
848-1808-1041	Adapter for microplates – 96 well standard PCR plate
848-1808-1051	Adapter for microplates – 384 well standard PCR plate
848-1808-1061	Adapter – 24 × 2.0 ml tubes and 15 × 0.5 ml tubes
848-1808-1062	Adapter – 24 × 1.5 ml tubes and 15 × 0.5 ml tubes
848-1808-1063	Adapter – 40 × 0.5 ml tubes and 28 × 0.2 ml tubes
848-1808-1064	Adapter – 96 × 0.2 ml tubes
848-1808-1065	Adapter – 35 × 2.0 ml tubes and 24 × 0.5 ml tubes
848-1808-1066	Adapter – 35 × 1.5 ml tubes and 24 × 0.5 ml tubes
848-1808-1067	Adapter – 35 × lysis tubes 0,5 – 2.0 ml
848-1808-1071	Adapter – 30 × 2.0 ml glass vials (Ø = 12 mm)
848-1808-1072	Adapter – 20 × 4.0 ml glass vials (Ø = 15 mm)
848-1808-1093	Adapter for 4 x 50 ml Falcon tubes (also for straight frame) or 2 x 15 ml Falcon tubes
848-1808-1094	Adapter for 12 x 15 ml Falcon tubes (conical)
848-1808-1095	Adapter - 12 x 5 ml conical tubes
848-1808-1121	Adapter for deep well plates – 96 well, 1,000 µl (Eppendorf)
848-1808-1131	Adapter for deep well plates – 96 well, 500 µl (Eppendorf)
848-1808-1000	Customized adapters for specially shaped microplates, tubes or vials (on request)

Hybridization Ovens | Versatile instruments for all kind of common hybridization applications

Economical

The hybridization ovens OV 500, OV 1000, OV 2000 and OV 4000 utilize carousels for a variety of different bottle or tube sizes. The high capacity of the carousels allows incubation of several bottles or tubes in parallel. By adjusting the bottle positioning offset a continuous flow of buffer across the complete surface of the hybridization membranes is generated and the volume of hybridization solution can be decreased significantly.

Ease of handling

The large diameter of the bottle necks allows membranes to be easily inserted and removed. Bubble trapping or leaking using conventional hybridization bags is avoided. Nylon meshes allow each hybridization bottle to accommodate several membranes simultaneously or to incubate very large, overlapping membranes separated from each other. Therefore using the nylon meshes optimal utilization of the system is given and which helps to avoid unnecessary delays.

Safety

The interior of all models is made of easy to clean stainless steel. Moreover the ovens OV 1000, OV 2000 and OV 4000 additionally are equipped with a removable protective tray to allow easy cleanup of spilled liquids. The window on the door of the crosslinker in the hybridization oven OV 2000 blocks UV radiation to allow riskless viewing of processes.

- Broad portfolio of hybridization ovens
- Accurate temperature and rotation speed control
- Variable bottle sizes and offset bottle positioning
- Easy to clean interior made of stainless steel
- Two independent incubation chambers (OV 4000)

Crosslinker and oven

The model OV 2000 combines a hybridization oven and a UV crosslinker (254nm UV) in one unit. The oven and the crosslinker operate independently and provide the functionality for crosslinking of nucleic acids to membranes and subsequent hybridization. The crosslinker offers preset and manual controls for ultraviolet or time exposure.

Two ovens in one

The hybridization oven OV 4000 is designed with two separate incubation chambers that work as separate, independent units and can be used for a variety of applications. The two chambers allow simultaneously hybridization and blotting procedures requiring different sized bottles, motions or temperature settings. The upper chamber is equipped with a shaker tray that can be exchanged by an acrylic carousel or an orbital tray that are available as optional accessories. The hybridization oven OV 4000 therefore offers several motion functions like shaking, rolling, orbital rocking and rotating all in one unit. This unique workstation format lends itself to a wide variety of applications, for example:

- For high throughput purposes the upper incubation chamber can be equipped with an optionally available second sample carousel for the incubation of two different sets of hybridizations experiments at different temperatures.
- While using the lower chamber for hybridization experiments, the upper chamber can be used for temperature incubation of hybridization buffers.
- In situ hybridizations can be carried out in the lower chamber as gels are being destained in a tray on the shaking platform in the upper chamber. The OV 4000 accomplishes all these functions in a compact format and a small footprint.




Ovens	OV 500	OV 1000	OV 2000	OV 4000	
Order Number	849-30004-4 (115V)[1] 849-30004-2 (230V)[2] 849-30004-3 (230V)[3] 849-30004-5 (100V)[4]	849-30001-4 (115V)[1] 849-30001-2 (230V)[2] 849-30001-3 (230V)[3] 849-30001-5 (100V)[4]	849-30002-4 (115V)[1] 849-30002-2 (230V)[2] 849-30002-3 (230V)[3] 849-30002-5 (100V)[4]	849-30003-4 (115V)[1] 849-30003-2 (230V)[2] 849-30003-3 (230V)[3] 849-30003-5 (100V)[4]	
Number of Hybridisation chambers	1	1	1 plus crosslinker	2	
				Lower chamber	Upper chamber
Min. Temperature	10 °C above RT	10 °C above RT	10 °C above RT	10 °C above RT	10 °C above RT
Max. Temperature	80 °C	99.9 °C	99.9 °C	99.9 °C	80°C
Temperature Accuracy	± 0.5°C to 68°C	± 0.3°C to 68°C	± 0.3°C to 68°C	± 0.3°C to 68°C	± 0.3°C to 68°C
Temperature Uniformity	± 0.1°C to 68°C	± 0.1°C to 68°C	± 0.1°C to 68°C	± 0.1°C to 68°C	± 0.1°C to 68°C
Rotor Speed	12 rpm	10 - 15 rpm	10 - 15 rpm	10 - 18 rpm	12 - 20 rpm
Capacity					
Bottles (30 cm)	-	10	10	10	10
Bottles (15 cm)	4	20	20	20	20
50 ml tubes	8	-	-	-	-
15 ml tubes	8	-	-	-	-
Shaker tray	-	-	-	Yes, upper chamber	
Shaking speed	-	-	-	54-106 rpm	
Crosslinker	-	-	Yes 5 x 8W 254nm bulbs	-	
Footprint (W x D)	33 x 20 cm	40 cm x 38 cm	45 cm x 38 cm	45 cm x 38 cm	
Height / Weight	23 cm / 5.1 kg	45 cm / 19.5 kg	61 cm / 27.2 kg	72 cm / 34.0 kg	
Optional accessories					
	-	**Orbital tray**	**Orbital tray**	**Orbital tray**	
Rotation speed	-	30 rpm @ 2° angle	30 rpm @ 2° angle	30 rpm @ 2° angle	
Maxium load	-	1,36 kg	1,36 kg	1,36 kg	
	-	**Rocker tray**	**Rocker tray**	**Rocker tray**	
Shaking speed	-	7-14 rpm	7-14 rpm	7-14 rpm	
Shaking angle	-	12°	12°	12°	
	-	-	-	2nd Carousel	
	-	-	-	Reciprocating Shaker Tray	

Accessories

Order number	Product quantity
849-30080-0	Hybridization bottle large, 30 x 3.5 cm incl. cap, O-ring and PFTE seal
849-30081-0	Hybridization bottle medium, 15 x 3.5 cm incl. cap, O-ring and PFTE seal
849-30082-0	Hybridization bottle small, 10 x 3.5 cm incl. cap, O-ring and PFTE seal
849-30083-0	Bottle cap incl. O-ring and PFTE seal
849-30084-0	Nylon meshes 15 x 10 cm
849-30085-0	Nylon meshes 23 x 23 cm
849-30050-0	Rocker Tray (for OV 1000, OV 2000 and OV 4000)
849-30051-0	Orbital Tray (for OV 1000, OV 2000 and OV 4000)
849-30052-0	Reciprocating Shaker Tray (for OV 4000)
849-30057-0	Carousel, acrylic (for upper chamber OV 4000)

[1] US plug [2] UK plug [3] Euro and UK plug [4] US plug

UV Incubator | Incubation and UV sterilization in benchtop format

Reliability

The UV incubator UI 950 provides precise temperature control and uniformity for the incubation of biological assays, fungal, bacterial cultures, eggs and other samples up to 68°C. The instrument is equipped with a built-in overhead shortwave 254nm UV tube for sterilization of the incubation chamber between experiments. By utilizing the germicidal properties of UV light eliminating viable fungi, bacteria and yeast cross contamination between experiments is prevented.

- Minimal benchtop space
- Microprocessor controlled for high temperature uniformity
- Reliable sterilization by shortwave (254nm) UV light
- Shelves adjustable at three positions

Safety

For protection of the personnel the incubator door blocks UV light and will not allow UV radiation to pass through. The germicidal lamp will shut off if the door is opened. There is no risk of damage to unprotected eyes and skin by the powerful source of UV radiation. For safety the UV incubator UI 950 provides an automated process for the decontamination by high-intensive shortwave UV light. Furthermore the interior of the instrument is made of stainless steel and easy to clean by non-abrasive mild detergents.

Flexibility

The instrument is delivered with two shelves made of stainless steel that can be adjusted at three different positions. This flexibility can be used for simultaneously incubation of various samples of different heights.

Footprint

The small footprint of 44.5 x 37.5 x 45.7 cm (W x D x H) makes the UV incubator UI 950 fit into any laboratory and the ideal instrument for incubating low to medium sample numbers.

Technical data

Incubator	UI 950
Order number	849-30005-2, 230V, UK plug 849-30005-3, 230V, EU and UK plug 849-30005-4, 115V, US plug 849-30005-5, 100V, US plug
Controller	PI
Setpoint	Digital
Display	Digital LED
Temperature Range	Ambient +3 °C to 68 °C
Temperature Sensor	LM345 Integrated Temperature Sensor
Temperature Accuracy	+1°C
Temperature Uniformity	+0.5°C at 37°C
Interior volume	26.9 liters
Average Relative Humidity (Interior)	~ 80%
Interior	Stainless steel
Exterior	Aluminum powder coated
Door	Acrylic
Exterior W x H x D	44.5 x 43.2 x 35.6 cm
Interior W x H x D	35.6 x 27.2 x 27.7 cm
Dimensions shelves (W x D)	33.8 x 21.6 cm
Construction shelves	Formed stainless steel
Surface area shelves	729.35 cm^2
Heating Element	1,250 Watts 3,923.9628779 BTU/hr (115V, 10A) 4,265.1777 BTU/hr (230V, 10A)
Weight	21.3 kg
Max. Power Consumption	115V 60 Hz, 230V 60 Hz or 110V 50/60 Hz and 1150 W
Working conditions	5°C to 40°C, max. 2,000 m NN

Order information

Order Number	Optional Accessories
849-30200-0	Key, replacement
849-00015-0	Tube, 8-watt, 254nm shortwave germicidal
849-30201-0	Shelve, stainless steel ventilated
849-20602-0	Face Shield, UV blocking (UVC-803)
849-00011-0	UVX Radiometer
849-00012-0	UVX Sensor (UVX-25)

SpeedMill PLUS | Powerful and high efficient homogenizer

Homogenizer for various starting materials

The SpeedMill PLUS is a highly efficient homogenization system for various starting materials used for the subsequent isolation and purification of DNA, RNA or proteins.

The homogenization process is based on an innovative mechanical principle for which a patent has been filed. This new process allows users to operate the SpeedMill PLUS continuously if necessary. The high efficiency of energy input into the sample, based on a vertical movement, procures a homogeneous disruption of the sample without destroying the target molecules.

- Entire and reproducible homogenizing
- Efficient sample cooling during the whole preparation
- Flexible homogenizing system for various starting materials
- Broad portfolio of Lysis Tubes enables individual extensions of the homogenizing system
- Touch control panel and large display provide considerable operating convenience
- Pre-programed protocols or user-defined programing with freely selectable parameters
- Compact construction
- Can easily be operated continuously with
- No tools required to operate the instrumenty
- Homogenizing comparably low-noised

Efficient sample cooling: prior, during and after preparation

For the optimized sample holder, which is used inside the SpeedMill PLUS, different temperature ratings are freely selectable due to the storage down to –80 °C. According to this an efficient sample cooling during the whole homogenization process is warranted and the substantial sample warming that occurs with other homogenizers is prevented. The often problematic handling of liquid nitrogen or dry ice is thus a thing of the past. Additionally the considerably expense factor of this additives, which have to be loaded continuously, is not applicable. Besides the sample holder allows an easy transport of the sample tubes and a long term storage of starting or homogenized material at adequate temperatures.

Exchangeable sample adapters enable an easy sample handling

Guaranteed safety during homogenizing due to bayonet catch

A wide range of different kinds of Lysis Tubes with application specific beads for an effective homogenization

Modern preparation of samples: SpeedMill PLUS

The samples to be processed are rapidly and efficiently homogenized in Lysis Tubes that have been specially optimized for the system and, as such, contain different and/or application-specific beads. Using beads makes it possible to completely and reproducibly homogenize even the toughest starting materials, such as cartilage and chitin shells of insects or ticks within a very short time. 2.0 mL and 0.5 mL containers (Lysis Tubes) with different beads are available for sample preparation, allowing users to adapt sample processing to a diverse range of soft and hard starting materials. Operating processes, such as loading and removing of the sample tubes, are very simple and no tools are required. In addition user-defined protocols can be entered and saved as well as pre-installed programs are available. Homogenization parameters, like time and using cyclic routines are freely selectable.

innuSPEED Kits: optimized for DNA and RNA isolation including Lysis Tubes

Optimized extraction kits for the SpeedMill

The SpeedMill also accommodates kits for complete nucleic acid (DNA and RNA) isolation from various starting materials. All kits have been optimized for the SpeedMill for extremely fast and efficient nucleic acid isolation. The yields produced are impressively high and the quality of the isolated nucleic acids is outstanding. These kits contain special Lysis Tubes with application-specific beads as well as pre-made buffers.

They also contain all other components needed for isolating DNA or RNA from different starting materials. Optimized kits for sample processing with the SpeedMill results in extremely rapid and highly efficient nucleic acid isolation. Both the yield and quality of the nucleic acids are excellent. The standard isolation protocol requires only about 20 to 30 minutes.

Nucleic acid extraction principle

DNA isolation: Mechanical disruption of the starting material is followed by a proteolytic lysis step. The genomic DNA is adsorbed onto a Spin Filter, washed and then eluted. The yield and quality of the DNA are excellent.

RNA isolation: After the mechanical disruption and denaturation of the starting material, genomic DNA is removed by adsorbtion onto an initial Spin Filter. The RNA is then adsorped onto a second Spin Filter, followed by a wash step and finally by elution of the RNA.

Various sample holders for several fields of applications

Technical data

System parameters	
Homogenization time	30 sec to 4 min (depending on the starting material)
DNA/RNA purification time	20 – 30 min for standard protocols (complete nucleic acid purification)
Device handling	Stand-alone device, simple starting and handling of device by using modern touch sensors
Acceleration time	No acceleration
Deceleration time	No deceleration
Application parameters	
Homogenization routines	User-defined programming with user-defined parameters, as well as pre-programmed protocols
Sample handling	Simple sample tube loading and removal
Sample capacity	Up to 20 samples simultaneously
Sample cooling	Passive cooled sample holder; storage at temperatures down to –80 °C
Programming parameters	
Homogenization time range	1 sec to 4:59 min
Steps of adjusting time	1 sec
Pre-programmed protocols	Yes
User-defined protocols	Yes
Storable protocols	20
Number of cycles	1 – 99
Protocol steps	1 – 6
Accessories	
Lysis Tubes	Broad ranged portfolio of chooseable Lysis Tubes with various volumina and beads
Complete purification	innuSPEED Kits containing Lysis Tubes for standardized starting materials enable effective extraction of nucleic acids without previous homogenizing optimization
Other technical data	
Dimensions (W × H × D)	154 × 275 × 257 mm
Weight	12 kg
Power Supply	AC 220 V, 50 Hz/110 V, 60 Hz
Power consumption	150 W (max)
Warranty	2 years

Order information

Order No.	Description
845-00007-2	**SpeedMill PLUS** 220 V stand-alone instrument system, including Sample Holder P12 (passive cooling function, 12 positions, aluminium, black)
845-00008-2	**SpeedMill PLUS** 110 V stand-alone instrument system, including Sample Holder P12 (passive cooling function, 12 positions, aluminium, black)
845-60051-0	**Sample Holder P12**  Sample Holder in aluminium design (black) for up to 12 sample, passive cooling function and storage down to -80 °C
845-60053-0	**Sample Holder P20**  Sample Holder in aluminium design (black) for up to 20 sample, passive cooling function and storage down to -80 °C
845-60053-0	**Tube Fixation**  Lock to fix Lysis Tubes, optimized for usage of innuSPEED Lysis Tube Q (mandrel)

Order information on page 89 - 97 (innuSPEED Kits)
and page 98 - 102 (innuSPEED Lysis Tubes)

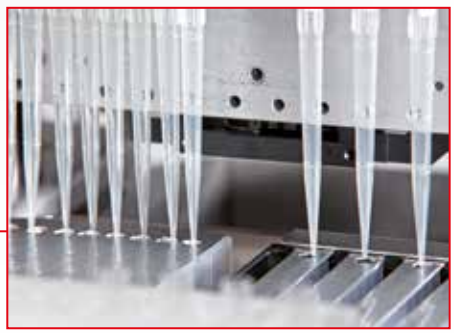
InnuPure® C16 | Magnetic particle based extraction system

Exceptionally fast walk-away principle

The InnuPure® C16 is a flexible and efficient extraction system for fully automated isolation and purification of nucleic acids. The system, which was developed and manufactured in Germany, is designed for small and medium sample throughput and can process a wide range of starting materials. The system combines a unique liquid handling method with an extremely fast walk-away principle.

Labor-intensive sample lysis steps are no longer necessary, as they are now incorporated into the automated extraction process in keeping with the starting material. The nucleic acids to be isolated are then adsorbed onto magnetic or paramagnetic particles whose surfaces have been specially adapted for this purpose. The required extraction chemistry has been optimized for the application at hand, allowing users to isolate high yields of very pure nucleic acids.

- Flexible and efficient extraction system
- Completely automated and compact
- Up to sixteen samples in parallel
- Isolation of very pure nucleic acids
- Suitable for a wide variety of starting materials, including forensic samples
- Pre-programed protocols
- Adsorption of the isolated material onto magnetic or paramagnetic particles
- Adjustable elution volumes
- Automatic transfer of eluates into Elution Tubes with caps
- Easy and convenient to use thanks to the portable HID-Pro 320 user interface
- No cross-contamination
- Highly reproducible
- Fast, reliable and efficient
- Optional available: UV lamp for easy decontamination of sample room



The fully automatic magnetic particle separation process is carried out in the wells of the plastic extraction vessels. After the starting material has been introduced into the isolation process, the necessary reagents are pipetted to the sample and then automatically removed by pipette tip.

Once the nucleic acids have been bound to magnetic particles, they collect at the bottom of the wells and, depending on the routine in use, are resolubilized by pipetting them in and out in an optimized process. Finally, the DNA is eluted into separate, capped Elution Tubes for direct storage or other applications. The extraction principle also efficiently prevents the cross contamination that often occurs in vacuum-based purification methods. In addition, the InnuPure® C16 is equipped with pre-installed application protocols in order to avoid time-consuming programming. The high flexibility of the system allows users to isolate DNA from up to 16 samples in parallel.

The smart Sample Tray and a wide selection of pre-filled reagent plastics allow a single and a multiple sample preparation.

HID-Pro 320 for fast and easy operation

Users operate the InnuPure® C16 from a flexible, portable HID-Pro 320 unit with the large 5.7" touchscreen. Because this PC-based system operates in a Windows CE environment, users have typical Windows functions and a clearly structured menu on the interface, making the entire system a stand-alone device.
The real-time display allows scientists to check the status of the current extraction and follow each routine clearly and continuously. In addition, the USB interface makes it easy to update software and upload new isolation protocols.

Highest user confidence due to the HID-Pro 320 and it's 5.7" colored touchscreen

Extremely easy handling thanks to optimized extraction kits

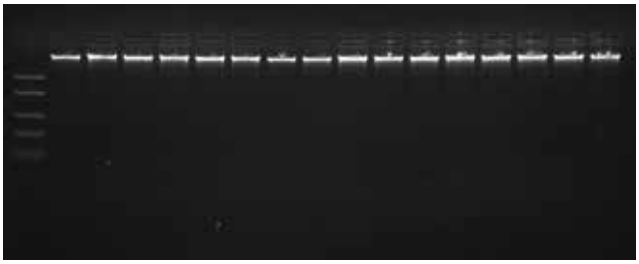
Extraction kits adapted to the InnuPure® C16 allow users to process forensic samples and isolate genomic DNA, and viral or bacterial nucleic acids. These kits are ideal automation tools for efficiently isolating high-quality nucleic acids with no contamination.
All purification kits are ready for use and have been optimized for different starting materials and quantities.

Fully pre-filled Reagent Strips and Plates minimize manual steps and save an impressive amount of time. In addition, the intelligent sample tray allows users to process individual samples. Therefore the positions of the deep-well Reagent Plates can be assembled with an additional adapter: a process that can be performed in just one easy step. This makes it possible to adapt up to 4 pre-filled Reagent Strips for individual sample handling and, as such, the InnuPure® C16 can be easily adapted to handle a quantity from 1 to 16 samples.

Easiest preparation of the Sample Tray with help of the Priming Station

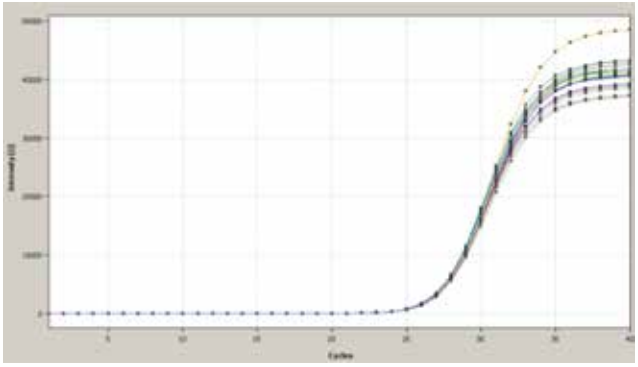
Sample application

Isolation of genomic DNA from 200 µL aliquots of whole blood (fresh, EDTA). The process encompasses full isolation (including automated lysis of the whole blood samples) with no need for manual intervention.

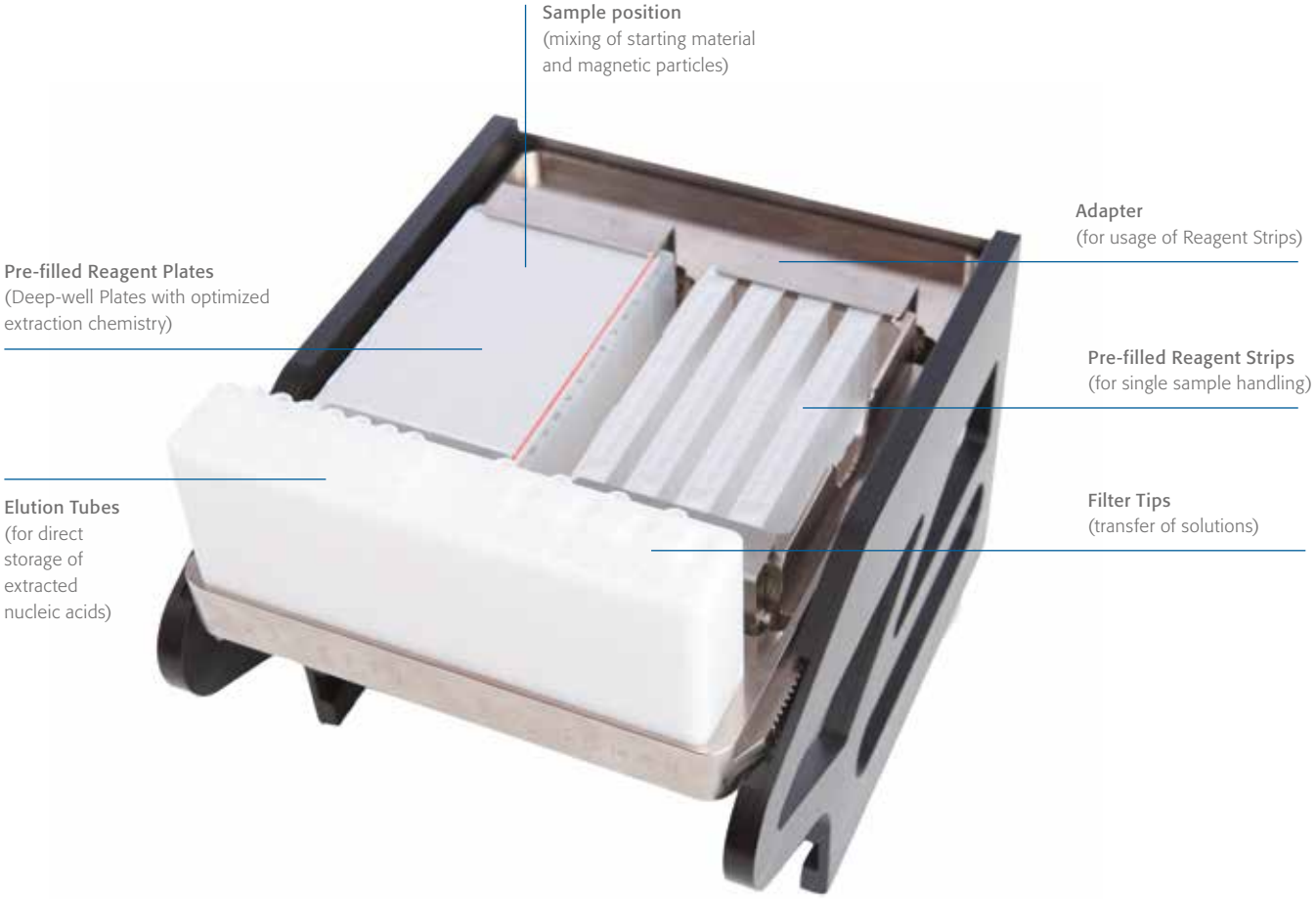


Lane 1: DNA ladder, **Lane 2 – 17:** gDNA from whole blood sample on a 1.5 % agarose gel

Use of genomic DNA (1 µl each) isolated from 200 µL whole blood samples for amplifying a human-specific target sequence in real-time. Amplification was performed in a qTOWER.



Amplification plots of GAPDH specific target sequence, after isolation of human gDNA from 16x 200 µl of whole blood



The system (including Sample Tray and extraction kits) is extremely fast and easy to use, allowing users to fully prep samples for nucleic acid isolation in just three steps.

Step 1: First, load the Sample Tray as shown with the appropriate accessories (You may wish to consult the kit user manual for details on how to position the Reagent Strips/Plates, elution vessels and Filter Tips.) The correct order for the prefilled, plastic reaction containers depends on the application. The number of elution vessels and Filter Tips depends on the number of samples to be processed.

Step 2: After loading the Sample Tray, position it in the InnuPure® C16 with the elution vessels in front. The Sample Tray will be drawn into the device automatically upon activation of the integrated soft-touch function.

Step 3: Finally, open the list with the pre-installed isolation protocols and the InnuPure® C16 will automatically run the extraction.

After the routine is finished, the Sample Tray containing the purified samples will automatically move out of the InnuPure® C16. The extraction process will take about 40–75 minutes depending on the application.

Please order the optimized extraction kits separately. For further information please have a look into the chapter »Reagents« on page 105 – 116

Technical data

System parameters	
Drive	5 quiet long-life servomotors
Operation	Stand-alone (HID-Pro 320 with 5.7" color touchscreen)
Maintenance	Maintenance-free due to the use of non-wearing stainless steel pistons
Cleaning	Easy access to the system components through the front door
Extraction time	Minimum 40 minutes (depending on starting material)
Number of samples	1 to 16
Tempering	Heated position up to 50 °C inside the sample

Application parameters	
Consumables	▪ Kit contains all consumables. ▪ Sealed, pre-filled Reagent Strips or Plates
Extraction routines	Pre-programed protocols (optimized for different starting materials)
Piercing function	Yes. No need to remove sealing foils from the Reagent Strips or Plates
Filter tip volume	Maximum 1000 µl

Other technical data	
Accessories	Sample Tray and Priming Station for up to 16 samples
Weight	Approx. 28 kg
Dimensions (W × H × D)	380 mm × 435 mm × 530 mm
Power supply	Internal power supply 110 – 230 V/50 – 60 Hz
Warranty	2 years

Order information

Order No.	Description
845-00002-2	**InnuPure® C16** Instrument system, incl. user interface HID-Pro 320, Priming Station and Sample Tray for up to 2 Reagent Plates
845-60004-0	Priming Station for InnuPure® C16
845-60005-0	Sample Tray for InnuPure® C16
845-60006-0	Adapter for 4 Reagent Strips
845-60007-0	Piercing Tool for InnuPure® C16 (for perforation of sealed consumables)
845-60008-0	UV lamp for InnuPure® C16

InnuPure® C96 | Fast and efficient high-throughput nucleic acid extraction

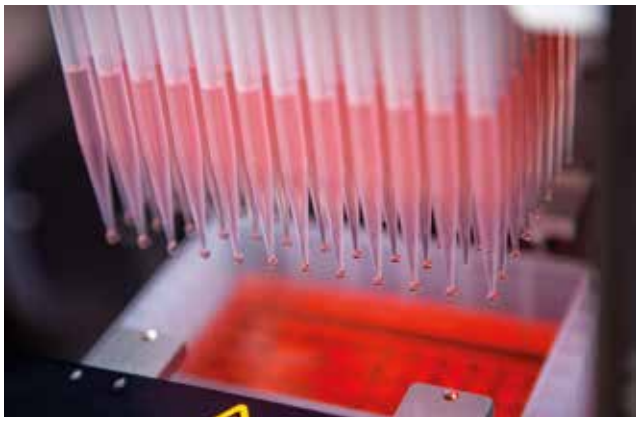
The InnuPure® C96 allows a fast and fully automated nucleic acid extraction from complex starting materials in 96 well standard format. The InnuPure® C96 extraction system is founded on the proven principles of liquid handling and purification based on magnetic particle separation. Therefore high yields and excellent purities are achieved. The purification of DNA and/or RNA is one of the most common methods for sample preparation and thus constitutes a standard in molecular biology and medical diagnostics. The built-in 96 well precision pipetting head with 96 simultaneously operating channels and an established tip sealing principle is well suited for complex purification processes with high sample throughput. It also ensures excellent and reproducible results.
The automated extraction process also allows a flexible time management which enables to plan and prepare subsequent experiments comprehensively.

- Fully automated nucleic acid extraction based on proven magnetic particle separation
- Preparation of up to 96 samples in parallel
- Preprogrammed extraction protocols for optimal reproducibility
- Adjustable elution volumes
- Ready-to-use purification kits for easy handling and for the extraction of high quality nucleic acids
- Minimum number of manual steps
- Tight desktop device for any lab bench
- Optimized lysis by using a heated position
- Minimized contamination and easy decontamination due to an optional UV lamp and HEPA filter
- Highly flexible system for a wide variety of starting materials and volumes

Fast preparation with minimal effort

Pre-filled and sealed Reagent Plates facilitate the preparation of the isolation routine enormously. Just the starting material has to be provided in 96 well format. The reagent plastics are opened manually by using an optimized piercing tool. Thus a peeling of the foil can be avoided easily. The subsequent purification process and the supply or discharge of the necessary reagents take place along a linear distance with 4 function positions. The plate transport system consisting of a two position wagon guarantees a high level of flexibility and speed.

The nucleic acids, bound to magnetic particles, are collected at the bottom of the wells and, depending on the protocol, resolubilized by up and down pipetting in an optimized process. Using an automated, tempered position necessary heating steps can be performed without any manual intervention. Therefore the lysis efficiency can be set optimally while reducing the lysis duration at the same time.



Integrated high precision pipetting head with 96 pistons working in parallel for filter tips up to 1000 µL

- Integrated lysis step (depending on the starting material)
- Isolation of high quality nucleic acids by binding them to magnetic or paramagnetic particles
- Variable elution into separate tubes for direct storage

In addition, the InnuPure® C96 provides maximum protection against possible contamination, which can be successfully prevented with the help of the innovative extraction principle. An optionally, retrofittable UV lamp and HEPA filter in combination with the closed working area make the contamination protection of the extraction system, the individual samples and the isolated nucleic acids complete.

High operating comfort for every routine application

High quality robot technology with a very user-friendly software make the InnuPure® C96 to an attractive extraction system, both in research institutions and for its use in routine applications. The effective and flexible software allows preprogrammed standard methods to be loaded, protocols to be configured easily and to be adjusted to customer-specific applications. The clear user interface ensures current experiments to be easily understood by providing schematic and graphical representations, detailed user instructions and displaying the active extraction step in real-time.

Automatic moevment of all plates due to the 3 position wagon and the stacker

Flexible, optimized kits for efficient nucleic acid purification

For the InnuPure® C96 a variety of different DNA extraction kits is available. Based on the proven separation of nucleic acids bound to magnetic particles, excellent results with high purity and yield are guaranteed. This ensures the final product to be free of proteins, nucleases and other contaminants and to be used immediately for subsequent applications. The whole system makes sure that time is saved significantly and manual interventions are reduced to an absolute minimum. Pipetting, mixing and heating steps including in the routine are all operated by the extraction automat.

Technical data

System parameters	
Device operation	PC control software
Decontamination	▪ Optional: UV lamp ▪ Optional: HEPA filter
Number of samples	Up to 96
Tips	96 each with 1000 µl
Liquid handling principle	96 channel precision pipetting head with proven tip sealing principle
Temperature control	Automated heating position
Plate transfer	▪ 4 function positions in the device ▪ Linear, movable 2 position wagon

Application parameters	
Extraction principle	Based on surface-functionalized magnetic or paramagnetic particles
Lysis step	Automated in the device (depending on the starting material)
Consumables	Fully included in the required kit
Extraction routines	Preinstalled protocols (optimized for a variety of starting materials)
Elution	▪ Adjustable volume (50 - 500 µl) ▪ Transfer of the nucleic acid into a separate plastic for direct storage or for further applications

Other technical data	
Dimensions (W x H x D)	690 mm x 810 mm x 400 mm
Power supply	Internal power supply 100 – 240 V/50 – 60 Hz
Warranty	2 years

Order information

Order number	Description
845-00003-2	**InnuPure® C96** Instrument system without PC, including PC operating software

ScanDrop® | Nano-volume spectrophotometer

New generation of spectrophotometer

The ScanDrop® combines easy measurement of microliter volumes down to 0.3 µl with a standard measuring position for 10 mm cuvettes. This feature results in an exceptionally versatile instrument for routine work. The modular system is available as a single instrument for small sample volumes, as a standard 10 mm position instrument or as a combination of both. Unlike other systems, no warm up time is necessary. The instrument is ready to use almost as soon as it is switched on thanks to a long-life xenon flash lamp. The lifetime of the lamp with 10^9 flashes (approx. 100,000 h) outperforms conventional ligth sources easily. Furthermore the Split-Beam-Technology provides high stable and reproducible measurement results. One additional highlight is the new portable HID-Pro 320 user interface with a 5.7" color touchscreen, which turns the ScanDrop® into a fully functional and space-saving stand-alone system.

- Combination of two generations of spectrophotometer
- Measurement of microliter volumes down to 0.3 µl
- 16 channels per CHIPCUVETTE® with fully automated measuring of up to 32 positions at path lengths of 0.1 or 1.0 mm
- Automated sample positioning (CHIPCUVETTE®)
- Measuring position for 10 mm standard cuvettes
- Usage of TrayCell®: single measurements of small samples at path length of 0.2 mm or 1.0 mm
- Maintains best user and sample protection
- No evaporation
- No cross-contamination
- No carryover effects
- Easiest sample recovery
- Sample storable in the CHIPCUVETTE®
- Suitable for multi-channel pipettes
- Powered by SPECORD® technology
- High-precision optics with aberration-corrected grating

Reliable, versatile and robust

The ScanDrop® uses next to cuvettes in 10 mm standard format a unique patented CHIPCUVETTE®, which allows the user to easily measure sample volumes even as small as an impressive 0.3 µl. The CHIPCUVETTE® provides consistent measuring conditions, such as path lengths, which leads to enhanced reproducibility compared to other available "open drop" or "microliter" systems. It also provides optimum user and sample protection, utterly eliminating sample evaporation and the risk of cross-contamination or carryover effects. This new chip technology makes it easy to recover or simply store the sample after measurement.

The CHIPCUVETTE® provides 16 separate micro channels and is suitable for multichannel pipettes. Its technology ensures precise UV VIS absorption measurements between 190 nm and 720 nm.

Fully automated measurement

The CHIPCUVETTE® is convenient and easy to use thanks to fully automatic movement and measurement of predefined measuring positions. Up to 32 measurements can be performed during one run at which a double determination of one sample at two different pathlenght can be performed. This feature offers a matchless advantage especially if sample concentrations are unknown, because any dilution becomes unecessary.

High-precision optics – powered by SPECORD® technology

The polychromator system, designed to work without any movable components, is the heart of ScanDrop®. Its high-precision optics consist of an aberration-corrected grating, a mechanical slit and a diode array detector. Encased in a rugged titan-based spectrometer body, it is permanently adjusted, fixed and insensitive to external influences.

Measurement position for CHIPCUVETTE®

Measurement position for 10 mm standard cuvettes

The formula module

Mathematical functions such as:

- Addition
- Subtraction
- Multiplication
- Division
- Factor
- Square
- Square root
- Sine
- Cosine
- Logarithm ln
- Binomial theorems

Bio method module – wide selection

The following preprogrammed methods are available:

- Absorbance 260
- DNA purity (A_{260}/A_{280})
- ssDNA concentration (A_{260} × factor 33)
- RNA concentration (A_{260} × factor 40)
- DNA concentration (A_{260} × factor 50)
- Absorbance 280
- Absorbance 280, factor 1.38
- Kalb and Bernlohr
- Warburg-Christian formula for DNA
- Warburg-Christian formula for proteins
- Whitaker and Granum
- Kalckar and Shaffran
- and more...

PC controlled or stand alone

The ScanDrop® is controlled either by PC or by a new portable user interface with a touchscreen, and includes the corresponding measurement and analysis software. This software provides several modules meeting the needs of every user. The method module allows users to select any preprogrammed nucleic acid and protein analysis method.

The formula module allows users to compile, store and reuse customized computation formulas; the quantification module automatically calculates unknown concentrations by creating a calibration curve containing standard samples. A number of typical methods are preprogrammed. The formula module mathematically combines up to six fixed wavelengths and the quantification module chooses between different calibration curves.

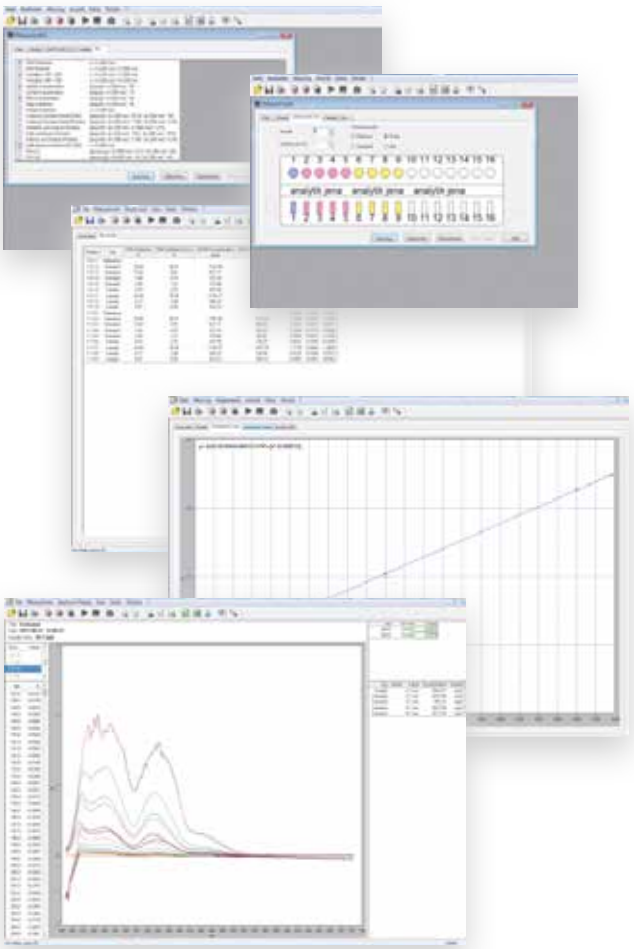
External user-interface HID-Pro 320

The new portable HID-Pro 320 user interface eliminates the need for a PC and makes the system exceptionally easy to operate. Its extra large 5.7" color touchscreen eliminates the need for a keyboard or mouse. The software, which is based on Windows CE, offers typical Windows functions and operating environment, as well as an intuitive menu bar.
The HID-Pro 320 consists of a LAN and USB port for optimum connectivity and is also compatible with other instruments from Analytik Jena | Life Science, such as the SpeedCycler² thermal cycler or InnuPure® C16 extraction automate.

Portable and versatile user-interface HID-Pro 320 with a 5.7" touchscreen, USB and LAN port

ScanDrop software

Methods can be stored individually and organized in user-defined directories. Users may also select a quick-start menu for frequently used methods. An USB and LAN port allows users to exchange methods to other systems and export analysis data. The operating language can be easily changed at the touch of a button.
If there is PC already available in the laboraty, ScanDrop® can be used as well by novel software FlashSoft Pro. FlashSoft Pro convinces by a comparable flexibility of the functional range and allows an intuitive handling as well as the automized analysis of the measuring results.



FlashSoftPro

Validation CHIPCUVETTE®

The Validation CHIPCUVETTE® is used for revising the following device parameters, particularly those affecting to the CHIPCUVETTE® measuring position:

- Zero transmission
- Baseline variation
- Baseline noise (RMS)
- Long-term stability
- VIS photometry
- Baseline accuracy

WG280 NG1 NG4 NG3 NG9 Holmium-oxide glass

The validation of VIS photometry is done with the aid of the neutral glass filters NG1, NG4, NG3 and NG9. A holmium oxide glass filter is also used for checking wavelength accuracy. WG_{280} glass is necessary as reference filter.

Validation CHIPCUVETTE® external certified by Hellma®

Technical data

System parameters	
Optical principle	Powerful diode array spectrophotometer for the UV VIS range
Optical system	Polychromator system
Light source	Xenon flash lamp
Wavelength range	190 – 720 nm (in steps of 0.5 nm)
Measuring time	Minimal 1 sec
Longterm stability	0,003 A/h
Sample temperature control	Approximately 4 – 90 °C optional
Control	HID-Pro 320 or PC
Software	ASpect Nano or FlashSoft Pro

Application parameters	
Scan application	Simultaneous, Split-Beam-Technology
Mode	Energy, absorbance, transmittance

Cuvettes	Standard cuvette	CHIPCUVETTE®			TrayCell®	
Pathlength	Up to 10 mm	0.1 mm	1.0 mm	Both	0.2 mm	1.0 mm
Sample volume	2 ml (min. 1.7 ml)	Min. 0.3 µl	Min. 2.0 µl	Min. 4.0 µl	0.7 - 4.0 µl	3.0 - 5.0 µl

Other technical data	
Instrument dimensions (W × H × D)	240 × 170 × 200 mm
Instrument weight	Approx. 5 kg
Electrical requirements	110 – 220 V ± 10 %, 50 – 60 Hz
Instrument operation	+ 15 °C to 35 °C, rel. humidity max. 90 % at 30 °C
PC interface	USB
Warranty	2 years

Order information

Order No.	Description
844-00200-2	**ScanDrop® 100** Instrument system BU, for 10 mm cuvettes, no PC, incl. FlashSoft Pro and two 10 mm cuvettes (glass and quartz)
844-00201-2	**ScanDrop® 200** Instrument system BU, for CHIPCUVETTE®, no PC, incl. FlashSoft Pro and 2 pieces of CHIPCUVETTE®
844-00202-2	**ScanDrop® 250** Instrument system BU, combination instrument for CHIPCUVETTE ® and 10 mm cuvettes, no PC, incl. FlashSoft Pro and two 10mm cuvettes (glass and quartz) as well as 2 pieces of CHIPCUVETTE®
844-00050-2	**HID-Pro 320** Portable and versatile user interface with 5.7" color touchscreen, LAN, USB, incl. ASpect Nano

Accessories/optional features

Order No.	Description
844-00210-0	**Cell holder, temperature-controlled, without stirrer** ▪ For cells with path lengths of up to 10 mm; external fluid thermostat for temperatures ranging from –10 °C up to 95 °C; ▪ 4 m tubing, tubing connector **Note:** ▪ Cells and thermostat have to be ordered separately! ▪ Only available for ScanDrop® 100 or 250
844-00211-0	**Cell holder, temperature-controlled, with stirrer (230 V)** ▪ For cells with path lengths of up to 10 mm; external fluid thermostat for temperatures ranging from – 10 °C up to 95 °C; ▪ Integrated magnetic stirrer ▪ 4 m tubing, tubing connector, 10 stirring magnets **Note:** ▪ Cells and thermostat have to be ordered separately! ▪ Only available for ScanDrop® 100 or 250
844-00212-0	**Peltier temperature-controlled cell holder** ▪ Temperature range 0 °C up to 95 °C (at room temperature 25 °C) ▪ For cells with path lengths of up to 10 mm ▪ Peltier temperature-controlled single cell holder, integrated magnetic stirrer ▪ Temperature accuracy ± 0.1 °C ▪ Including controller PTC 100 **Note:** ▪ Only for ScanDrop® 100 or 250 available
820-60145-0	**Bath thermostat A 106 T** ▪ Temperature range up to 100 °C ▪ Temperature stability ±0.05 °C ▪ Heating power 1.5 kW ▪ Bath volume 5 – 7 L ▪ Analog temperature display
820-60147-0	**Compact cooling thermostat 230 V** ▪ Temperature range – 10 °C up to 120 °C ▪ Temperature stability ±0.05 °C ▪ Heating power 1.5 kW ▪ Bath volume 3 – 4.5 L ▪ Digital temperature display

Order No.	Description
844-70200-0	**CHIPCUVETTE®** – 5 pieces
844-70201-0	**CHIPCUVETTE®** – 25 pieces

The CHIPCUVETTE® is an automized UV VIS multi-channel measuring cell for smallest volumes, which can be used in ScanDrop® 200, as well as in ScanDrop® 250.

- Double determination of one sample at pathlenght of 0.1 mm and 1.0 mm
- Up to 32 measurements per run with fully automized sample positioning
- Sample volumes from 0,3 till 4,0 µl
- Independent of centre height
- Recovery of sample is possible
- Easy application

Due to the integrated measurement channels, the CHIPCUVETTE® can be loaded easy and fast by using commercial available pipettes. The 0.1 mm and 1.0 mm measuring spots offer defined pathlength in each measuring channel. In comparison to standard cuvettes with 10 mm pathlength a virtual dilution of 1:100 or 1:10 is achieved respectively. Because of fully automized positioning of CHIPCUVETTE® reproducible results are guaranteed without manual influence and effort.

844-70210-0	**Validation CHIPCUVETTE®**

844-70211-0	**Pipetting aid** for up to 4 CHIPCUVETTE®s

Order No.	Description
820-60242-0	**TrayCell®** The TrayCell® is a fibre-optic ultra-micro cell designed for UV VIS based micro volume analysis . The dimensions of the TrayCell® are equivalent to 10 mm standard cuvettes in order to work in ScanDrop® 100, as well as in ScanDrop® 250. ▪ Inclusive lids for pathlenght of 0.2 mm and 1.0 mm ▪ For uncomplicated single sample measurements ▪ Sample volumes from 0.7 till 4.0 µl and 3.0 till 5.0 µl ▪ Suitable for centre heigth of 8.5 mm, 15 mm and 20 mm ▪ Recovery of samples is possible ▪ Easy application and cleaning  Due to the integrated beam deflection and the use of fibre-optic cables it is possible to measure the sample directly on the surface of the optical window. The 0.2 mm or 1.0 mm lid create a measuring chamber with a defined optical light path. In comparison to standard cuvettes with 10 mm pathlength a virtual dilution of 1:50 or 1:10 is achieved respectively. During filling and cleaning stages, the cell remains inside the photometer. This guarantees a continuously identical position of the aperture in the light beam and no variation in comparison to the reference measurement.

Application list | Summary application reports ScanDrop®

Reference No.	Application
BS_SD_01_10_e	Determination of different lambda DNA Concentrations using ScanDrop® with CHIPCUVETTE®
BS_SD_01_11_e	Application of TrayCell® using ScanDrop® 100

GeneTheatre | Highly flexible liquid handling

Automated pipetting routines: simple and fast

The use of the GeneTheatre greatly simplifies all pending pipetting and dispensing tasks in a laboratory and allows for full automation. In addition to microplate handling, this highly flexible workstation also accommodates the use of strips, single vessels and glass slides. Users may choose from any of 12 desk positions in the standard-format 96 well SBS, making it easy to adjust the system to any conceivable application. The GeneTheatre is also perfectly suited for the use of thermal mixers, heating or cooling plates, and vacuum stations. In addition, the GeneTheatre can also be adapted to specific applications. Single and multiple channel pipettes with 8 channels are available. A simple mechanism allows users to change pipettes without tools – an effortless process requiring no technical expertise.

- Automated, highly fexible liquid handling desktop system
- Highly reproducible, precise pipetting and dispensing results
- Modern servomotors provide fast, quiet operation
- Capacity ranges from 0.5 µl to 1000 µl
- Interchangeable pipettes with 1 or 8 channels
- Free definable sample configuration within the 9 mm, 4.5 mm or 2.25 mm grid
- 12 freely selectable positions in 96 well SBS standard-format
- Users may select from different waste box systems for used tips
- Accommodates active and passive cooling
- Optional available UV lamp

Highly precise, fully variable workstation

Thanks to its various pipettes and tips, the volume capacity of the GeneTheatre ranges from 0.5 to 1000 µl. Pipetting results – even for complex liquid handling tasks – are highly consistent and precise. Users may also integrate new plastic products into the software in only a few steps, with the calibration wizard and modern servomotors simplifying the learning process of the robot and omitting the time-consuming process of entering coordinates.

A large range of different adapters and passive cooling blocks makes it possible to position the necessary consumables directly on the working desk of the device. The closed housing and two-piece, front sliding door all but eliminates potential contamination. In the event that contamination does arise, however, the optional available UV lamp allows users to decontaminate the unit quickly and easily.

- High precise pipetting, dispensing and mixing
- Closed, robust plexiglass housing with a front sliding door
- Accommodates use of external equipment, such as mixers, thermal mixers or vacuum chambers
- Piercing function
- Optional available UV lamp

The simple exchange of pipetting heads allows an easy adaption of the GeneTheatre to different liquid handling requirements.

Use in a great variety of application areas

Thanks to its many versatile features, the GeneTheatre can be used in virtually any application, such as:

- Preparing whole PCR and real-time PCR batches
- Reformatting microplates in the 96, 384 and 1536 format
- Dispensing or distributing reagents
- Running automated dilution series
- Hit-picking and sample pooling
- Running microarray applications with freely selectable spot layouts and dots (starting at 0.5 µl)
- Performing mother-daughter plate transfers and single-tube transfers (0.2 – 2.0 ml)

Different applications require different numbers of tips, which is why the GeneTheatre has an intelligent waste box system that allows the user to choose whether used tips are discarded into a box on the work desk or into a box outside the housing. This gives users the option of using up to minimum 600 tips (1000 µl) in a run with no difficulty.

Intuitive and clear software concept

The GeneTheatre operating system uses a clearly structured, easy-to-learn user interface. Predefined pipetting and dispensing parameters allow users to set up different liquid handling routines quickly. For more complicated runs, users may also adjust a number of different influencing factors such as velocity, correction capacity, and approach height. Saved procedures can always be used again and be adjusted to different sample throughput rates.

Technical data

Number of positions	12 in MTP – standard format (SBS), freely selectable

Tips	Size (µl)	Sterile/ not sterile	ART- filter (sterile)
	50	×	×
	250	×	×
	1000	×	×
Working capacity	0.5 - 25 µl, as well as 5 -250 µl and 100 -1000 µl		
Pipettes	1- channel pipette and 8- channel pipette		

Other technical data	
Interfaces	USB
Voltage	110 – 230 V
Power consumption	160 VA
Frequency	50/60 Hz
Operating system	At least windows XP
Processor	Pentium II
RAM	1 GB
Hard drive	20 MB
Dimension (W × D × H)	642 mm x 607 mm x 495 mm
Weight	Approx. 40 kg

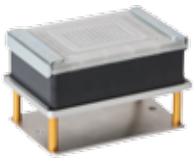
Warranty	
Basic unit	2 years
Pipette	2 years

Order information

Order No.	Description
844-00401-2	**GeneTheatre** Liquid Handling robot without pipette and without PC, incl. Software, Height Adapter and Waste Box I
	A number of different pipettes are available for GeneTheatre and these can be interchanged easily without any tools. The customer may choose between 1 and 8 channel pipettes for pipetting volumes of 0.5 – 25 µl, 5 – 250 µl and 100-1000 µl.
844-00410-0	1-channel pipette (0.5 - 25 µl)
844-00411-0	1-channel pipette (5 - 250 µl)
844-00412-0	1-channel pipette (100 - 1000 µl)
844-00413-0	8-channel pipette (0.5 - 25 µl)
844-00414-0	8-channel pipette (5 - 250 µl)
844-00415-0	8-channel pipette (100 - 1000 µl)

	GeneTheatre accessories include different kinds of adapters for tips and MTPs as well as passive cooling blocks for 0.2 – 2.0 ml tubes, strips or microplates. This makes the GeneTheatre suitable for a wide range of plastics, and even allows it to handle 384 well microplates.
844-00430-0	**Waste Box I (small)** Waste Box for GeneTheatre to be positioned on the work desk inside the device, autoclavable
844-00431-0	**Waste Box II (large)** Waste Box for GeneTheatre to be positioned outside the device, capacity to waste 600 x 1 ml tips.
844-00432-0	**UV lamp for GeneTheatre** UV lamp for GeneTheatre for decontamination of workdesk via UV light
844-00433-0	**Adapter standard 96 well** Adapter for 96 well microplates, autoclavable
844-00434-0	**Adapter standard 384 well** Adapter for 384 well microplates, autoclavable
844-00435-0	**Adapter 0.2 ml, passive cooling** Adapter for 96 well microplate 0.2 ml non skirted, half skirted, full skirted and 96 0.2 ml tubes with passive cooling function, including Height Adapter 40 mm

Order information

Order No.	Description	
844-00436-0	**Adapter 2.0 ml, passive cooling** Adapter for 24x 1.5 ml and 2.0 ml tubes with passive cooling function, including Height Adapter 40 mm	
844-00437-0	**Adapter kombi, passive cooling** Adapter for 8x 0.2 ml, 8x 0.5 ml, 8x 1.5/2.0 ml tubes with passive cooling function, including Height Adapter 40 mm	
844-00438-0	**Adapter 0.5 ml, passive cooling** Adapter for 24x 0.5 ml tubes with passive cooling function, including Height Adapter 40 mm	
844-00439-0	**Adapter 96 Well microplate LP, passive cooling** Adapter for 96 well microplate LP with passive cooling function, including Height Adapter 40 mm	
844-00440-0	**Adapter 384 Well microplate, passive cooling** Adapter for 384 well microplates with passive cooling function, including Height Adapter 40 mm	
844-00441-0	**Adapter 0.1 ml QIAGEN, passive cooling** Adapter for 24x6 0.1 ml tubes QIAGEN with passive cooling function, including Height Adapter	
844-00442-0	**Soft touch adapter** Adapter for optimal dry pipetting of small volumes	
844-00443-0	**Tip tray adapter 1000 µl** Adapter for hosting 1000 µl tip rack	
844-00444-0	**Tip tray Adapter for used tips** Adapter for collecting used tips on deck position, autoclavable	
844-00445-0	**Height Adapter 40 mm** Height Adapter 40 mm for 50 µl/ 250 µl Tip Box	

SELMA 96 / 384 | Automated pipetting system

Constantly moving your thumbs up and down to pipette solutions is the defining feature of day-to-day lab work - along with arm and joint pain. The SELMA 96 / 384 is a semi-automated pipetting system, which processes liquid handling steps fast, precise and with a high reproducibility. Equipped with 96 or 384 tips working in parallel, 96 and 384 well microplates can be filled in the twinkling of an eye. Making painful tendonitis a thing of the past.

All movements and processes, which are important for high precision as well as for reproducibility, are achieved by reliable motors. This ensures always excellent and constant results.

- 96- or 384-channel instrument with a minimal footprint
- A fast, precise tool for processing 96 and 384 samples (and/or 96 and 384 well microplates) and individual columns
- Available in various volume ranges from 0.5 µl up to 1000 µl
- For preparing dilution series
- TipTray technology: Proven tip sealing concept makes changing tips easy and secure
- Touchscreen for easy, intuitive operation
- Memory function and automatic parameter use
- External equipment such as mixers, heating and cooling adapters, vacuum chambers, etc. may be used
- Error-free, reproducible results with 96 or 384 parallel working pistons
- Automatic positioning to different heights
- Two working positions for microplates and reservoirs

The automated tip drawing feature avoids the complex process of mounting tips. Prepackaged tips can be used immediately with no time-consuming loading process. A special feature: The manual control of the correct fit of each single tip is not necessary anymore due to the automatic tightening of the tips and the tip sealing technology, that has been proven effective under high throughput conditions. Tips can be changed effortlessly within a few seconds, after which the SELMA 96 / 384 is ready for the next application.

The multi-position touchscreen of SELMA 96 / 384 allows a userfriendly handling while standing or sitting

The SELMA 96 / 384 is characterized through very easy handling without the need of a separate controlling by PC. Pipetting, dispensing and a lot of more modes are chooseable by the usage of a modern 3.5" touchscreen. That panel is used for entering desired parameters, as volume and pipetting speed for instance and for the start of the routine afterwards. All manual processing steps, like changing of microplates, are shown on the display. Thus a fast and precise handling of microplates is guaranteed.

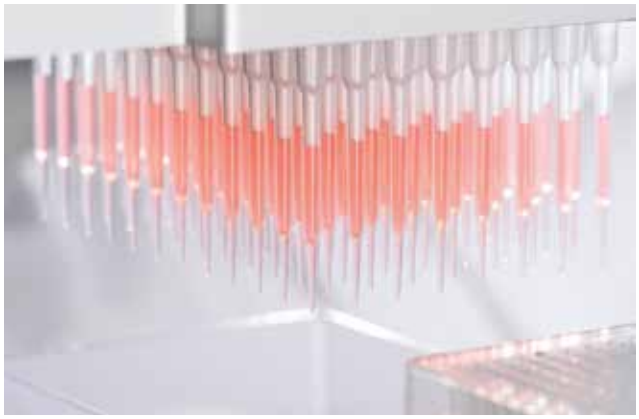
For SELMA 96 / 384 the usage of different types of microplates is a matter of course. To facilitate the best depth of dipping into the single wells, the pipetting head can be easily positioned in the right way, thanks to a rotary knob. For recurrent processes the chosen settings of pipetting height, volumes and dosing speed can be saved and reloaded at any times. Additionally two easy-to-load positions are available for microplates and reservoirs, eliminating the constant need to move filled plastic ware.

Exciting flexibility

The option of using many different accessories – such as reservoirs, trays for various inserts and a variety of TipTrays – allows users to perform an exceptionally wide variety of applications. Cleaning and replacing accessory equipment is easy, which allows operators to go back to work quickly. The open design of the SELMA 96 / 384 can be used with existing and/or external equipment, such as heating and cooling adapters, mixers and thermal mixers or vacuum chambers, etc. Special adjustment points allow for correct positioning.

Positioning of the pipetting head and setting the right height – very easy due to the integrated rotary knob.

Single rows (e.g. to produce seriel dilutions) can be pipetted easily due to 8 channel magazine



Small, fast and extremely effective – the 96-channel head of the SELMA 96

Possible applications for SELMA 96 or 384

- Plate Replication
- Plate Reformatting
- Adding of medium (cell biology)
- ELISA
- Reagent adding
- Plate coating
- Plate dilution, serial dilution

Reproducible, comparable results every time

The 96 or 384 channels of the SELMA 96 / 384 allow users to transfer 96 or 384 samples safely, with no mistakes and in a single step without confusing samples or forgetting individual wells – problems that used to plague day-to-day work. The high-quality tips and tip sealing concept have been tested under high-throughput conditions over the course of several years and always provide precise, reproducible results. A silicone mat perfectly and uniformly seals tips along the front. The pistons are controlled by a motor to produce extremely homogeneous movements which, in turn, ensure that the results will always be reproducible and precise with no differences in pipetting technique. In addition, different versions of the system are also available, each delivering precise results for maximum volumes of 25 µL, 60 µL, 250 µL and 1000 µL, respectively. The compact design means that the SELMA 96 / 384 can be used in a clean bench, thereby preventing any potential cross-contamination.

In short, this is a pipettor for everyone.

Technical data

Liquid handling parameters	
Channels	▪ 96 or 384 channels in parallel ▪ Processing column by column possible
Pipetting head	Motorized motion in z-direction
Number of positions	Two, in MTP standard format (SBS)
Microplate formats	▪ 96 well, 384 well ▪ Shallow and Deep Well
Tips*	High precision tips; standard; sterile; sterile PCR; sterile PCR Filter
Functions	▪ Pipetting, reverse pipetting ▪ Dispensing ▪ Dilutions and dilution series ▪ Mixing

SELMA 96

Device	Volume	Precision (CV)	Tips
SELMA 96 (25 µl)	0,5 – 25 µl	2 – 5 µl ≤ 2 % > 5 - 25 µl ≤ 1 %	SW: 10 µl, 25 µl DW: 60 µl
SELMA 96 (60 µl)	1 – 60 µl	3 – 5 µl ≤ 2 % > 5 - 60 µl ≤ 1 %	SW: 10 µl, 25 µl DW: 60 µl
SELMA 96 (250 µl)	5 – 250 µl	10 – 25 µl ≤ 2 % > 25 - 250 µl ≤ 1 %	SW: 250 µl DW: 250 µl
SELMA 96 (1000 µl)	10 – 1000 µl	25 – 100 µl ≤ 2 % > 100 - 1000 µl ≤ 1 %	SW: - DW: 1000 µl

SELMA 384

Device	Volume	Precision (CV)	Tips
SELMA 384 (25 µl)	0,5 – 25 µl	2 – 5 µl ≤ 2 % > 5 - 25 µl ≤ 1 %	SW: 10 µl, 25 µl DW: 60 µl
SELMA 384 (60 µl)	1 – 60 µl	3 – 5 µl ≤ 2 % > 5 - 60 µl ≤ 1 %	SW: 10 µl, 25 µl DW: 60 µl

System parameters	
Stand alone device	Yes, with 3.5" touch screen (colored)
Software	▪ Integrated ▪ Function for saving and automatically re-use of parameters ▪ Automatically moving to pre-saved heights in different routines
Memory capacity	> 10 parameter sets per pipetting mode

Additional technical data	
Dimensions (W x D x H)	307 mm x 480 (520**) mm x 325 mm
Weight	Approx. 15 kg (20 kg**)
Warranty	12 month

** SELMA 96 (1000 µl)

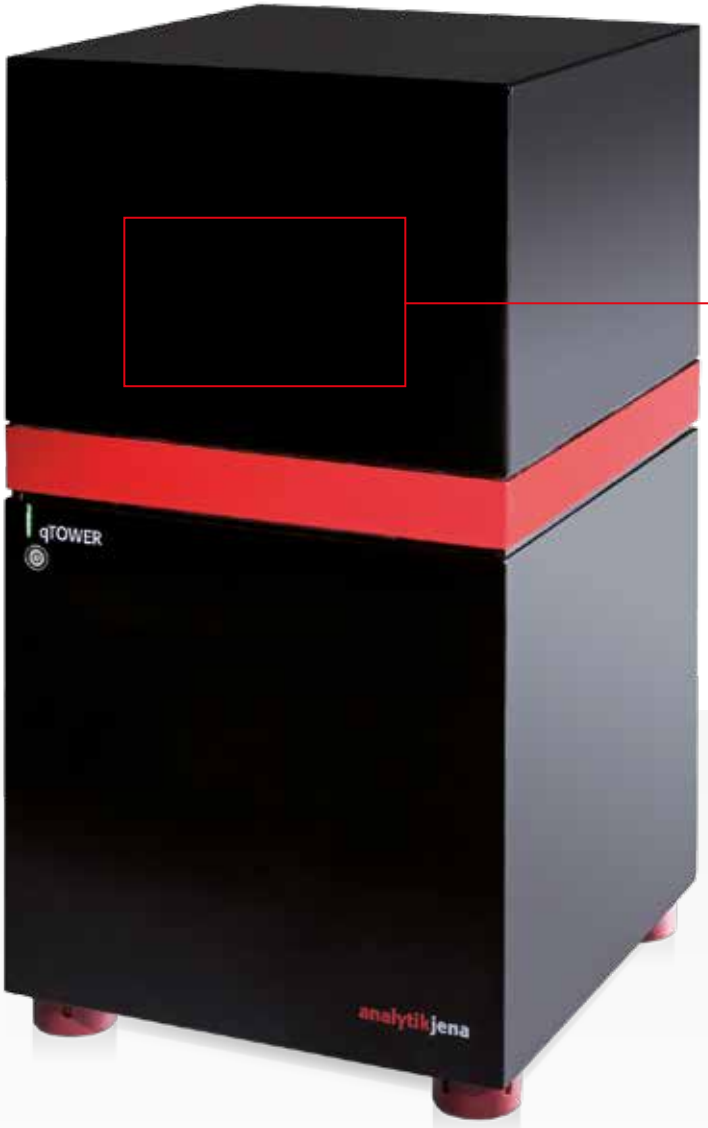
Order information

Order number	Description
844-00180-2	**SELMA 96** (25 µl) Semi-automated, stand-alone pipetting station; includes 96-channel pipette head (0.5 to 25 µL) and 2 work positions for 96-well plates
844-00184-2	**SELMA 96** (60 µl) Semi-automated, stand-alone pipetting station; includes 96-channel pipette head (1 to 60 µL) and 2 work positions for 96-well plates
844-00181-2	**SELMA 96** (250 µl) Semi-automated, stand-alone pipetting station; includes 96-channel pipette head (5 to 250 µL) and 2 work positions for 96-well plates
844-00185-2	**SELMA 96** (1000 µl) Semi-automated, stand-alone pipetting station; includes 96-channel pipette head (10 to 1000 µL) and 2 work positions for 96-well plates
844-00186-2	**SELMA 384** (25 µl) Semi-automated, stand-alone pipetting station; includes 384-channel pipette head (0.5 to 25 µL) and 2 work positions for 96-well plates
844-00187-2	**SELMA 384** (60 µl) Semi-automated, stand-alone pipetting station; includes 384-channel pipette head (1 to 60 µL) and 2 work positions for 96-well plates
844-00182-2	**8-channel magazine for the SELMA 96** (250 µl) Magazine accommodating 8 tips for the SELMA 96 (250 µl)
844-00188-2	**8-channel magazine for the SELMA 96** (25 µl or 60 µl) Magazine accommodating 8 tips for the SELMA 96 (25 µl or 60 µl)
844-00189-2	**8-channel magazine for the SELMA 96** (1000 µl) Magazine accommodating 8 tips for the SELMA 96 (1000 µl)
844-00190-2	**Tip magazine for SELMA 96** (1000 µl) Magazine for accomodating 96x 1 ml tips for SELMA 96 (1000 µl), metal
844-00191-2	**Tip transfer tool for SELMA 96** (1000 µl) Tool for easy fill up of tip magazine for SELMA 96 (1000 µl) standard, pre-streilized and filter; teflon coated metal
844-00192-2	**Table for extra-high vessels** Special table with 2 work positions for processing extra-high vessels, filter blocks, vacuum stations etc; vessels height up to 80 mm
844-00198-0	**MTP Adapter 384 Well, enhanced** Adapter for processing of 384 well microplates using SELMA 96

qTOWER | Quantitative real-time *rapid*PCR

The real-time thermal cycler qTOWER sets new standards for speed on the qPCR market. Based on the established *rapid*PCR, the qTOWER is up to 10 times faster than commonly available systems, achieving heating rates of 12 °C/sec and cooling rates of 8 °C/sec. Completely quantitative PCR runs can be performed in less than 25 min. The significant reduction of reaction volumes (down to 5 µL) is yet another highlight, as is the exceptional savings (up to 75 %) of expensive real-time reagents. Consumables have been optimized, making reaction volumes up to 20 µL possible and completely matching comparable instruments with its maximum capacity of 96 samples.

- High speed, real-time PCR up to 10 times faster than conventional cyclers
- Patent pending, fiber-optic system achieves high signal intensities
- Enormous cost reduction – works with reaction volumes of just 5 µL
- Highly energy efficient and RoHS compliant
- Integrated, user-friendly control and analysis software
- Attractive high-gloss design



high end optical components

✶ 10 Years ✶

long-term warranty

✶ MIQE compliant ✶

- qPCR with up to 96 samples in less than 25 minutes
- Adjustable ramping rates from 0.1 °C/sec up to 12 °C/sec
- Reaction volumes of 5 – 20 µL generate outstanding savings of expensive reagents

The integrated SPS (Sample-Protection-System) also provides optimum sample protection within the thermal block, which is cooled down to 25 °C while the lid heats up to 120 °C prior to starting the actual PCR. The adjustable lid temperature and high contact pressure results in nearly 100 % sample recovery. In addition, condensation effects can also be avoided for small reaction volumes.

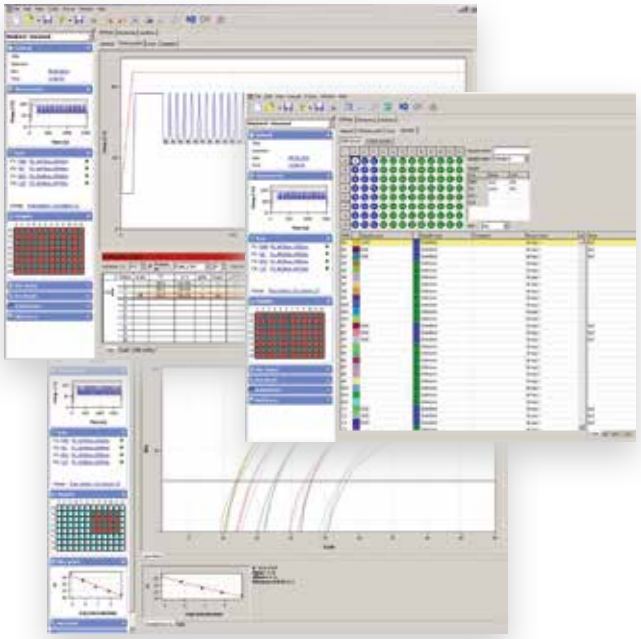
Impressive flexibility

The patented fiber-optic system at the heart of qTOWER guarantees detection of homogenous fluorescence signals across the whole microplate. The qTOWER can be equipped with up to four different measuring channels, which makes the device very flexible and adaptable for various applications. The user can choose from nine high-resolution qPCR excitation and emission filters (Color and FRET modules).
As a result, the qTOWER is capable of performing ambitious multiplex analyses and covers a broad range of commonly used fluorescence dyes. In addition, the exceptional scan speed of the plate is impressive, because one 96 well microplate will be read out in just four seconds, regardless of the number of colors measured.

- 9 different Color and FRET modules
- Open for future applications and adaptations
- Detects 96 samples in just four seconds independent from the number of dyes

qPCRsoft – simple and intuitive

The integrated, intuitive qPCRsoft software serves as the foundation for the final analysis of real-time PCR curves. The program automatically generates different methods for evaluating measured fluorescence data. The program can determine PCR efficiencies and perform absolute and relative quantifications, as well as the delta-delta Ct method and allele discrimination. Researchers can use qPCRsoft to investigate reliable concentrations and precise allele conditions and to display exact expression ratios. Once defined, parameter sets can be applied as templates for future applications and be reused continuously.



qPCRsoft

- Highly diverse range of analysis methods
- Absolute and relative quantification
- PCR efficiency and delta-delta Ct method
- Discrimination of allelic conditions and expression ratios
- MIQE compliant

Intuitive, exceptionally fast and easy-to-use qPCRsoft controls not only *rapid*PCR runs and detects fluorescence signals, it also uses various qPCR methods for evaluating the final data.

It follows that qTOWER and the corresponding software combine to form an excellent, highly flexible and exceptional fast real-time *rapid*PCR system that truly leaves nothing to be desired.

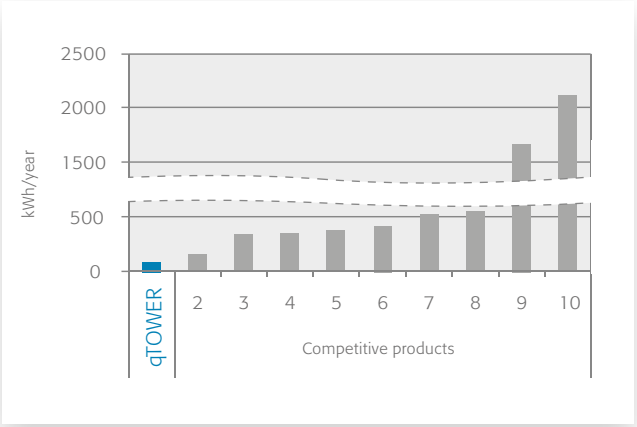
Initiative for energy efficiency

No environmentally hazardous substances, such as lead, mercury, cadmium, hexavalent chromium, PBB or PBDE, were used during the production of qTOWER.

The qTOWER also stays ahead of the pack in terms of energy consumption. Up to 23 times more efficient than competing models, the qTOWER can dramatically reduce both costs and CO_2 emissions.

Go green and earth friendly: qTOWER – quantitative real-time *rapid*PCR.

Energy consumption



Energy consumption of different real-time devices

Engery consumption

Real-time thermal cycler	qTOWER	2	3	4	5	6	7	8	9	10
kWh/year*	92.40	154.00	343.20	352.00	374.00	418.00	528.00	557.33	1,672.00	2,112.00
CO_2 emissions**	57.29	95.48	212.78	218.24	231.88	259.16	327.36	345.55	1,036.64	1,309.44

* Corresponds to 4 real-time PCR runs per day on 220 working days

** 1 kWh = 0.62 kg CO_2 (http://www.izu.bayern.de/download/xls/Berechnung_CO2_Emissionen_Stand_070530.xls [09.04.2010])

Technical data

Optical system	
Principle of measurement	Top-reading fluorescence detection via 8 optical light fibers with color modules for excitation and emission filters
Light source	High-power, long-life LEDs
Detector	▪ CPM – channel photo multiplier ▪ Highly sensitive ▪ Increased SNR
Number of color modules	▪ 11 available ▪ 4 positions inside device

Parameters: color modules			
Name	**Excitation**	**Emission**	**Dyes* (examples)**
Color module 1	470 nm	520 nm	FAM™, Sybr®Green, Alexa488®
Color module 2	515 nm	545 nm	JOE™, HEX™, VIC®, YakimaYellow™
Color module 3	535 nm	580 nm	TAMRA™, DFO™, Alexa546®, NED™
Color module 4	565 nm	605 nm	ROX™, TexasRed®, Cy3.5®
Color module 5	630 nm	670 nm	Cy5®, Alexa633®, Quasar670™
FRET 1	470 nm	580 nm	FAM™ (donor)/TAMRA™ (acceptor)
FRET 2	470 nm	670 nm	FAM™ (donor)/Cy5® (acceptor)
FRET 3	470 nm	705 nm	FAM™ (donor)/Cy5.5® (acceptor)
FRET 4	515 nm	670 nm	JOE™ (donor)/Cy5® (acceptor)
FRET 5	470 nm	470 nm	FAM™ (Donor)/ROX™ (Akzeptor)
Color modul Protein 1	490 nm	580 nm	SYPRO® Orange

Analytical parameters	
Sensitivity	1 nM FAM™ in minimal 15 µL PCR buffer (equivalent to 15 fmol FAM™ per well)
Read-out time	4 sec for 96 wells, regardless of the number of spectral channels
Microplate format	Ultrathin-walled 96 well microplate LP (low profile)
Sample volume	5 – 20 µL
Sample capacity	96 in parallel

System and *rapid*PCR application parameters	
Heating rate	12 °C/sec max, (0.1 to 12 °C/sec)
Cooling rate	8 °C/sec max, (0.1 to 8 °C/sec)
Block homogeneity	±0.2 °C
Control accuracy	±0.2 °C
Block temperature	4 °C – 105 °C
Time incr./decr.	±0.1 to 1 sec/cycle
Temperature incr./decr.	±0.1 to 1 °C/cycle
Contact pressure	60 kg/plate, automatic
No. of programs	Not limited on PC
Run time	Down to < 25 min (depending on application)
Temperature control mode	▪ Block Control ▪ (Simulated) Tube Control
Lid	▪ Sliding lid can be heated to up to 120 °C (motorized opening/closing) ▪ SPS technology

* Yakima Yellow is registered trademark of Epoch Biosciences, Inc. Cy is a trademark of GE Healthcare. FAM, HEX, JOE, VIC, TAMRA, NED and ROX are trademarks of Applera Corporation or its subsidiaries in the US and/or certain other countries. SYBR, Alexa Fluor, SYPRO and Texas Red are registered trademarks of Molecular Probes, Inc. TaqMan and LightCycler are registered trademarks of Roche Group, Inc. Quasar Dyes are trademarks of Biosearch Technologies Inc. DFO™ is a trademark of Eurogentec S.A. Windows and Excel are trademarks of Microsoft Corporation.

Technical data

Other technical data	
Weight	Approx. 10 kg
Dimensions (W × H × D)	240 mm × 430 mm × 255 mm
Power supply	100 – 240 V ± 15 % (47 – 63 Hz)
Power consumption	420 W (max.)
PC-interface	USB port
Software	▪ qPCRsoft ▪ Control and evaluation software ▪ Absolute and relative quantification ▪ Delta-delta ct ▪ Allele discrimination ▪ PCR efficiency ▪ Melting curve analysis ▪ MIQE compliant
Warranty	▪ 10 years warranty on the components of the high power optics ▪ 2 years warranty on the device system and the thermal block

Application list | Summary application reports qTOWER

Reference No.	Application
BS_qTOWER_01_11_e	Determination of different Hepatitis B Virus (HBV) concentrations using qTOWER
BS_qTower_07_12_en	Determination of uniformity and sensitivity using “qTOWER Demokit”
BS_qTOWER_10_11_en	Determination of different Hepatitis C Virus (HCV) concentrations using qTOWER

Order information

Order No.	Description
844-00301-2	**qTOWER** Instrument system, without PC, including qPCRsoft, thermal block and optical detection* for quantitative real-time *rapid*PCR
844-00320-0	Color module 1 – FAM™, Sybr®Green, Alexa488®
844-00321-0	Color module 2 – JOE™, HEX™, VIC®, Yakima Yellow™
844-00322-0	Color module 3 – TAMRA™, DFO™, Alexa546®, NED™
844-00323-0	Color module 4 – ROX™, TexasRed®, Cy3,5®
844-00324-0	Color module 5 – Cy5®, Alexa633®, Quasar670™
844-00325-0	FRET 1 – FAM™ (donor)/TAMRA™ (acceptor)
844-00326-0	FRET 2 – FAM™ (donor)/Cy5® (acceptor)
844-00327-0	FRET 3 – FAM™ (donor)/Cy5.5® (acceptor)
844-00328-0	FRET 4 – JOE™ (donor)/Cy5® (acceptor)
844-00329-0	FRET 5 – FAM™ (Donor)/ROX™ (Akzeptor)
844-00330-0	Color module Protein 1 – SYPRO® Orange

* Color modules or FRET modules for detection have to be ordered separately. The qTOWER can hold up to four modules.

Consumables

Order number	Description	Properties	Quantity
844-70050-0	96 well Microplate LP	transparent	25 pieces
844-70051-0	96 well Microplate LP	transparent	100 pieces
844-70052-0	96 well Microplate LP	transparent	250 pieces
848-MX-1000100	Demokit qTOWER		100 reactions

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qTOWER 2.0 / 2.2 | Standard real-time PCR with striking design

Now, in addition to the qTOWER for rapid qPCR, the product family includes the standard real-time thermal cycler qTOWER 2.0. Featuring a striking, modern design, this system allows quantitative PCR in an established 96 well SBS standard format. The qTOWER 2.0 offers an open platform for any kind of real-time PCR plastic materials, such as 0.2 ml single tubes, 8 well strips or 96 well microplates.
The high quality silver block of the qTOWER 2.0 ensures an outstanding level of temperature homogeneity of 0.2 °C along the whole block and is therefore ideally suited for all real-time PCR applications. In combination with the optional gradient function, different assays can be optimized with minimum effort. The qTOWER 2.0 is equipped with a patented, fiber-optic shuttle system for the best possible excitation and detection of a variety of known fluorescence dyes.

- Quantitative real-time PCR in proven 96 well SBS standard format
- State-of-the-art ramping rates of up to 5.5 °C/sec
- For usage of different optical plastic ware: 0.2 ml Tubes, 8 well strips or 96 well microplates
- Optimized for volumes of 10 – 60 µl
- Available with or without gradient function (max. temperature range of 40 °C)
- Patented high performance optical system with a long-term warranty of 10 years
- Individual configuration with up to 6 different measurement channels
- Selection out of 12 high-resolution, retrofittable color or FRET modules
- High-speed scan: 6 sec. for a 96 well microplate (independent of the number of dyes to be measured)
- Multilingual intuitive control and evaluation software
- Wide variety of different evaluation methods

high end optical components
✶ 10 Years ✶
long-term warranty

✶ MIQE compliant ✶

qTOWER 2.0 with gold-coated 96 well silver thermal block

Silver block technology

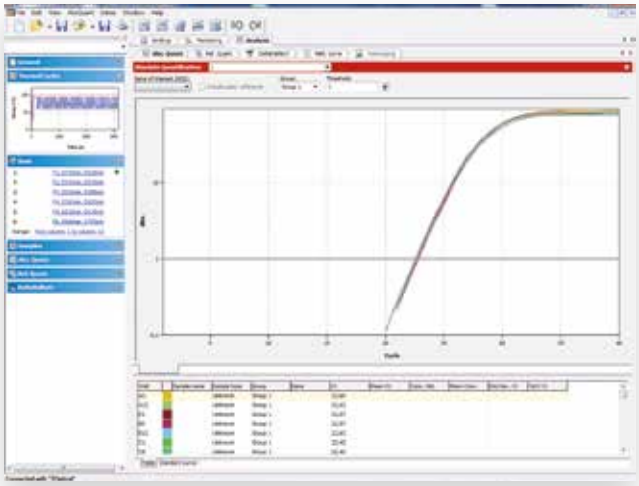
The 96 well block of the qTOWER 2.0 is the basis for performing quantitative real-time PCR. The thermal block is made of gold-coated silver to achieve the best possible performance and maximum thermal conductivity. The resulting outstanding homogeneity and uniformity of temperature combined with state-of-the-art heating rates of up to 5.5 °C/sec and cooling rates of up to 4.0 °C/sec make the instrument the first choice for standard real-time PCR. Optionally, the qTOWER 2.2 with gradient function is available. The maximum gradient temperature range of 40 °C across 12 columns optimally prepares the instrument to establish new primer pairs. Thereby a special feature is the possibility of programming linear gradients, which not only significantly simplifies the evaluation of results, but also optimizes the whole adaptation process.

- Quantitative real-time PCR in proven 96 standard SBS format
- Flexible use of different optical plastic materials: 0.2 ml tubes, 8 well strips or 96 well microplates
- State-of-the-art ramping rates of up to 5.5 °C/sec
- High performance gradient function across 12 columns with a range of 40 °C

To avoid potential condensation and to prevent possible sample loss the qTOWER 2.0 is equipped with a heated lid. It is adjustable up to 110 °C and guarantees optimum contact pressure on the sample tubes or plates during the complete run, independent of the used consumables.

Patented fiber optical shuttle system

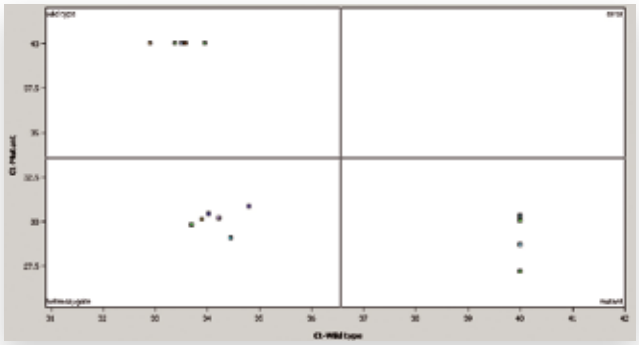
The qTOWER 2.0 works with 3 independent, blue, white and red, long-term stable LEDs to optimally excite the different applicable fluorescence dyes in a wide spectral range. It ensures the highest possible quantum yield to be achieved in each real-time PCR experiment. The qTOWER 2.0 can process sophisticated multiplex experiments with up to 6 different fluorescence-labelled probes – ranging from blue to the far-red spectral range – without any difficulty. Moreover, the patented optical system consists of a shuttle with 8 high performance fibers, which guarantee a read-out of the 96-well block within only 6 seconds – independent of the number of dyes to be measured.



Result display and analysis using qPCRsoft

- Patented high performance optical system with 8 optical fibers and 3 LEDs
- Optimum homogenous excitation and detection for each well
- Read-out of a 96 well microplate within only 6 seconds - independent from the number of dyes

Each component of the high performance fiber optical system has a 10-year long-term warranty.



Example of an allelic discrimination presented in a scatter plot

Maximum flexibility

The qTOWER 2.0 can be freely configured with the available Color and FRET modules. Depending on the application it can be adapted to either intercalating or DNA binding dyes, hydrolysis probes or even to hybridization probes (FRET probes). The system can easily be retrofitted for future use with additional so-called Color or FRET modules. This keeps the field of applications of the qTOWER 2.0 extremely flexible and easily expandable.

- Mounting of up to 6 different Color or FRET modules
- Use of intercalating or DNA binding dyes, hydrolysis probes and hybridization probes
- Freely configurable color filter selection

The evaluation and control software qPCRsoft also offers the highest level of flexibility and ease of use. The logical arrangement of all tools, intuitive handling and, last but not least, the parameter-orientated memory and programming concept make the software easy to use and clear. While a cycle is in progress, the operator can easily evaluate the data of previous experiments in parallel. Based on the Ct value determination via manually or automatically adapted thresholds, the samples can be quantified absolutely or relatively and the efficiency of the PCR can be determined. In addition, the delta-delta Ct method (with or without relation to PCR efficiency) and a method for allelic discrimination, e.g. for the detection of point mutations, are available.

- qPCRsoft: easy to use and clearly structured
- Integrated evaluation algorithms, e.g. absolute and relative quantification, delta-delta Ct method, PCR efficiency, allelic discrimination
- Parameter-orientated program guides
- User management with 3 authorization levels
- MIQE compliant

The qTOWER 2.0 or 2.2 convinces in every aspect and is the ideal instrument for quantitative standard real-time PCR.

Technical data

Optical system	
Principle of measurement	Top-reading fluorescence detection via 8 optical fibers with color modules for excitation and emission filters
Light source	High-power, long-life LEDs
Detector	▪ CPM – channel photo multiplier ▪ Highly sensitive ▪ Increased SNR
Number of color modules	▪ 12 available ▪ 6 positions inside device

Parameters of the color modules			
Name	**Excitation**	**Emission**	**Dyes* (examples)**
Color module 1	470 nm	520 nm	FAM™, Sybr®Green, Alexa488®
Color module 2	515 nm	545 nm	JOE™, HEX™, VIC®, YakimaYellow™
Color module 3	535 nm	580 nm	TAMRA™, DFO™, Alexa546®, NED™
Color module 4	565 nm	605 nm	ROX™, TexasRed®, Cy3.5®
Color module 5	630 nm	670 nm	Cy5®, Alexa633®, Quasar670™
Color module 6	660 nm	705 nm	Cy5.5®, LightCycler Red®
FRET module 1	470 nm	580 nm	FAM™ (donor) / TAMRA™ (acceptor)
FRET module 2	470 nm	670 nm	FAM™ (donor) / Cy5® (acceptor)
FRET module 3	470 nm	705 nm	FAM™ (donor) / Cy5.5® (acceptor)
FRET module 4	515 nm	670 nm	JOE™ (donor) / Cy5® (acceptor)
FRET module 5	470 nm	605 nm	FAM™ (Donor)/ROX™ (acceptor)
Color modul Protein 1	490 nm	580 nm	SYPRO® Orange

Analytical parameters	
Sensitivity	1 nM FAM™ in minimal 30 µl sample volume
Read-out time	6 seconds for 96 wells independent of the number of dyes to be measured
Block capacity	96 wells for 96 well microplates, 8 well strips or individual tubes
Sample volumes	10 – 60 µl
System and application parameters of the thermal cycler	
Heating rate	5.5 °C/sec max
Cooling rate	4.0 °C/sec max.
Block homogeneity	± 0.2 °C
Control accuracy	± 0.1 °C
Sample block temperature	3 °C – 99 °C
Time inc/dec	± 0.1 to 1 sec/cycle
Temperature inc/dec	± 0.1 to 1 °C/cycle
Contact pressure	10 kg/plate, automatically
Number of programs	Not limited
Gradient	Max. 40 °C across 12 columns
Lid	▪ Heated lid up to 110 °C ▪ SPS technology

* Yakima Yellow is registered trademark of Epoch Biosciences, Inc. Cy is a trademark of GE Healthcare. FAM, HEX, JOE, VIC, TAMRA, NED and ROX are trademarks of Applera Corporation or its subsidiaries in the US and/or certain other countries. SYBR, Alexa Fluor, SYPRO and Texas Red are registered trademarks of Molecular Probes, Inc. TaqMan and LightCycler are registered trademarks of Roche Group, Inc. Quasar Dyes are trademarks of Biosearch Technologies Inc. DFO™ is a trademark of Eurogentec S.A. Windows and Excel are trademarks of Microsoft Corporation.

Technical data

Other technical data	
Weight	Approx. 20 kg
Dimensions (W x H x D)	275 mm x 585 mm x 275 mm
Power supply	100 – 240 V
PC interface	USB
Software	▪ qPCRsoft ▪ Control and evaluation software ▪ Absolute and relative quantification ▪ Delta-delta Ct method ▪ Allelic discrimination ▪ PCR efficiency ▪ Melting curve analysis ▪ MIQE compliant
Warranty	▪ 2 years ▪ 10 years warranty on the components of the high performance optical system

Application list | Summary application reports qTOWER 2.0 / 2.2

Reference No.	Application
BS_qTower2_03_12_en	Comparison of SybrGreen / EvaGreen Kits
BS_qTower2_08_12_en	Comparison of white and clear plates

Order information

Order number	Description
844-00501-2	**qTOWER 2.0** Instrument system for 220 V, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00501-4	**qTOWER 2.0** Instrument system for 115 V, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00501-5	**qTOWER 2.0** Instrument system for 110 V, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00502-2	**qTOWER 2.2** Instrument system for 220 V with gradient function, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00502-4	**qTOWER 2.2** Instrument system for 115 V with gradient function, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00502-5	**qTOWER 2.2** Instrument system for 110 V with gradient function, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00520-0	Color module 1 - FAM™, Sybr®Green, Alexa488®
844-00521-0	Color module 2 - JOE™, HEX™, VIC®, Yakima Yellow™
844-00522-0	Color module 3 - TAMRA™, DFO™, Alexa546®, NED™
844-00523-0	Color module 4 - ROX™, TexasRed®, Cy3,5®
844-00524-0	Color module 5 - Cy5®, Alexa633®, Quasar670™
844-00525-0	Color module 6 - Cy5.5®, LightCycler Red®
844-00526-0	FRET module 1 - FAM™ / TAMRA™
844-00527-0	FRET module 2 - FAM™ / Cy5®
844-00528-0	FRET module 3 - FAM™ / Cy5.5®
844-00529-0	FRET module 4 - JOE™ / Cy5®
844-00531-0	FRET module 5 - FAM™ / ROX™
844-00530-0	Color module 1 - SYPRO® Orange

* The Color or FRET modules can be ordered separately. The qTOWER 2.0 or 2.2 can be equipped with up to 6 modules.

Consumables

Order number	Description	Properties	Quantity
846-050-258	Optical sealing foil	self-adhesive	100 pieces
846-050-259	96 well microplate	white	50 pieces
846-050-260	96 well microplate	black frame, white wells	50 pieces
848-MX-1001100	Demokit qTOWER 2.0/2.2		100 reactions

Ultrafast DNA amplification with *rapid*PCR

The demands on the polymerase chain reaction (PCR) for speed, efficiency and quality of results have grown with the increasing number and variety of applications of this key technology. The rapid cycle PCR technology, which is introduced here, offers substantial advances while honoring the increased demands on PCR.
In addition to a description of the technical foundations, the properties of the *rapid*PCR system will be clarified through examples of use.

Since the development of the PCR method in 1985 by Kary Mullis [1] [2] and coworkers, continual innovation has contributed to the fact, that PCR has developed into a key technology for biological research and routine diagnostics. Among the principles employed for heating and cooling the blocks (heating lamps, electrical resistance heating, water cooling, etc), today almost all thermal cyclers use peltier elements since this technology allows a robust and compact apparatus construction.

A disadvantage of those instruments are the slow heating and cooling rates within the sample (1 – 2 °C/sec) that is a function of the large volume of the metal blocks and the relatively thick walls of the plastic sample wells (200 – 300 µm). Because of this, cycle times of 3 – 8 minutes and a total time of one and a half to three hours is needed for a typical PCR experiment.

[1] Saiki, R.K. et al., Science 230 (1985), 1350 ff
[2] Mullis, K.B., Scientific American (1990), 56 ff

*rapid*PCR

Because control of the temperature cycles plays a central role in the polymerase chain reaction, alternatives were soon being sought that would lead to a more rapid process execution. The experimental experience with commercially available system led to the definition of the ultrafast PCR as: "rapid cycle PCR" – by means of 30 amplification cycles in less than 30 minutes. [3]

Aside from shortening the PCR experiments, a further advantage of the *rapid*PCR is the improved quality of the PCR products. Through the quicker cooling rates and shorter annealing times, more precise primer-template pairing occurs that, hence, leads to a higher specificity of the amplicon.

[3] Wittwer, C.T. et al., in Mullis, K. et al. (Eds.), The polymerase chain reaction. Birkhauser, Boston (1994), 174 – 181

Fast control algorithms activate the peltier elements that almost instantaneously regulate the temperature of the rapid block. The transfer of the energy into the sample solution, that is so crucial for the PCR experiment, occurs very effectively through the thin-well walls. The sum of the effects described here is, that the *rapid*PCR technology reaches a very high thermal effectiveness. Heating and cooling rates of clearly more than 12 °C/sec make cycle times of 20 seconds possible and, hence, the realization of PCR protocols with 30 cycles in 8 – 15 minutes.

In addition to the comparatively high ramp rates of the rapid thermal cycler, the very short, necessary holding times of the three temperature phases of PCR (denaturation, annealing, elongation) also determine the duration of the rapid protocols. Whereas in the standard peltier thermal cycler, a large part of the time is needed for changing the temperature of the metal block and the plastic walls of the sample container, the time during the temperature steps in the *rapid*PCR system can be almost completely used for the chemical (denaturation of the DNA double strand) or biochemical (DNA synthesis) processes.

High speed and specificity

The practical value of the thermal cycler system is determined by not just the physical performance parameters such as heating and cooling rates or thermal efficiency. The characteristic features of the molecular biological experiment such, as the duration of a PCR protocol and the yield and quality of the PCR products are more important. Particularly in medical diagnostics and forensic applications, PCR is often still the rate-determining step in a series of analytical methods. A high specificity of the amplified DNA is especially desirable for the further use in cloning or sequencing.

For preparing the *rapid*PCR reactions, standard enzymes, components and buffers in normal commercial quality and from different manufacturers were employed. The final concentrations of the components in the *rapid*PCR master mix also corresponded to that of normal PCR reactions.

Conclusions

The *rapid*PCR devices, which applies rapid cycle technology, was developed as a joint research project of Analytik Jena | Life Science and the Hans-Knöll-Institut für Naturstoff Forschung. With this apparatus the ultrafast amplification of DNA fragments of different lengths and origin with a clearly higher PCR product specificity is possible. The advantages of the *rapid*PCR system presented here result from the combination of the peltier technology and the use of a microplate as the sample carrier.

*rapid*PCR Thermal Cycler | *rapid*PCR without chemical additives

With the *rapid*PCR Thermal Cycler, Analytik Jena | Life Science has completely re-defined the standard for speed and flexibility of thermal cyclers. Different (rapid) cycler-systems are available to fit to the respective demand of PCR applications. True heating and cooling rates of up to 15 °C/sec and 10 °C/sec, respectively, are realized. Thus the rapid thermal cyclers are enormous fast due to its technique and do not necessarily require special chemical additives.

The choice of *rapid*PCR systems of blocks running with standard PCR consumables as well as blocks running with special patented, ultrathin-walled low-profile microplates.

Standard-Profile-Rapid (SPR) systems – *rapid*PCR under standard conditions

Equipped with the latest generation of peltier elements the Standard-Profile-Rapid (SPR) systems provide unrivaled heating and cooling speed even at use of 0.2 ml standard consumables. The SPR block achieves so far unattained heating and cooling rates of 12 °C/sec and 8 °C/sec accompanied by excellent temperature uniformity. Unlike other available thermal cyclers these specifications are not unreachable "top values" but parameters a user really can rely on. Thus all SPR blocks provide precise reaction conditions and enormous short run times.

- SPR systems for 0.2 ml sample volume
- Heating and cooling rates up to 12 °C/sec and up to 8 °C/sec

Low-Profile-Rapid (LPR) systems – best performance at lowest sample consumption

Special patented, low-profile and ultrathin-walled microplates contribute to a never before achieved thermal efficiency. Through SAC (Self-Adapting-Container) technology, the thermoelastic walls of the sample container adapt to the shape of the sample block like a second skin and thus, ensure rapid heat transfer into the samples.

An unsurpassed thermal efficiency of over 90 percent is achieved. Through this innovative technology, applications using so-called "touch and go" protocols can be performed in exceptionally short times. PCR programs can be carried out in even less than 8 minutes.

These low-profile microplates has been optimized for very small sample consumption and the use of inexpensive standard PCR reagents. The need of costly and often limiting chemical additives is consciously avoided.

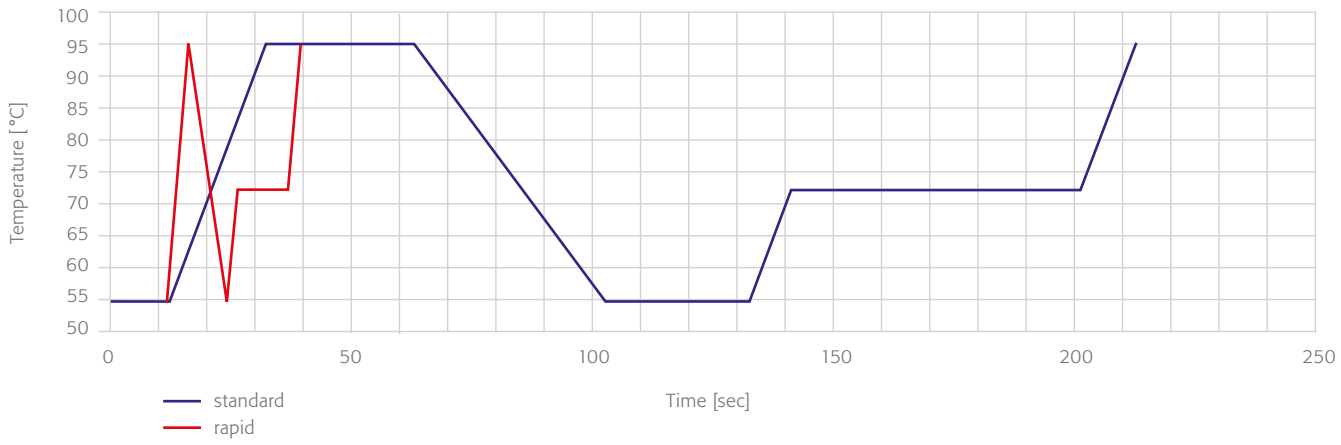
- LPR systems for 2 – 20 µl with heating and cooling rates up to 15 °C/sec and up to 10 °C/sec
- Rapid heat transfer through SAC technology
- Optimized for low reagent consumption

Excellent results

In addition to the duration of the PCR program, quality and yield are decisive criteria. These, among other factors, are dependent on the correctness of the set temperature as well as the accuracy of the temperature control. Employing the latest generation of high-performance peltier elements completely prevents the occurrence of temperature inaccuracies within the sample blocks of conventional peltier thermal cyclers and results in outstanding temperature homogeneity throughout the block.

Primer mismatching during annealing is effectively prevented through the combination of extremely rapid temperature ramp rates and optimal temperature control accuracy. This, in turn, results in more specific amplification products.

- Higher quality results
- Reduced primer mismatching
- More specific amplification products
- Exceptional temperature homogeneity – no edge effects



Comparison of standard and *rapid*PCR referring to the cycle time

SpeedCycler² | Ultra high-performance thermal cycler

Ultra high-performance thermal cycler

With the SpeedCycler², Analytik Jena has launched the second generation of the original SpeedCycler technology with an instrument even faster than its predecessor and delivering extraordinary high heating and cooling rates of up to 15 °C/sec and 10 °C/sec, respectively. That makes the SpeedCycler² the fastest available thermal cycler in the world.

A smaller footprint, the modular design, the external control panel and, last but not least, ultra high-performance distinguishes the SpeedCycler² from other available instruments. The system is ideal as space-saving thermal cycler and is available in 4 different versions to meet each individual need - the choise is yours.

- *rapid*PCR in less than 8 minutes
- Heating and cooling rates of up to 15 °C/sec and 10 °C/sec, respectively
- SAC (Self-Adapting-Container) technology delivers outstanding heat transfer
- Low-Profile-Rapid (LPR) blocks for 20 µL
- Standard-Profile-Rapid (SPR) blocks for 0.2 mL standard consumables
- Optimized for low reagent consumption and reduced running costs
- Small footprint satellite system
- Four different blocks available
- Thermal blocks made of massive sterling silver with a gold layer
- Portable user-interface HID-Pro 320
- Reduced primer mismatching

It grows with the requirements of its user.
The SpeedCylcer² is available in four different versions, comprising:

- Standard-Profile-Rapid (SPR) block
- Standard-Profile (SP) block
- Low-Profile-Rapid (LPR) block
- Low-Profile (LP) block

This means that standard PCR consumables can be used as well as low-profile PCR consumables.

The LPR format, in particular, has been optimized for low sample consumption and maximizes performance. Sample loss and condensation are effectively prevented by the enormously high lid contact pressure, even for volumes as small as 2 µL.

Low-Profile-Rapid (LPR) blocks use specially patented, ultrathin-walled microplates or strips based on the SBS standard format, which contributes greater thermal efficiency than ever before.

SAC (Self-Adapting Container) technology allows the thermoelastic walls of the sample containers to adapt to the shape of the sample block like a second skin, thus, ensuring rapid heat transfer into the samples and achieving unsurpassed thermal efficiency of over 90 percent. *rapid*PCR is the only technology suitable for applications using what are known as "touch and go" protocols. A whole experiment can be carried out in less than 8 minutes.

SpeedCycler² without HID-Pro 320

The SpeedCycler² has been optimized for very small sample consumption and for the use of inexpensive standard PCR reagents. Costly and often limiting chemical additives can be consciously avoided and are not necessary for *rapid*PCR amplification. Furthermore, the higher cooling rate significantly improves specificity of the PCR products compared to those from standard thermal cyclers.

The HID-Pro 320 external user interface

The new portable HID-Pro 320 user interface eliminates the need for a PC and makes the system exceptionally easy to operate. Its extra large 5.7" color touchscreen eliminates the need for a keyboard or mouse.

The software, which is based on Windows CE, offers typical Windows functions and operating environment, as well as an intuitive menu bar. Programs can be stored individually and organized in user-defined directories. An USB and LAN port allows users to exchange programs to other cyclers, export data from executed PCR runs, and connect the cycler directly to other basic units.

Users can easily change the operating language by clicking a button. The HID-Pro 320 is also compatible with other instruments from Analytik Jena, such as the ScanDrop® microliter spectrophotometer. The built-in power failure function restarts the cycler automatically. The software restarts with the denaturing step of the last active cycle to eliminate any possible unspecific annealing

- Software based on Windows CE
- USB and LAN port for uncomplicated data exchange
- Power failure function
- Multilingual software (English, German, Greek, Russian and Spanish; others to come)
- Reduced primer mismatching

Portable and versatile HID-Pro 320 user-interface with 5.7"color touchscreen

SpeedCycler² with gold-coated silver rapid sample block in standard format

96 LPR block; 96 × 20 µL

For 96 × 20 µL Microplate LP or 8 well Strips LP
HR 15 °C/sec; CR 10 °C/sec

96 LP block; 96 x 20 µL

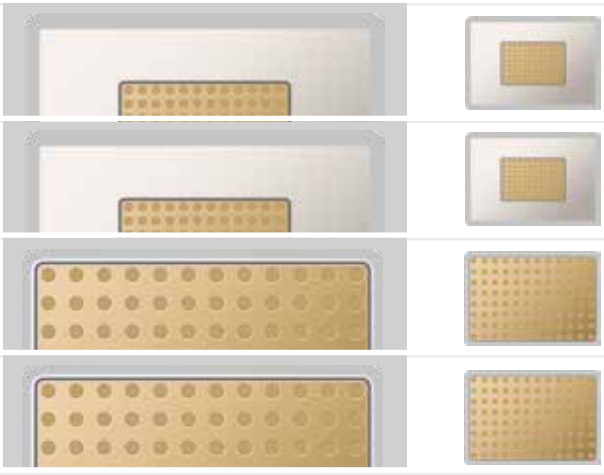
For 96 x 20 µL Microplate LP or 8 well Strips LP
HR: 15 °C/sec; CR: 10 °C/sec

96 SPR block; 96 × 0.2 ml

For 96 × 0.2 ml standard tubes, 8 well strips or PCR plates
HR 8 °C/sec; CR 6 °C/sec

96 SP block; 96 × 0.2 ml

For 96 × 0.2 ml standard tubes, 8 well strips or PCR plates
HR 5.5 °C/sec; CR 4 °C/sec



Schematic drawing of thermal blocks

Consumables

Technical data

Sample capacity			
SpeedCycler² 96 LPR	▪ 96 x 20 µL		
SpeedCycler² 96 LP	▪ 96 x 20 µL		
SpeedCycler² 96 SPR	▪ 96 x 0.2 mL		
SpeedCycler² 96 SP	▪ 96 x 0.2 mL		

Heating and cooling rates			
SpeedCycler² 96 LPR	Heating rate	15 °C/sec max.	Gold-coated silver
	Cooling rate	10 °C/sec max.	
SpeedCycler² 96 LP	Heating rate	15 °C/sec max.	Aluminum alloy
	Cooling rate	10 °C/sec max.	
SpeedCycler² 96 SPR	Heating rate	8 °C/sec max.	Gold-coated silver
	Cooling rate	6 °C/sec max.	
SpeedCycler² 96 SP	Heating rate	5.5 °C/sec max.	Aluminum alloy
	Cooling rate	4 °C/sec max.	

General Data	
Temperature control mode	▪ Block Control ▪ (Simulated) Tube Control
Sample block temperature range	4 °C – 105 °C
Control accuracy	< ± 0.2 °C at 72 °C
Block homogeneity	< ± 0.3 °C at 72 °C
Lid	▪ Can be heated up to 120 °C ▪ Adjustable contact pressure
User interface	▪ PC via included software ▪ Alternative via HID-Pro 320
Number of programs	Nearly unlimited; 500 on HID-Pro 320

Other technical data	
Dimensions (W x H x D)	280 × 290 × 250 mm
Weight	12 kg
Power supply	100 – 240 V ± 15 % (47 – 63 Hz)
Power consumption	800 W

Warranty	
Basic unit	2 years
Thermal blocks	2 years

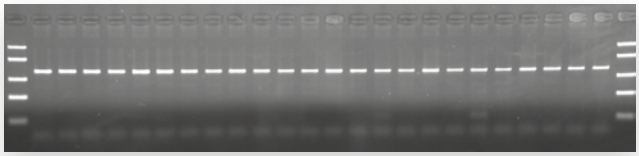
Order information

Order No.	Description
844-00050-2	**HID-Pro 320,** Portable and versatile user interface with 5.7" touch screen, LAN, USB
844-00041-2	**SpeedCycler² 96 LPR,** 96 x 20 µl
844-00042-2	**SpeedCycler² 96 SPR,** 96 x 0.2 ml
844-00043-2	**SpeedCycler² 96 SP,** 96 x 0.2 ml
844-00044-2	**SpeedCycler² 96 LP,** 96 x 20 µl

SpeedCycler | Application Note

*rapid*PCR in 8 minutes from heating the lid until cool down to standby temperature

The SpeedCycler makes it possible to amplify a 536 bp ß-globin-specific fragment (human genomic DNA) in less than 8 minutes. The PCR was performed using Analytik Jena's thermostable Hot Start enzyme (innuTaq HOT-A DNA Polymerase) and an ultra-rapid 2-step protocol with an initial 30-second denaturation step at 96 °C followed by 25 cycles with a 0-second denaturation step at 96 °C and a 0-second combined annealing/elongation step at 60 °C. The yield of specific PCR products is nevertheless high, which is due to the sharp characteristic temperature curve of the device and to the ultra thin-walled SpeedCycler microplate.

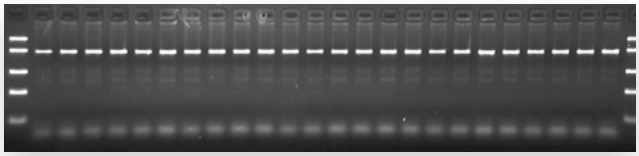


Ultra*rapid* amplification of a 536 bp ß-globin fragment from human genomic DNA: outstanding uniformity in less than 8 minutes. Markers are 1500 bp, 850 bp, 400 bp, 200 bp and 50 bp long.

Excellent block homogeneity, even for extremely short time protocols

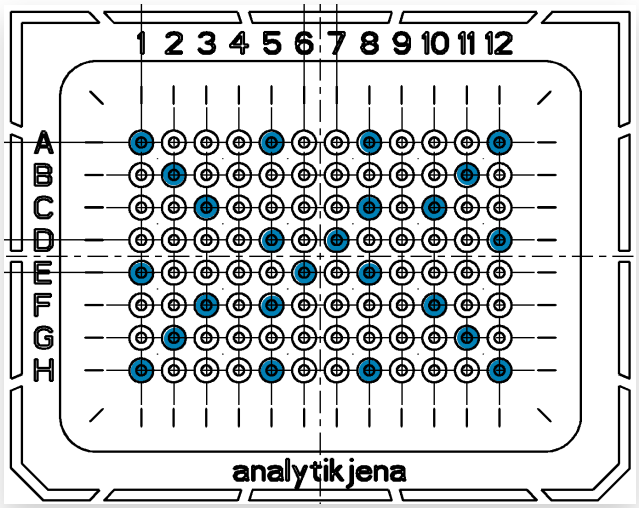
Outstanding temperature uniformity over the entire sample block (and thus within the sample) results in excellent block homogeneity and no edge effects. Amplification of a 793 bp specific fragment of the p53 gene from human genomic DNA served as an example for the precise and specific functionality of the SpeedCycler *rapid*PCR. p53, also known as tumor protein 53, is a transcription factor that regulates the cell cycle and hence functions as a tumor suppressor. [1]

These 793 bp can be amplified in 9 min and 30 sec. using a 3-step time protocol with 28 cycles of 0-second denaturation at 95 °C followed by a 0-second annealing step at 60 °C and finished with a 1-sec elongation step at 72 °C

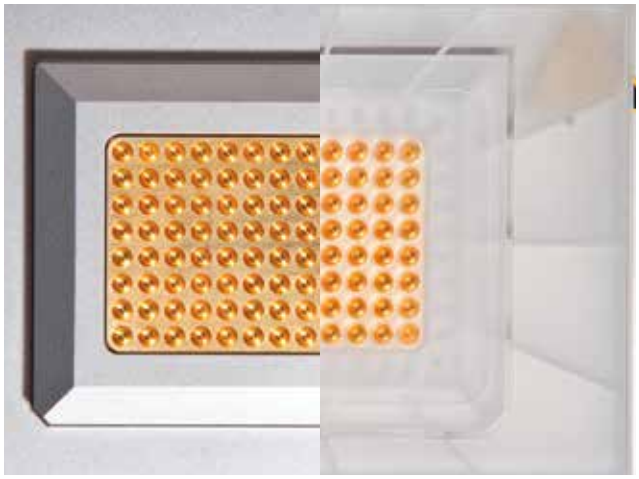


Rapid amplification of a 793 bp p53 fragment from human genomic DNA: outstanding uniformity in less than 9 minutes. Markers are 1500 bp, 850 bp, 400 bp, 200 bp and 50 bp long.

[1] http://en.wikipedia.org/wiki/P53 [02.07.2007]



Sample layout of the used 96 well Microplate LP



96 LPR format for 96 well Microplate LP

Application list | Summary of application reports for *rapid*PCR

Low-Profile-Rapid (LPR) block

Reference No.	Application
BS_PCR_01_04_e	Amplification of microbial strains from soil isolates
BS_PCR_02_04_e	Long Range PCR: SpeedCycler amplification of a 24 kb fragment from human genomic DNA (placenta DNA)
BS_PCR_01_05_e	One Step RT-PCR using the SuperScriptTM III System with Platinum Taq DNA Polymerase (Invitrogen)
BS_PCR_02_05_e	Amplification of a beta globin fragment (210 bp) with BD TitaniumTM Taq DNA Polymerase (BD Biosciences)
BS_PCR_01_06_e	Amplification of a beta globin fragment (538 bp) from human genomic DNA
BS_PCR_02_06_e	Amplification of a 430 – 750 bp fragment, a tandem repeat at chromosome 1 (The D1S80 – system)
BS_PCR_03_06_e	Amplification of ITS2 (part of 45S rDNA) from plant Brachycome dichromosomatica
BS_PCR_04_06_e	Amplification of a *E. coli* specific 536 bp target sequence within 8 minutes
BS_PCR_06_06_e	Multiple (STR) PCR using Applied Biosystem AmpFl STR® SGM Plus® with SpeedCycler
BS_PCR_07_06_e	PCR amplification of a 123 bp fragment from the insertion element IS6110 of Mycobacterium tuberculosis
BS_PCR_08_06_e	Reliable detection of clinically relevant Staphylococci using the hyplex StaphyloResist® test system
BS_PCR_09_06_e	Amplification of a 129 bp HB Virus specific sequence for Hepatitis B determination by using *rapid*PCR
BS_PCR_10_06_e	Quantitative cPCR considered on the example of Porphyromonas gingivalis wildtype (488 bp) and competitor (276 bp) amplification
BS_PCR_11_06_e	PCR amplification of an Actinobacillus actinomycetem-comitans wild type (547 bp) and competitor (274 bp) specific fragment as optimization to accomplish cPCR
BS_PCR_12_06_e	Optimization of PCR conditions to amplify a specific Treponema denticola wildtyp and competitor sequence to accomplish cPCR
BS_PCR_13_06_e	STR Typing by using Promega's PowerPlex® 16 System combined with SpeedCycler
BS_PCR_14_06_e	Amplification of a 641 bp specific Bacteroides forsythus sequence by using *rapid*PCR with SpeedCycler
BS_PCR_15_06_e	The enteric Helicobacter bilis as target for rapid amplification with SpeedCycler
BS_PCR_16_06_e	Validation for SNP diagnostics of the Factor V Leiden mutation – Amplification of the relevant sequence with SpeedCycler
BS_PCR_01_07_e	Detection of genetically modified – Roundup Ready® – soybeans by using *rapid*PCR with SpeedCycler
BS_PCR_02_07_e	Detection of transgenic Maize by rapid polymerase chain reaction with SpeedCycler
BS_PCR_03_07_e	Determination of Neisseria gonorrhoeae by using *rapid*PCR with SpeedCycler and two different polymerases

Standard-Profile-Rapid (SPR) block

Reference No.	Application
BS_PCR_05_06_e	Amplification of alleles of the HLA-DRB1 gene, optimized for 50 µl-assays
BS_PCR_04_07_e	Detection of a human-specific Alu insertion using a PV92 primer mix with SpeedCycler
BS_PCR_01_08_e	Detection of 3 different human-specific beta-globin fragments using 4 different primers and the AlphaSC®
BS_PCR_01_09_e	Amplification of a 1 kb DNA fragment from the bacteriophage lambda using the SPR 48 block of AlphaSC®

FlexCycler² | The new standard PCR Thermal cycler

The FlexCycler² is a modern thermal cycler with large graphical display and exceptional design. The instrument offers state-of-the-art heating and cooling rates in combination with high control accuracy. Thanks to the excellent temperature uniformity over the complete temperature range the system consistently ensures reproducible conditions.

By the Quick-X-Change block exchange system the FlexCycler² can be flexibly adapted to different requirements. In combination with the user friendly software concept and extensive software options the FlexCycler² is the perfect system for PCR applications.

- Quick-X-Change block exchange system
- Automatic block recognition
- 96 well and 48 well twin-block optionally with gradient function
- Twin-blocks independently controllable
- Multiblock start- and stop-function
- Large ¼ VGA display
- High Performance Smart Lid (HPSL) for always optimal contact pressure
- USB A and USB B port
- Comfortable user administration
- GLP compliant documentation of PCR runs
- Comprehensive additional software functions

Housing

The housing of the FlexCycler² attracts by its distinctive design with clear layout of the line and functionality. Due to the high quality of workmanship, the unit is designed for continuous use in the routine. For example, the airstream inside the instrument is optimized to dissipate excess heat as effectively as possible. This keeps the energy consumption low and the block temperature uniformity at any time in the optimum range. In addition, the FlexCycler² by its compact design occupies a minimum of space in the laboratory. The display and keyboard are arranged in an ergonomically angle, allowing the comfortable operation of the instrument and also preventing unwanted light reflections in the display from the surroundings.

Block exchange system

By Quick-X-Change technology the FlexCycler² block modules can be exchanged within seconds. The built-in fast block exchange system makes the use of additional tools or the time-consuming loosening of block fittings unnecessary. Simply raise the block exchange lever, remove the block to be replaced, insert the new block and connect it to the base unit by lowering the block exchange lever. The new block is automatically detected and installed by the instrument. The block exchange function of the FlexCycler² provides the flexibility to adapt the configuration of the instrument in seconds. Besides single block modules also twin block modules are available which are equipped with two independently controllable blocks and heated lids. The twin block modules offer the possibility to run two different protocols at the same time, thereby increasing the flexibility for the user. Optionally blocks can also be equipped with gradient function which allows the quick and easy optimization of new PCR assays.

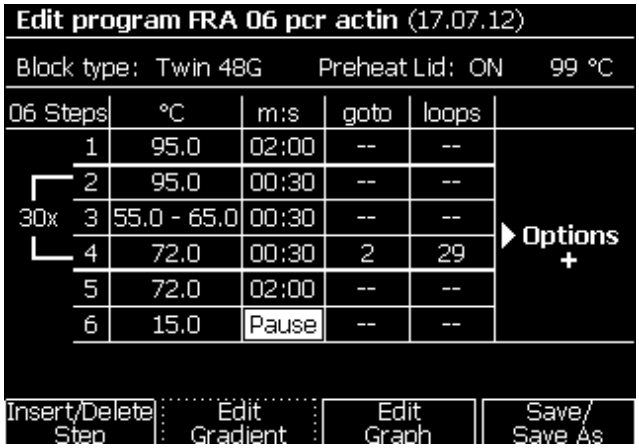
Heated Lid

The heated lid of the FlexCycler² is equipped with High Performance Smart Lid (HPSL) technology that ensures the formation of a homogenous tempered air cushion between the samples. The instrument therefore provides excellent temperature uniformity over the entire block and reproducible PCR conditions regardless of the positioning of the samples. Additionally, by the integrated clutch mechanism, it is ensured that always the same pressure is applied, regardless of the height and shape of the used plastic ware. The even distribution of pressure on all tubes/wells serves for a secure closure during the PCR and optimal temperature transition between the block and the reaction mix, simultaneously evaporation and condensation effects are avoided. After pressing the push button on the front the heated lid it automatically swings up and can subsequently be closed by gentle pressure.

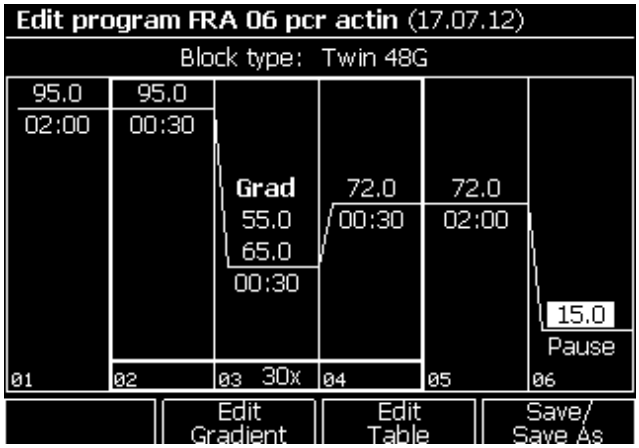
User Interface

The FlexCycler² user interface provides the convenience of a user-specific choice of operating language and allows the programming of temperature programs in clearly arranged table format (Easy Spreadsheet Programming (ESP). All parameters can be set in one single screen, it is not necessary to open sub-windows to set variables for special program functions and to toggle forth and back between different windows. Simply press the “graph” button and the temperature profile can also be displayed graphically and parameters edited. The FlexCycler² offers a total memory capacity for more then 300 programs.

In addition to the programming of temperature protocols the software offers useful functions like extended self test, display of run-logfiles or the creation of service info files. After start of the extended self test, the FlexCycler² checks itself summarizes the results in a well arranged protocol. If the test should not be passed the user receives a corresponding message. In run-logfiles important information und events for the last run are summarized. Run-logfiles therefore are ideal to control and monitor PCR runs. In service cases service info files allow a remote diagnosis of the instruments status by the service department.



Tabular programming...



or graphical programming

User administration

The FlexCycler² can manage up to 30 different user directories which can be optionally protected by a PIN code. PCR protocols in protected directories can not be modified or deleted by other users. In addition to the normal users the supervisor (administrator) has additional privileges. The supervisor has its own menu to manage the system and can for example delete user directories (also protected directories). Moreover, the supervisor can set the boot language of the system.

User-specific quick start of protocols

The FlexCycler² logs user specific the five most recently used or modified protocols. By a simple keypress on "block" the user currently logged-in to the instrument gets a list of protocols that can be started directly. The comfortable quick start option eliminates the need to search for the right protocol in the user directory.

USB functions

By a USB stick temperature programs can be exchanged easily between different FlexCycler² instruments. Moreover for GLP compliant documentation of PCR runs run-logfiles and in service cases service info files can be saved. For this purpose standard USB sticks can be connected to the USB A port on the front side of the instrument. By the USB B port on the backside of the FlexCycler² software updates can be uploaded from a connected computer and installed conveniently.

Technical specifications

Order number	844-00062-x 844-00063-x	844-00060-x 844-00061-x	844-00064-x	844-0065-x
	FlexCycler² twin 48 FlexCycler² twin 48G	FlexCycler² 96 FlexCycler² 96G	FlexCycler2 twin 30	FlexCycler2 twin combi
Capacity	2 x 48 x 0.2 ml tubes, 2 x 6 x 8er stripes 0.2 ml or 2 x 48 well microplates	96 x 0.2 ml tubes, 6 x 8er stripes 0.2 ml or 96 well microplates	2 x 30 x 0.5 ml tubes	2 x 48 x 0,2 ml tubes, 2 x 6 strips of 8 or 2 x 48 well microplates, 2 x 18 x 0.5 ml tubes
Block material	Aluminum	Aluminum	Aluminium	Aluminium
Block surface coating	Silver-coloured anodised	Silver-coloured anodised	Silver-coloured anodised	Silver-coloured anodised
Block exchange	Quick-X-change	Quick-X-change	Quick-X-change	Quick-X-change
Time block exchange	Less than 10 s	Less than 10 s	Less than 10 s	Less than 10 s
Maximum heating rate*	4.5 °C/s	4.0 °C/s	4.0 °C/s	3.0 °C/s
Maximum cooling rate*	4.5 °C/s	4.0 °C/s	4.0 °C/s	3.0 °C/s
Average heating rate*	4.5 °C/s	3.0 °C/s	3.3 °C/s	2.4 °C/s
Average cooling rate*	4.5 °C/s	3.0 °C/s	3.3 °C/s	2.4 °C/s
Gradient**	20°C	30°C	-	-
Temperature uniformity	< ± 0.4 °C at 70 °C after 15 s			
Temperature uniformity	3 °C to 99 °C			
Temperature range**	20 °C to 99 °C			
Control accuracy	± 0,1 °C			
Software	Quick start of the 5 latest programs, program preview, toggle between easy spreadsheet and graphical programming mode, graphical display of gradients, multiblock start- and stop-function, variable heating and cooling rates, extended self test, service info file for remote diagnosis, versatile USB-functions like storage of programs, run-logfiles or SINF-files			
Programming modes	Spreadsheet or graphical			
Program memory	350 programs in 30 user directories with optional PIN-code protection			
Display	¼ VGA screen, 320 x 240 pixel			
Autorestart function	Yes			
Smart Lid technology	Yes			
Lid temperature range	30 to 99 °C			
Max. power consumption	600 Watt			
Operation voltage	100, 115, 230 Volt, 50-60 Hz			
Weight	15 kg			
Dimensions (Width x Height x Depth)	26.4 cm x 28.9 cm x 40.0 cm 26.4 cm x 47.9 cm x 40.0 cm with lid opened			
Noise emission	Very low			
Interfaces	USB A, USB B			
Working conditions	15 °C to 35 °C, 70 % humidity, max 2.000 m above sea level			

* measured inside the block

** Only for gradient enabled models

Order information

Order number	Description
844-00060-2	FlexCycler² 96, 230V, English manual
844-00060-4	FlexCycler² 96, 115V, English manual
844-00060-5	FlexCycler² 96, 100V, English manual
844-00061-2	FlexCycler² 96G, 230V, English manual
844-00061-4	FlexCycler² 96G, 115V, English manual
844-00061-5	FlexCycler² 96G, 100V, English manual
844-00062-2	FlexCycler² twin 48, 230V, English manual
844-00062-4	FlexCycler² twin 48, 115V, English manual
844-00062-5	FlexCycler² twin 48, 100V, English manual
844-00063-2	FlexCycler² twin 48G, 230V, English manual
844-00063-4	FlexCycler² twin 48G, 115V, English manual
844-00063-5	FlexCycler² twin 48G, 100V, English manual
844-00064-2	FlexCycler² twin 30, 230V, English manual
844-00064-4	FlexCycler² twin 30, 115V, English manual
844-00064-5	FlexCycler² twin 30, 100V, English manual
844-00065-2	FlexCycler² twin combi, 230V, English manual
844-00065-4	FlexCycler² twin combi, 115V, English manual
844-00065-5	FlexCycler² twin combi, 100V, English manual
844-60060-0	FlexCycler² block 96
844-60061-0	FlexCycler² block 96G
844-60062-0	FlexCycler² block twin 48
844-60063-0	FlexCycler² block twin48G
844-60064-0	FlexCycler² block twin 30
844-60065-0	FlexCycler² block twin combi
844-00069-2	FlexCycler² base unit

Introduction | A choice of systems for different needs

The whole range of Analytik Jena gel imaging systems is suited for the documentation of agarose and polyacrylamide gels with fluorescent and visible colored stains.

The most typcial stains for these applications are ethidium bromide, SYBR® Green, SYBR® Gold, SYBR® Safe, GelStar®, SYPRO® Orange, SYPRO® Ruby, Oriole™, SYPRO® Red, WesternDot™ 625 with Qdot®-nano crystals, and silver and Coomassie Blue.

For all of these stains the adequate bandpass filters and transilluminators are available. Visible stains on membranes and also radiographs can be documented, additionally.

Laboratories with a very limited bench space will enjoy the systems GelTower and UVsolo. The extraordinary compact systems are designed for fast saving and printing of gels. No separate computer is necessary.

The computer driven systems of the GelStudio line offer an advanced comfort and include a versatile software for analysing gel and blot images as standard delivery. Two different versions are available. They mainly differ in the type of camera included.

Users who prefer an advanced imaging system without a separate computer will enjoy the stand-alone system GelStudio SA. A large touch screen allows for a self-explanatory image acquisition.

System	Type of camera
GelTower, GelStudio digital	Digital single lens reflex camera for color and black & white images
UVsolo, GelStudio live, GelStudio SA	Monochrome, scientific grade CCD camera for black & white images

Decision guidance – which is the most appropriate system?

Requirement	Especial recommended system
Primarily saving and printing of images	UVsolo
Limited bench space	GelTower, UVsolo, GelStudio digital compact, GelStudio live compact
Colored images	GelTower, GelStudio digital
Especial light-sensitive system	GelStudio live, GelStudio SA, UVsolo
Documentation of small gels with maximum zoom	UVsolo, GelStudio live, GelStudio SA
Documentation and analysis of large gels	GelStudio digital
Quantification of samples	GelStudio live, GelStudio SA

Technische Daten



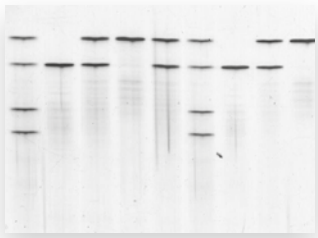


GelStudio Systems

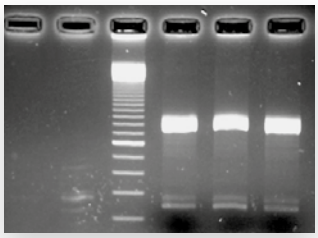
	UVsolo	GelTower	GelStudio digital	GelStudio live	GelStudio SA
System					
Type	Stand-alone	Computer-controlled	Computer-controlled	Computer-controlled	Stand-alone
Camera					
Resolution	1.3 MP	12.2 MP *	12.2 MP *	2.0 MP, exentable to 6.0 MP	2.0 MP, exentable to 6.0 MP
Sensor	monochrome	color	color	monochrome	monochrome
Sensor size	½''	22.2 mm x 17.4 mm	22.2 mm x 14.7 mm	½''	½''
Data depth	8 bit (16 bit file)	8 bit (gray scales) 24 bit (color)	8 bit (gray scales) 24 bit (color)	12 bit (16 bit file)	12 bit (16 bit file)
Light-sensitivity	++	+	+	++	++
Darkhood					
Filter changer	Filter drawer	5-position filter wheel	GelStudio Box: 4-position filter wheel	GelStudio Box: 4-position filter wheel	5-position filter wheel
Illumination					
White light from above	+	+	with GelStudio Box	with GelStudio Box	+
UV transilluminator	fixed	pull-out	BDA Hood: separate GelStudio Box: pull-out	BDA Hood: separate GelStudio Box: pull-out	pull-out
UV light from above	-	-	GelStudio Box 2	GelStudio Box 2	optional
Software					
Image acquisition software	+	+	+	+	+
Gel analysis	optional	+	+	+	+ (for separate computer)

* Please check homepage for current resolution

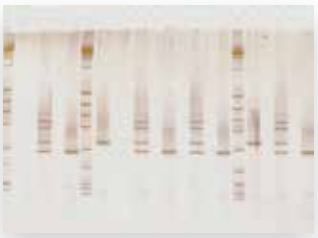
A detailed description of each system is given on the following pages.



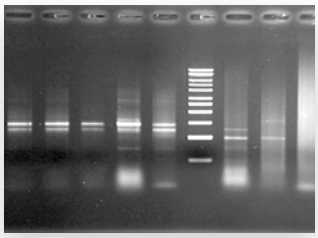
Silver stained polyacrylamide gel (white light, black & white photo)



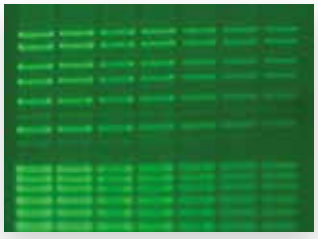
Ethidium bromide stained agarose gel (UV light, black & white photo)



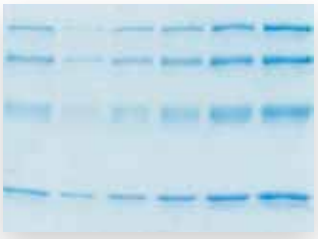
Silver stained polyacryamide gel (white light, color photo)



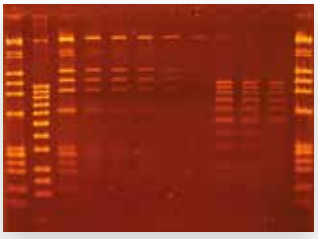
Ethidium bromide stained agarose gel (UV light, black & white photo)



SYBR® Green stained agarose gel (UV light, color photo)



Coomassie Blue stained polyacryamide gel (white light, color photo)



Ethidium bromide stained agarose gel (UV light, color photo)

UVsolo | Stand-alone gel docmentation system

UVsolo is an extra compact system for gel documentation without the need for a personal computer. The system is designed to acquire gel images very easily and without any need for training.

- Self-explanatory stand-alone system
- Light-sensitive 1.3 MP CCD camera
- Touch screen for simple handling
- Ideal for multi-user laboratories

Converter plate

The system

The UVsolo system comes with a light-sensitive black & white CCD camera with a high resolution of 1.3 megapixels. An also light-sensitive zoom lens provides for images of high contrast. The system is controlled by a touch screen with an intuitive to use image acquisition software.

With live view all changes of the camera's integration time, the lens aperture setting or of the zoom area are displayed in real-time on the 8 inch screen. Saturation monitoring allows the easy capture of fully quantifiable images.

The gel images are saved in the universal file formats tif, jpg, or gif on USB storage device, the internal computer memory or via network connection on a network computer. For prints a printer with USB interface can be connected to the UVsolo.

With a software print button printing is directly started. Recommended printer is a high-resolution thermal printer which creates brilliant prints on high-glossy paper.

The transilluminator

Two different sizes are available: 20 cm x 20 cm UV filter size for small to middle sized gels or 25 cm x 26 cm filter size for larger gels. It is possible to control the UV intensity in 3 levels: Image acquisition should always be done with maximum UV intensity with switch setting "High". For cutting samples out of gels it is recommended to reduce the UV intensity to avoid a damage of the samples. This can be done with switch settings "Medium" and "Low".

UV protection

Users of the UVsolo are savely protected against UV radiation: Opening the front door automatically switches off the UV light. A direct and safe view to the fluorescent gel under UV illumination is possible through the gel viewing window in the front door. For cutting gels under UV illumination two side-access doors are included. When somebody prefers to cut out of the fluorescent gel with open front door this can also be done: The UV override switch allows to turn on UV light with open door. Closing the door automatically re-activates the UV protection switch. This ensures a save operation for subsequent users.

Documentation of colored gels

The image acquisition of non-fluorescent gels, e.g. silver or Coomassie Blue stained polyacrylamide gels can be done with the optional available **converter plates**. Such plates are directly placed on top of the UV transilluminator. The plate converts the UV light to visible light, similar to the light of a white light table.

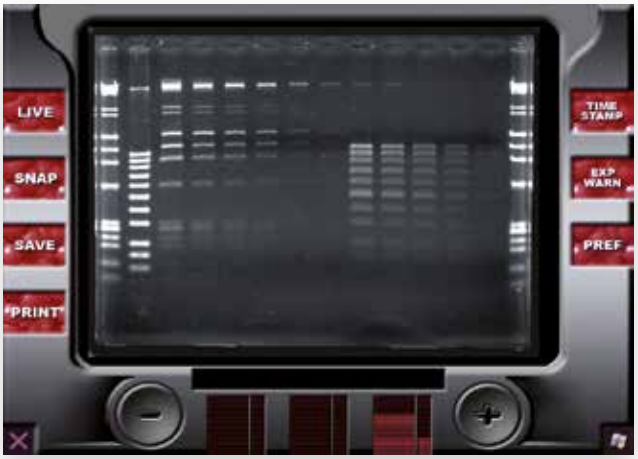
Analysis of gel images

Main application of the UVsolo typically is saving and printing of gel images. But it is also possible to analyse gels with the optional gel analysis software. It is the same analysis software that is included as a standard in the computer-controlled systems „GelTower" and „GelStudio". Users of the UVsolo install the optional VisionWorksLS software on a separate personal computer. Gel images in tif or jpg file format can be imported into the VisionWorksLS analysis software.
The calculation of fragment sizes or a quantification of sample material is easily done in a few steps. For details please see section „VisionWorksLS".

Further converter plates

For blue-light illumination of fluorescent dyes one of the UV-to-blue light converter plates can be applied.
Furthermore a UV-to-UV converter plate is available which converts 302 nm UV to 365 nm UV. This is excellent for preparation and gel excision work.

Features	Benefit
Touch screen with image acquisition software	Easy to use, simple to clean
Saving of images on USB stick, computer or by network	High flexibility, perfect for groups with many users
Filter drawer for bandpass filters	Easy change of filter for use of different fluorescent staining dyes
Self-explanatory operation and maximum UV protection for users	Well-suited for laboratories with varying users and for practical courses
Compact system with footprint size of a transilluminator	Requires minimum of bench space



Order information

Order number		Item
849-00500-2 849-00500-4	230 V 115 V	**UVsolo**: Monochrome, digital ½'' CCD camera, resolution 1280 (H) x 1024 (V), manual zoom lens 8 – 48 mm, bandpass filter for e.g. EtBr, darkhood with 8'' LCD touch screen with tilt capability, USB port for USB stick, network connectivity, safety interlocking door, UV override switch, gel viewing window, side access doors for gel cutting, UV transilluminator (302 nm, 20 cm x 20 cm filter size, UV intensity switch), overhead LED white light, USB 2.0 ports for connecting e.g. a printer. English manual. Dimensions with camera: 78.0 x 36.1 x 33.8 (H x W x D, cm)
849-000501-2 849-000501-4	230 V 115 V	**UVsolo 2**: see UVsolo, but transilluminator with filter size 25 cm x 26 cm

Accessories

Order number	Item
849-00401-0	**Bandpass filter for SYBR® Green** stains, for UVsolo filter drawer
849-00402-0	**Bandpass filter for SYBR® Gold** stains, for UVsolo filter drawer
849-20100-0	**Digital thermal printer Mitsubishi P95DE**, high resolution (325 dpi), USB 2.0 port, dimensions: 8.5 x 15.4 x 23.9 (H x B x T, cm)
849-20111-0	**Thermal paper KP65HM**, matt, high-contrast, 4 rolls à 20 m
849-20110-0	**Thermal paper K95HG**, high-glossy, high-contrast, 5 rolls à 18 m
849-20510-0	**Converter plate**, UV-to-white, 21 cm x 26 cm filter size
849-20511-0	**Converter plate**, UV-to-white, 25 cm x 26 cm filter size
849-20520-0	Converter plate, UV-to-blue "Visi-Blue", 21 cm x 26 cm filter size, 460 nm - 470 nm
849-20521-0	Converter plate, UV-to-blue "Visi-Blue", 25 cm x 26 cm filter size, 460 nm - 470 nm
849-20523-0	**Converter plate**, UV302-to-UV365, 25 cm x 26 cm filter size
846-057-012	UV transparent acrylic tray for preparative tasks on a transilluminator, 29 cm x 23 cm
846-057-013	UV transparent gel scoop, scoop size 14 cm x 15 cm
846-057-002	UV bulb 8 W, 302 nm, for UV table
846-055-001	UV light face protection shield

Software

849-00202-0	**VisionWorksLS:** analysis software for gel images in tif, jpg, bmp, gif or png format. Single use license.
849-00203-0	**VisionWorksLS software:** as above, but five user license

GelTower | Simplify and maximize precast and mini gel imaging

- Brilliant color or grayscale publication-quality images with 12.2 MP resolution
- Perfect for precast and mini gels up to 11.5 x 16 cm
- Illuminate nucleic acid and protein gels with interchangeable transillumination sources: white, blue, midrange and longwave UV
- Analyze results using simple workflow-focused software
- Reduces lab space requirements with its compact design – footprint is smaller than 330 mm x 330 mm

The small imager GelTower is perfect for small gels up to 11.5 to 16 cm size. The computer-controlled imager comes with a digital single lens reflex camera and provides for high-resolution images in color and gray scales. Simply place the gels on the transillumination plate, then capture brilliant color images. The streamlined software interface guides through the image capture process with automated pre-set capture buttons. Alternatively, individual settings can be defined for quick, personalized image capture. Analysis of gels is done with the user-friendly VisionWorksLS software. The use of this compact imager doesn't require any training.

The GelTower utilizes a built-in midrange 302 nm UV transilluminator. The imaging capabilities can be maximized by adding interchangeable sample plates to view a wide range of fluorophore and colorimetric stains. The modular design enables easy placement of sample plates to illuminate precast or mini gels with sizes up to 11.5 x 16 cm.

Selection of optional sample plates that convert 302 nm UV:

- Visi-Blue™ Light Plate: Converts UV to 460/470 nm for viewing stains such as SYBR® Green, GelRed™ and GelGreen™.
- White Light Plate: Converts UV to white light for viewing Coomassie Blue and silver stained gels.
- Longwave UV Plate: Converts 302 nm UV to 365nm UV, which reduces photonicking of samples.

A Black Sample Plate is included with the GelTower for placement of samples not requiring transillumination lighting. A Sample Plate Holder is available for storage of the plates.

Easily accessible controls

The control panel enables easy selection of emission filters and lighting. The emission filter selector controls the five-position filter tray, located on the side of the darkroom, which includes an ethidium bromide filter. Add additional filters as required for other types of stains. The lighting selector controls choice of epi white light or transillumination lighting. A safety switch automatically shuts the transillumination lighting off when the transilluminator is opened or after ten minutes.

Simple software interface

The software interface features pre-set, one-touch preview and capture buttons to simplify image acquisition. The capture buttons control the camera and lighting settings. Or, define and save specific settings as templates which can easily be accessed for repeat experiments. Images are publication-ready and highly quantifiable. They are clear and ready for analysis. Easily perform image enhancements and 1D analysis with the VisionWorksLS software. Calibrate using Molecular Weight (MW) standards from the software library or add your own standards. Create, document and print detailed and customizable reports of analysis data.

Order information

Order number		Item
220 V	115 V	
849-00510-2	849-00510-4	GelTower Imager: DSLR camera with 12.2 MP resolution, 302 nm UV transilluminator with 11.5 cm x 16 cm filter size, epi-white light, 5-position filter-wheel, emission filter for e.g. EtBr, black sample plate, VisionWorksLS acquisition and analysis software. Dimensions 39.4 x 32.5 x 33.0 (H x W x D, cm)
		Accessories
849-00520-0		Visi-Blue™ Sample Plate, converts 302 nm UV to 460 - 470 nm for viewing stains such as SYBR® Green, SYBR® Safe and GelGreen™
849-00521-0		White Light Sample Plate, converts 302 nm UV to white light for viewing Coomassie Blue and silver stained gels
849-00522-0		Longwave UV Sample Plate, converts 302 nm UV to 365 nm UV, which reduces photonicking of samples
849-00523-0		Sample Plate Holder
849-00401-0		Emission filter, 50 mm square, with transmission range 510 - 560 nm, for e.g. SYBR® Green
849-00402-0		Emission filter, 50 mm square, with transmission range 520 - 620 nm, for e.g. SYBR® Gold
849-20100-0		Thermal printer Mitsubishi P95DE, high resolution (325 dpi), USB2.0 interface, dimensions 8.5 x 15.4 x 23.9 (H x W x D, cm)
849-20111-0		Thermal printer paper KP65HM, high contrast, 4 rolls à 20 m
846-20110-0		Thermal printer paper K95HG, high glossy, 4 rolls à 18 m
840-90000-2		Personal computer for GelTower, fully installed, with 19'' TFT monitor

GelStudio Systems | Advanced imaging systems with separate computer or as stand-alone version

GelStudio imaging systems are computer based systems and are designed to provide high functionality with easy-to-use operating interfaces. The GelStudio line also offers an instrument with integrated computer: The GelStudio SA comes with a large touchscreen and doesn't require a separate computer. Depending on the camera type a specific image acquisition software is included to attain optimal results and user comfort. The GelStudio system with digital single lens reflex camera is referred to as GelStudio digital, the systems with monochrome CCD camera are named GelStudio live, resp. GelStudio SA for the stand-alone version. The VisionWorksLS gel analysis software is included in all GelStudio systems. It is an up-to-date software for fast and versatile analysis of gels and blots.

GelStudio digital | GelStudio with digital single lens reflex color camera

Note: System with Gelstudio Box is available from spring 2014. Please check www.bio.analytik-jena.com.

GelStudio digital provides state-of-the-art digital photography. Heart of the system is a digital single lens reflex camera with amazing high resolution and autofocus.

- High-class digital camera with 12.2 megapixels*
- Specifically developed software
- Powerful VisionWorksLS gel analysis software
- Choice of small darkhood or advanced GelStudio Box

The camera is widely software-controlled and provides versatile functions for fast and easy image acquisition.The software offers many tools for image capture, image enhancement and reporting and supports compliance with 21 CFR Part 11. The gel files can be reliably analysed by self-explanatory VisionWorksLS software routines (For details please see section "VisionWorksLS Analysis Software"). The high resolution images are particularly useful for the detection of close banded gels and for band quantification.The combination of zoom lens with high resolution of the sensor makes the system ideal for acquisition of extra large gels.

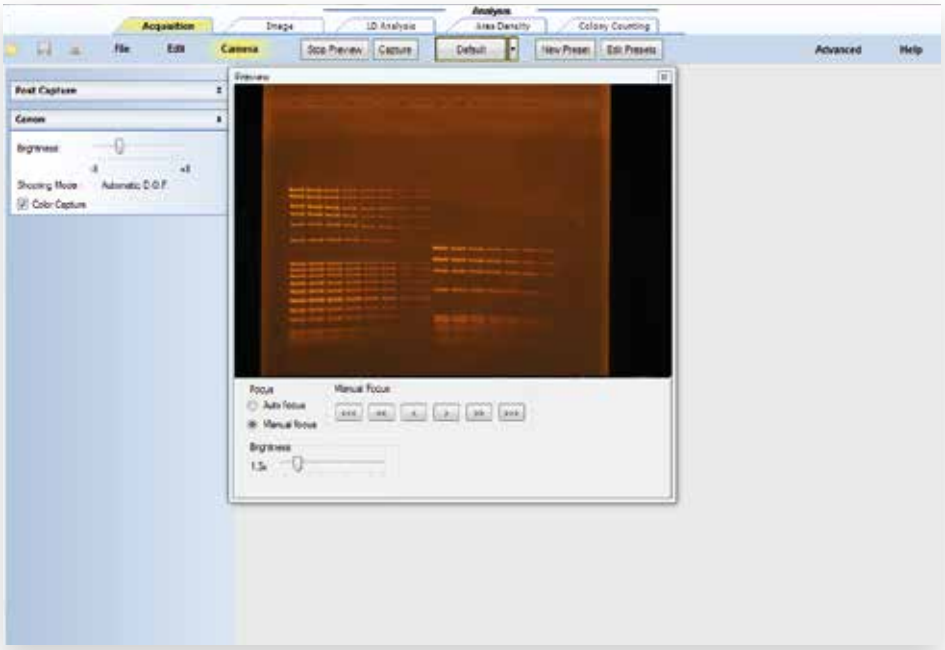


Image acquisition software

for control of

- Acquisition mode (auto, manual)
- Automatic and manual focus
- User-defined and default settings and templates
- Color and gray scales
- Image enhancement
- Live preview
- Loading and saving files (tif, jpg,bmp)
- Printing

* Please refer to the Analytik Jena homepage for latest camera resolution.

Darkhoods

The modular design offers the choice between the cost-effective GelStudio digital compact with small darkhood or GelStudio digital systems with the advanced darkhood GelStudio Box.

The small darkhood of GelStudio digital compact is placed on top of a UV transilluminator. Together with a UV converter plate GelStudio is ready for documentation and analysis of fluorescent and colored gels and blots.

Application of the GelStudio Box is the perfect choice for all users looking for a bright overhead white light and for a pullout transilluminator. For details of GelStudio Box please refer to section "GelStudio Darkhood".

Transilluminators

GelStudio digital systems are equipped with a UV transilluminator out of the wide range of the benchUV line. For details please see section "Transilluminators".

Features	Benefit
High-resolution images in color or in gray scales	High versatility
Real-time image preview	Exact gel positioning prior to UV exposure
Individual profiles with camera settings	Only one click for an image
Manual focussing possible	Even samples with diffuse bands can be photographed perfectly
Ingenious camera anti-theft mounting	No risk of camera theft
Independent use of camera possible	Camera can also be used for other laboratory tasks and microscopy photography
Small darkhood available	High-quality gel documentation with cost-effective and space-saving "compact" set

For details of transilluminators please see section 8.3 "Transilluminators" on page 370.

For ordering information please see page 357.

GelStudio digital system

GelStudio digital compact and benchUV transilluminator

Effective anti-theft protection of the camera

GelStudio live | GelStudio with digital monochrome CCD camera

Available from spring 2014. Please check www.bio.analytik-jena.com.

- Light-sensitive scientific-grade CCD camera
- High resolution camera of 2.0 MP and high-quality motorized or manual zoom lens
- Extended dynamic range of 12 bit for 4096 gray levels
- Auto-exposure enables the perfect image exposure of gels below the saturation level
- Powerful VisionWorksLS analysis software

GelStudio is the system of choice for professional gel documentation. A digital CCD camera with light-sensitive lens provides for brilliant gel images. The camera comes with 2.0 megapixel resolution and can be extended to 6.0 MP. The data depth of 12 bit makes it ideal for precise band detection and accurate sample quantification. A manual zoom lens as well a motorized zoom lens are available. The intuitive image acquisition software allows the creation of high-contrast images in a few steps.

Image acquisition software

for control of

- Automatic or manual exposure
- Brightness
- Contrast
- Gamma correction
- Signal enhancement
- Motorized zoom lens
- Gel rotation
- Live view
- Inverting
- Saturation monitoring
- Creation of image sections
- Loading and saving files (16 bit tif, 8 bit tif, jpg, bmp, gif, png)
- Printing

Features	Benefit
Advanced camera specifications	Perfect performance for documentation, quantification and publication
Live image	Exact gel positioning before exposure to UV
Image acquisition software with optimisation tools like signal enhancement	Clear documentation of faint fluorescent samples for maximum results
Robust and easy to use	Perfect for practical courses and routine applications
Different darkhoods with similar mounting of camera	Upgrade from simple hood to advanced darkhood possible

GelStudio live is available as complete system including darkhood GelStudio Box, transilluminator, thermal printer, installed up to date computer and converter plate or it can be composed of GelStudio live core set including camera and software plus further required components.

GelStudio system

An especial space and budget-saving version of GelStudio live is the GelStudio live compact set. The set consists of the core set with camera, bandpass filter, image acquisition and analysis software plus small darkhood "GelStudio Hood". This hood is directly placed on top of the transilluminator. A small sliding door allows an easy aligning of the gel on the UV table.

The images can be directly analysed with the VisionWorks LS software. The analysis software offers the convenience of an automatic or semi-automatic band detection with subsequent size and mass calibration on the basis of custom markers.

For details of software features please see next page.

For details of darkhood GelStudio Box please see page 353

For details of transilluminators please refer to section 8.3 "Transilluminators" see page 370.

GelStudio live compact and benchUV transilluminator

For ordering information please see page 357.

VisionWorksLS Analysis Software | Gel analysis in a few steps

- 1D quantitation, area density analysis and colony counting
- User defined master templates for selecting and saving settings for repeat experiments
- Report generation and export of data to Excel
- Support for 21 CFR Part 11 compliance
- Included in GelTower and GelStudio systems
- Optional component for UVsolo

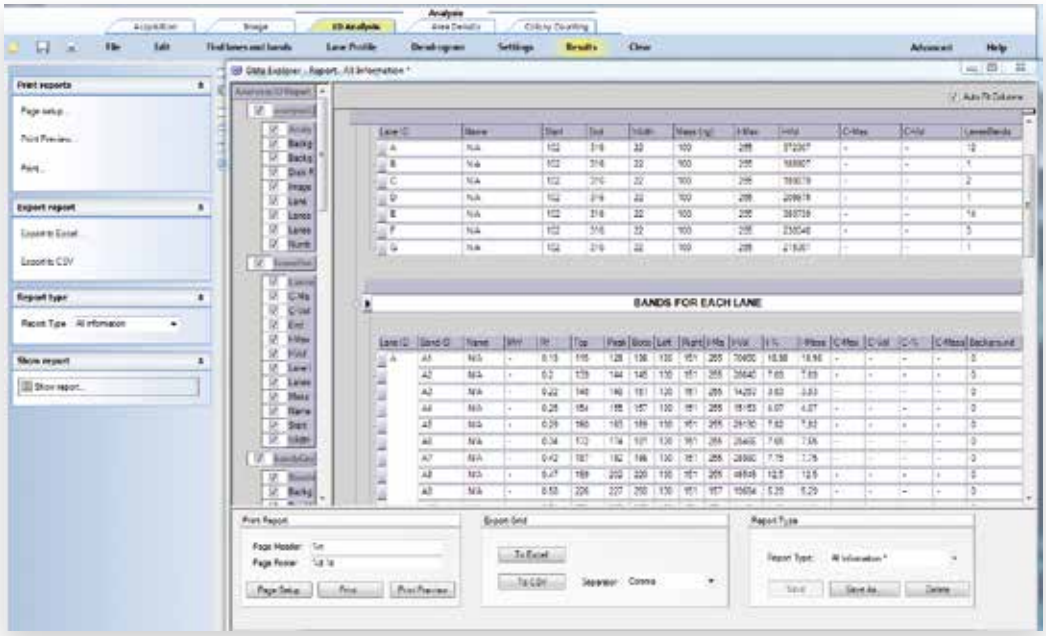
The VisionWorksLS software is a powerful package of imaging and analysis software supporting different camera models. The software provides sample analysis of electrophoresis gels and blots with best results in a minimum amount of time. The software can be used for fluorescent, colorimetric and chemiluminescent applications and accepts typical file formats like JPG, TIF, and BMP. Gel images can be analysed. Also files generated with other acquisition sources can be imported. The user-friendly interface provides for efficient analysis and generates precise band size calculations.

The analysis software convinces with its self-explanatory design and can be easily used without extensive training.

The software offers many non-destructive process filters, enhancement features and annotation tools that can be applied to images for visualization and publication. Annotations tools include text, lines and highlights. Filter tools include align, rotate, emboss, sharpen, resize and background correction. Researchers can personalize workspace preferences and save profiles by user name. Also, user accounts can easily be set up with passwords to save and protect user data. Master templates are great time savers and allow users to set and save camera settings for quick, easy capture of samples. Reports are created showing extensive analysis results including Molecular Weight (MW), Rf, band intensities and area density calculations. Data can be exported to Excel. The image history is tracked with change logs and supports 21 CFR Part 11 compliance.

Features

- Automatic lane and band recognition
- Add, delete and separate lanes and bands
- Optimisation of detection parameters
- Different choices for background adjustment
- Automatic calculation for size/MW, mass, RF
- Result sheet
- Compensation of gel smiling and distortions
- Zoom, invert and pseudocolor functions
- Add annotations and arrows
- Generate lane profile graphs
- Perform dendrogram analysis
- Colony counting
- Support for 21 CFR Part 11 compliance
- One-touch automated macros
- Define user-profiles and preferences
- Generate extensive reports and export data
- Multiple user network license available



GelStudio Darkhood | GelStudio Box – the ultimate darkhood

- Dedicated to imaging of fluorescent and colored gels and blots
- Premium user convenience
- Integrated UV protection
- 2 different configurations

The GelStudio Box is designed for daily use in the laboratory. The robust construction provides high functionality and excellent ergonomics over years.

Features	Benefit
Compact size and small footprint	▪ Saves valuable bench space
Smooth surfaces and inside coated with black protective varnish	▪ Easy to clean ▪ Long-term resistent against ionic buffers and UV light ▪ Reflexion free
Comfort sliding door	▪ Light-tight cabinet ▪ Free access to the imaging area with one fingertip ▪ Space-saving opening proper for narrow laboratory corridors ▪ Gels can be placed directly in front of the hood for easy gel transfer to the UV table
Integrated UV protection shield	▪ Protects the user from UV exposure also during sliding out the UV table ▪ Freely adjustable according to individual needs ▪ Applicable for cutting gels without the need for additional protection equipment
Bright overhead white light	▪ Supports sample positioning and is suitable for acquisition of colored blots
Panel with liquid protected switches for UV and white-light	▪ Clearly arranged and designed for intensive use
Easy access to lamps and filters and other replacement parts	▪ Absolute service friendly

Selection of darkhood configurations

Tailored to different budgets and application requirements four different darkhood versions are available: The GelStudio Box comes with an ingenious “all-in-one” camera mounting to be compatible with all supplied GelStudio box and GelStudio hood systems. Using an individual adapter, all different cameras can be mounted. This provides the possibility for users to adapt their existing hood to other camera types when application requirements are changing.

	Darkhood version	
Feature	GelStudio Box Standard version	GelStudio Box 2 Advanced version
Epi-white light	+	+
UV protection shield	+	+
Mounting of UV bandpass filter	4-position filter wheel	4-position filter wheel
Transilluminator	Pull-out	Pull-out
Epi-UV light	–	+

UV Transilluminators

The GelStudio can be equipped with one of the different UV table versions of benchUV. Important characteristics of benchUV are the excellent illumination uniformity and the low background signal. For documentation of gels with colorimetric dyes or radiographs a UV converter plate is supplied. The plate is directly placed on top of the UV table and thus extends the application range from documentation of fluorescent samples to all visible signals. A more detailed description of transilluminators and converter plates is given in section “Transilluminators“.

There is the choice between:

Filter size	▪ 15 cm x 15 cm ▪ 20 cm x 20 cm ▪ 21 cm x 26 cm ▪ 25 cm x 26 cm
UV wavelength	▪ 254 nm ▪ 302 nm ▪ 365 nm ▪ 302/365 nm ▪ 254/302/365 nm
Intensity setting	▪ Switch for variable intensity in steps “high, medium, low“

Blue light transilluminators

Alternatively to a UV transilluminator a blue light table can be used. Blue light illumination is applicable for fluorescent stains with an excitation range around 470 nm. This is true for e.g. SYBR® Green, GelGreen™, SYBR® Safe, SYBR® Gold or SYPRO® Ruby.

Overhead UV illumination

Some applications require a UV excitation from above: membrane blots with UV fluorescent stains. Even for gels showing a high background signal it can be advisable to excite the sample fluorescence from above. This will enhance the sample signal against the gel background noise.
GelStudio Box 2 is available with epi-UV of 254 nm and 365 nm. Alternative 302 nm UV is supplied on request.

Overhead white light in GelStudio Box

Overhead white light and overhead UV light in GelStudio Box 2

For details of the blue light transilluminators please see section “Transilluminators“ on page 372.

Filter wheel for bandpass filters

The acquisition of UV fluorescent images requires a specific bandpass filter in front of the camera lens.

There are different possibilities to place the filter in front of the camera lens:

Filter mounting	Application	Darkhood
Filter is directly screwed to the camera lens	▪ Cost-saving version for laboratories who mainly apply a certain stain, different stains with similar emission wavelengths or the bandpass filter with wide bandpass	GelStudio Hood of "GelStudio compact"
With 4-position filter wheel	▪ High flexibility for use of staining dyes with different filter requirements ▪ Accepts all filters with 58 mm diameter standard screw socket	GelStudio Box, GelStudio Box 2

Filter wheel

Slider for easy inserting of new filters

Emission filters for GelStudio with GelStudio Hood or GelStudio Box | High-grade filters for different dyes

For the documentation of UV fluorescent images an emission filter has to be attached in front of the camera lens. The filter has to be choosen in respect to the applied sample staining. The most commonly used filter has a transmission maximum of 590 nm and fits e.g. to ethidium bromide, Oriole™, SYPRO® Orange and SYPRO® Ruby staining. An alternative filter is available for fluorescent dyes with emission wavelengths between 500 and 580 nm, e.g. for SYBR® Green, SYBR® Gold, SYBR® Safe and GelStar®.

Optimal results with every dye are always achieved with the respective dedicated filter. Nevertheless it is possible to apply an emission filter with a wider bandpass which covers several dyes with different emission maxima. This might be helpful when a stand or a darkhood without filter wheel is used. Analytik Jena offers such an emission filter with wide bandpass: filter BP590/200.

UV fluorescent dye examples and compatible emission filters

Order number	Filter transmission range	Compatible dye	Excitation maximum	Emission maximum
849-00600-0	**BP590** **565 – 615 nm** 	**For nucleic acids:**		
		▪ Ethidium bromide	312 nm, 518 nm	595 nm
		▪ GelRed™	315 nm, 520 nm	605 nm
		For proteins:		
		▪ Oriole™	270 nm	604 nm
		▪ SYPRO® Orange	300 nm, 470 nm	570 nm
		▪ SYPRO® Ruby	280 nm, 450 nm	610 nm
849-00601-0	**BP540/80** **500 – 580 nm** 	**For nucleic acids:**		
		▪ GelGreen™	270 nm, 510 nm	525 nm
		▪ GelStar®	300 nm, 493 nm	527 nm (RNA: 532 nm)
		▪ SYBR® Gold	284 nm, 382 nm, 494 nm	537 nm
		▪ SYBR® Green I	254 nm, 497 nm	521 nm
		▪ SYBR® Green II (for RNA)		521 nm
		▪ SYBR® Safe	280 nm, 502 nm	530 nm
849-00602-0 resp. 849-00603-0*	**BP590/200** **490 – 690 nm** 	**For nucleic acids and proteins:** All dyes compatible with filter 849-00600-0 and 849-00601-0, see above, and additionally:		
		For proteins:		
		▪ SYPRO® Red	300 nm, 550 nm	630 nm
		For proteins, on Western Blots:		
		▪ WesternDot™ 625 with Qdot® nanocrystals	254 nm, 488 nm	625 nm

* Application of emission filter BP590/200

With GelStudio Box, in filter wheel	Insert 849-00603-0 (= filter 849-00602-0 + adapter ring + sealing ring) directly in the filter wheel.
With GelStudio Hood or with stand	**With GelStudio live compact:** Screw filter 849-00602-0 directly to the camera zoom lens. **With GelStudio digital compact**: Screw filter 849-00602-0 with adapter ring 846-034-019 (58 – 55 mm) to the lens.

GelStudio systems with computer-control | Order information

Note: Systems with Gelstudio Box and GelStudio live compact are available from spring 2014. Please check www.bio.analytik-jena.de.

Order number		Item
230 V	110/115 V	**GelStudio digital**[b]
849-00530-2	849-00530-4	**GelStudio digital core set**: Digital SLR camera[a] with USB2.0 interface, camera power supply, VisionWorksLS software for image acquisition and gel analysis. English manual.
849-00531-2	849-00531-4	**GelStudio compact**: GelStudio digital core set, small darkhood GelStudio Hood
		GelStudio live[b]
849-00540-2	849-00540-4	**GelStudio live core set**: Digital monochrome ½´´ CCD camera with USB2.0 interface, resolution 1600 x 1200 pixels, manual zoom lens 8 – 48 mm (F1.0 – F1.2), VisionWorksLS software for image acquisition and gel analysis
849-00541-2	849-00541-4	**GelStudio live Plus core set**: Digital monochrome 1/2" CCD camera, USB2.0 interface, resolution 1600 x 1200 pixels, motorized zoom lens, motor zoom controller, VisionWorksLS software for image acquisition and gel analysis.
849-00542-2	849-00542-4	**GelStudio live compact:** GelStudio live core set (with manual zoom lens), small darkhood GelStudio Hood
		Darkhoods (Transilluminator not included. Please refer to section „Transilluminators".)
849-00533-2[c] 849-00544-2[d]	849-00533-4[c] 849-00544-4[d]	**GelStudio Box**: Darkhood (52 cm x 54 cm x 51 cm, H x W x D), overhead white light, 4-position filter wheel, UV protection shield, drawer for transilluminator (for one of benchUV models)
849-00534-2[c] 849-00545-2[d]	849-00533-4[c] 849-00544-4[d]	**GelStudio Box 2**: dto., plus overhead UV light (245 nm, 365 nm)

Order number	Emission filters and related accessories
849-00600-0	BP590, emission filter for ethidium bromide stains, 58 mm Ø
849-00601-0	BP540/80 emission filter with transmission range of 500 to 580 nm, e.g. for SYBR® Green stains, 58 mm Ø
849-00602-0	BP590/200 emission filter with wide emission, transmission range of 490 – 690 nm for different dyes, e.g. ethidium bromide and SYBR® Green, 55 mm Ø
849-00603-0	dto., but plus adapter ring for filter wheel of GelStudio Box
849-00604-0	Amber filter for use with UV-to-blue converter plate or a blue light transilluminator in computer-controlled GelStudio systems, 58 mm Ø

[a] Please check our homepage www.bio.analytik-jena.com for the current camera resolution.
[b] Emission filter is not included. Please choose one of the list below according to used staining dye.
[c] including anti-theft adapter for GelStudio digital camera
[d] including adapter for GelStudio live camera
[e] Without a GelStudio Box please order adapter ring 846-035-027 additionally for mounting the emission filter directly at the camera lens.

Order number	Item
	Accessories
849-20100-0	**Thermal printer Mitsubishi P95DE,** high resolution (325 dpi), USB2.0 interface, dimensions 8.5 x 15.4 x 23.9 (H x W x D, cm)
849-20111-0	Thermal printer paper KP65HM, high contrast, 4 rolls à 20 m
849-20110-0	Thermal printer paper K95HG, high glossy, high contrast, 5 rolls à 18 m, only compatible with printer P95DE!
849-20510-0	Converter plate UV-to-white, 21 cm x 26 cm filter size
849-20511-0	Converter plate UV-to-white, 25 cm x 26 cm filter size
849-20520-0	Converter plate UV-to-blue "Visi-Blue", 21 cm x 26 cm filter size, 460 nm - 470 nm
849-20521-0	Converter plate UV-to-blue "Visi-Blue", 25 cm x 26 cm filter size, 460 nm - 470 nm
849-20523-0	Converter plate UV302-to-UV365, 25 cm x 26 cm filter size
849-20605-0	UV transparent acrylic tray for preparative tasks on a transilluminator, 29 cm x 23 cm
846-057-013	UV transparent gel scoop, scoop area 14 cm x 15 cm
	Computer
840-90000-2	Personal computer, plus TFT monitor, completely installed
	Software
849-00202-0	**VisionWorksLS software (already included in GelTower and all GelStudio systems)**: Analysis software for gel images in tif, jpg, bmp, gif or png format. Single user license.
849-00203-0	VisionWorksLS software, see above. 5 user license.

GelStudio SA | Advanced stand-alone imaging system with touch screen

- Scientific-grade monochrome CCD camera with motorized zoom lens
- Brilliant images of fluorescence and colorimetric applications
- Large 15.6'' touch screen for self-explanatory image acquisition
- Compact darkroom with slide-out transilluminator

The introduction of the new GelStudio SA Imaging System marks a new generation of simplicity and imaging control for researchers. This imager successfully combines a powerful computer, integrated touch screen and software interface into an easy-to-use plug and play unit. A light-sensitive CCD camera provides for high-resolution images with 2.0 MP and 12 bit data depth. The image capture functions are presented in a straightforward and efficient workflow format. Users can be assured of quick and simple image capture with a touch of the screen!
The built-in computer creates a networkable stand-alone system. Users can easily capture images and save to a flash drive. Or transfer the images to a separate computer via wired or wireless network for further documentation or analysis. For high-resolution prints a digital thermal printer is recommended.

Touch Screen

Researchers can perform simplified imaging with the integrated image capture software and touch screen interface.

- Ease of use: The straightforward interface guides users through live preview, capture and save functions. When a function is active, the software clearly highlights the status for ease of workflow and navigation.

- Touch screen: Users can easily control settings with the user-intuitive touch screen interface.

The function control panel lets users fine tune exposure, aperture, zoom and focus functions which can be adjusted with a touch of the screen. All current settings are clearly displayed on the main screen. Additional software functions are a click away with the conveniently located buttons:

- Saturation warning: A colored overlay shows oversaturated areas of an image, alerting users to adjust the exposure and/or aperture settings.
- Auto Adjust: This efficient tool automatically adjusts the image histogram to generate ideal imaging results.
- Lighting and filters: This menu allows selection of epi and trans-illumination lighting and emission filters.
- Preferences: The user preferences window allows adjustment of default system settings such as location for saving captured images.
- Selection of language: English is the standard language format of the software. Users can alternatively select from German, Chinese (simplified), Turkish, Japanese, Spanish, Korean and Russian for all screen text and buttons.

The **compact, light-tight darkroom** is ideal for multiple users and multiple applications.

Emission filters are placed in the easy access five-position filter tray. An ethidium bromide filter is standard, additional filters are available.

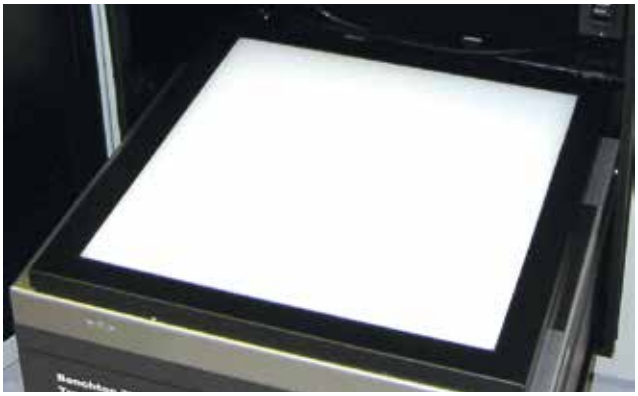
The **transilluminator** is placed on the easy access roll-out tray. A wide choice of transilluminators with different filter sizes and UV wavelengths are available.

A **gel viewing window** in the front door blocks UV while allowing visualization of samples without opening the cabinet door.

Five-position filter wheel

Researchers performing colorimetric visible light imaging can use a **converter plate** or can add the optional **LED white light plate**. This plate supplies uniform white light transillumination. The Visi-Blue Plate converts the transilluminator's UV to 460 – 470 nm for imaging e.g. SYBR® Green, GelGreen™ and other stains requiring blue light. For multiplex imaging researchers can add the **eLite MultiSpectral Light Source** for epi-excitation of a wide range of fluorophores.

Add filters to meet specific wavelength requirements. **Epi white lights** are built into the darkroom for lighting and focusing purposes. For UV excitation from above optional **UV modules** are available. The modules can be removed for handheld use. There is the choice between longwave (365 nm), shortwave (254 nm) or combination 254/365 nm lamp modules. USB and SD Ports are located on the side of the cabinet for saving images.



LED white light plate

Order information

Order No.		Description
230 V	115 V	
849-00550-2	849-00550-4	GelStudio SA: Digital monochrome ½'' CCD camera, resolution 1600 x 1200 pixels (2.0 MP, extentable to 6.0 MP), motorized zoom lens (12.5 – 75 mm, F1.2), 12 bit data depth, 16 bit file depth (65,536 grayscales), emission filter (580 – 630 nm) for e.g. EtBr, five position filter wheel, 15.6'' touch screen, integrated computer, with access port for optional eLite source, epi-white light, pull-out tray for transilluminator, USB flash drive, keyboard, mouse, VisionWorksLS software for image acquisition and analysis. Dimensions: 85.1 x 44.4 x 36.8 (H x W x D, cm). The transilluminator is not included and has to be choosen from section "Transilluminators"!
		Emission filters
849-00401-0		Emission filter, 50 mm square, with transmission range 510 - 560 nm, for e.g. SYBR® Green
849-00402-0		Emission filter, 50 mm square, with transmission range 520 - 620 nm, for e.g. SYBR® Gold
		Converter plates
849-20510-0		Converter plate UV-to-white, 21 cm x 26 cm filter size
849-20511-0		Converter plate UV-to-white, 25 cm x 26 cm filter size
849-20520-0		Converter plate UV-to-blue "Visi-Blue", 21 cm x 26 cm filter size, 460 nm - 470 nm
849-20521-0		Converter plate UV-to-blue "Visi-Blue", 25 cm x 26 cm filter size, 460 nm - 470 nm
849-20523-0		Converter plate UV302-to-UV365, 25 cm x 26 cm filter size
849-20500-0		LED white light plate
		Epi UV modules
849-20700-0		UV module UVGL-25 (254/365 nm). Two are recommended.
849-20701-0		UV module UVL-21 (365 nm). Two are recommended.
849-20702-0		UV module UVG-11 (254 nm). Two are recommended.
		Software
849-00202-0		VisionWorksLS software (already included in GelStudio SA): Analysis software for gel images in tif, jpg, bmp, gif or png format. Single user license.
849-00203-0		VisionWorksLS software, see above. 5 user license.
		Further accessories
849-20100-0		Thermal printer Mitsubishi P95DE, high resolution (325 dpi), USB2.0 interface, dimensions 8.5 x 15.4 x 23.9 (H x W x D, cm)
849-20111-0		Thermal printer paper KP65HM, high contrast, 4 rolls à 20 m
846-20110-0		Thermal printer paper K95HG, high glossy, 4 rolls à 18 m

ChemStudio product line | Highly sensitive chemiluminescence systems

The ChemStudio product line has been designed for a wide range of imaging applications. Depending on system configuration, usages range from simple gel and chemiluminescent documentation to advanced, multispectral and multifunctional imaging. Significant applications include high-resolution detection of chemiluminescence, fluorescence and colorimetric samples. ChemStudio can be used to meet countless BioImaging needs, both in the fields of proteomics and genomics. When operated with VisionWorksLS software, automated image acquisition and analysis can be realized.
In addition to comprehensive image acquisition features, the software provides extensive and detailed image analysis tools, including 1D, area density and colony counting capabilities.

- Imager for chemiluminescence, fluorescence and colorimetry, upgradeable for NIR/multiplexing imaging applications
- Selection of highly sensitive, cooled CCD cameras with fixed focal length or zoom lenses (motorized or manual)
- Light-tight darkrooms with large front door and unique UV-safe gel viewer window
- Available either as a PC-operated unit or as a stand-alone instrument with integrated color touchscreen
- Easy-to-access filter wheel with to up to five positions
- Integrated overhead (epi) white light for optimum illumination and focusing
- Chemi tray for sample placement on the black, non-reflective surface
- Telescoping transilluminator tray provides easy access to the UV transilluminators
- Upgrade options with versatile accessories such as multispectral light sources, overhead UV light sources, LED white light plates and much more
- VisionWorksLS Software with comprehensive features

ChemStudio	ChemStudio SA	ChemStudio PLUS
▪ Simple, efficient darkroom configuration	▪ Stand-alone system with integrated PC and 15.6" color touchscreen	▪ High-end darkroom for a variety of imaging applications
▪ Cost-effective alternative to other chemiluminescence systems	▪ Simple, intuitive software user interface ▪ USB ports as well as wired and wireless networking capabilities for saving images	▪ Motorized or manual platform lift available
▪ 4-position emission filter wheel	▪ 5-position emission filter wheel	▪ 5-position emission filter wheel
▪ Manually controlled illumination and emission filter wheel ▪ Camera and lens controlled manually or via software	▪ Fully automatic control: illumination, camera, lens and emission filter wheel	▪ Fully automatic control: illumination, camera, lens and emission filter wheel
▪ VisionWorksLS software: image acquisition and analysis	▪ Stand-alone software: acquisition, multilingual ▪ VisionWorksLS software: image analysis (requires external computer)	▪ VisionWorksLS software: image acquisition and analysis

Multifunctional darkrooms

All ChemStudio darkrooms are absolutely light tight and extraordinarily user friendly. The large front door and unique gel viewer window provide easy access to the instrument interior for optimal control of blot and gel images. The overhead white light further supports sample positioning and focusing. Especially for chemiluminescence image capture, the integrated chemi tray offers an ideal, non-reflective black background. Additionally, the filter wheel can be equipped with up to five different emission filters to support a variety of applications (e.g. for EtBr).

- Chemiluminescence, fluorescence and colorimetry
- Expandable to IR/NIR multiplex applications
- Designed with simplicity and ease-of-use in mind
- Extensive standard equipment

A winning combination: CCD-Cameras and lenses

In order to meet the requirements for recording different types of signals, a set of scientific-grade, cooled CCD-Cameras with resolutions of up to 8.1 MP is available. The cameras are combined with a variety of high-quality lenses, either with fixed focal length or zoom capabilities. Moreover, the integrated Peltier cooling is essential for detection of low light chemiluminescence signals, e.g. for Northern, Western and Southern Blots. When compared directly to other detection methods, cooled CCD-Cameras are superior in terms of sensitivity, accuracy, dynamic range, speed and ease of handling.

Analytik Jena's BioImaging products eliminate the need for film and accordant processing chemicals. Thus, the ChemStudio line supports eco-friendly, imaging practices.

Application	CCD-Camera 810	CCD-Camera 610	CCD-Camera 510
Chemiluminescence	+++	+++	++
Fluorescence	+++	++	++
Colorimetry	+++	++	++
NIR	++	+++	+
Multiplex	++	+++	+

Specifications	CCD-Camera 810	CCD-Camera 610*	CCD-Camera 510
Greyscale	65,536	65,536	65,536
Bit depth	16 Bit	16 Bit	16 Bit
Pixel resolution	3296 x 2472	2184 x 1472	2336 x 1752
Megapixels	8.1 (may be expanded to 16.2*)	3.2 (may be expanded to 9.6*)	2.1 (may be expanded to 7.4*)
Cooling	Room temp - 35 °C Peltier cooling	Room temp - 50 °C Peltier cooling	Room temp - 35 °C Peltier cooling
Binning	1 x 1 up to 8 x 8	1 x 1 up to 10 x 10	1 x 1 up to 8 x 8
Quantum eff. Peak / 425 nm	50 % and 42 %	86 % and 53 %	50 % and 42 %
Lenses	50 mm f/1,2 30 mm f/1,4	50 mm f/1,2 30 mm f/1,4	12,5 – 75 mm f/1,2 Zoom lens

* Only for ChemStudio and ChemStudio PLUS

Image acquisition and analysis: Simple and intuitive VisionWorksLS software

Chemiluminescence imaging and subsequent analysis are greatly significantly simplified using a combination of ChemStudio systems and VisionWorksLS software. VisionWorksLS is a modern software package with an extensive array of features to simplify the imaging of chemiluminescence, fluorescence and colorimetric gels, blots, colonies and membranes.
Once positioned on the imaging platform, the sample is focused and the picture is captured.
The full dynamic range can be acquired with the use of dynamic and sequential integration capabilities. High sensitivity and superior resolution cameras guarantee excellent, publication quality and quantifiable results.

- Extensive imaging capabilities
- Image enhancement functions
- User-defined master templates for simple, 1-click image capture
- Support for 21 CFR Part 11 compliance
- Reporting and data export to Excel

Most combinations of camera and lens allow imaging settings to be automatically controlled. The VisionWorksLS software menu provides a variety of features to ensure high quality, repeatable image acquisition.

- Integration: On-chip, sequential or dynamic
- Binning
- Saturation preview
- Automatic exposure

Furthermore, the software offers a substantial range of tools for detailed image analysis. These features, which are easy to use and intuitive to apply, provide the capability to automate all experiments with precise quantification. Creation of profile graphs with intensity histograms, concentration curves and much more are available with VisionWorksLS.

- 1D lane analysis
- Area density analysis
- Colony counting analysis
- Plant imaging
- Molecular weight standards
- Protein quantification
- Quantitative analysis of PCR experiments
- Western Blot densitometry
- GFP expression tracking
- Multiplexing and more

Flexibility and modularity: Accessories for convenient system expansion

All chemiluminescence systems can be combined with a selection of transilluminators for ethidium bromide or differently stained gels. Models are available with a single excitation wavelength of 302 nm or with multiple excitation wavelengths in the UV range. Additionally, white light converter plates and LED white light plates allow for visualization of colorimetric gels, colony plates, autoradiograms or other samples being excited by white light. Furthermore, Visi-Blue™ converter plates enable blue light excitation of samples containing GelGreen, SYBR Green and other “safe” stains. Analytik Jena also offers overhead (epi) UV modules for an optimum image presentation of thin-layer chromatography plates.
Multiplex and fluorescence Western Blot imaging are accomplished with the eLITE multi spectral light sources. The fiber optic cables are directly connected within the darkroom to provide a brilliant, highly intense excitation of the samples. All light sources use specialized filters to meet the wavelength requirements of different dyes such as GFP, RFP, CY and IR-dyes.

- Transilluminators and overhead (epi) UV modules
- Multiple excitation and emission filters are available
- White light converter plates and LED white light plates
- Visi-Blue™ converter plates
- Multispectral light sources

Technical data

	ChemStudio	ChemStudio SA	ChemStudio PLUS
Darkroom	Simple, efficient darkroom configuration	Stand-alone system with integrated PC and 15.6" color touchscreen	High-end darkroom for a variety of imaging applications
Emission filter wheel	4 positions	5 positions	5 positions
Lighting	White overhead (epi) lighting	White overhead (epi) lighting	White, blue and 365 nm UV overhead (epi) lighting
Control of filters and lighting	Manual (software)	Fully automated	Fully automated
Transilluminator (optional)		▪ 3 UV or single UV ▪ Large filter size up to 25 x 26 cm ▪ Roll-out tray	
Platform lift	-	-	Manual or automated for real zoom functionality
Application	Chemiluminescence, Fluorescence, Colorimetric, Multiplex / NIR ready		
Dimensions	(W x D x H)	(W x D x H)	(W x D x H)
Exterior [mm]	470 x 380 x 810	444 x 368 x 851	445 x 445 x 813 (+ camera cover)
Weight [kg]	Approx. 26.8 kg	Approx. 43.1 kg	Approx. 36.7 kg (motorized darkroom) Approx. 27.7 kg (manual darkroom)

Camera/lenses	**CCD-Camera 810**	**CCD-Camera 610***	**CCD-Camera 510**
Greyscale	65,536	65,536	65,536
Bit depth	16 Bit	16 Bit	16 Bit
Pixel resolution	3296 x 2472	2184 x 1472	2336 x 1752
Megapixels	8.1 (may be expanded to 16.2*)	3.2 (may be expanded to 9.6*)	2.1 (may be expanded to 7.4*)
Cooling	Room temp - 35 °C Peltier cooling	Room temp - 50 °C Peltier cooling	Room temp - 35 °C Peltier cooling
Binning	1 x 1 up to 8 x 8	1 x 1 up to 10 x 10	1 x 1 up to 8 x 8
Quantum eff. Peak / 425 nm	50 % and 42 %	86 % and 53 %	50 % and 42 %
Lenses	50 mm f/1,2 30 mm f/1,4	50 mm f/1,2 30 mm f/1,4	12,5 – 75 mm f/1,2 Zoom lens

* Only for ChemStudio and ChemStudio PLUS

Order information

Order number		Description
Darkrooms		
230 V	**100 / 115 V**	
849-00100-2	849-00100-4	**ChemStudio** ▪ Darkroom for chemiluminescence imaging ▪ Without PC, without Camera/Lens Kit and without transilluminator ▪ Including epi white light, Ethidium Bromide emission filter, gel ruler and tray, focus target, Chemi tray (black) ▪ VisionWorksLS Acquisition & Analysis (single license)
849-00101-2	849-00101-4	**ChemStudio SA** ▪ Darkroom for chemiluminescence imaging ▪ Stand alone with integrated 15.6" color touchscreen ▪ Without Camera/Lens Kit and without transilluminator ▪ Including epi white light, Ethidium Bromide emission filter, gel ruler and tray, focus target, Chemi tray (black) ▪ VisionWorksLS Acquisition & Analysis (single license, separate PC required)
849-00102-2	849-00102-4	**ChemStudio PLUS motorized** ▪ Darkroom for chemiluminescence imaging with automated platform lift ▪ Without PC, without Camera/Lens Kit and without transilluminator ▪ Including Ethidium Bromide, SYBR Green and SYBR Gold emissions filter, epi white light, gel ruler and tray, focus target, Chemi tray (black), LED white light plate ▪ VisionWorksLS Acquisition & Analysis (single license)
849-00103-2	849-00103-4	**ChemStudio PLUS manual** ▪ Darkroom for chemiluminescence imaging with manual platform lift ▪ Without PC, without Camera/Lens Kit and without transilluminator ▪ Including Ethidium Bromide, SYBR Green and SYBR Gold emissions filter, epi white light, gel ruler and tray, focus target, Chemi tray (black), LED white light plate ▪ VisionWorksLS Acquisition & Analysis (single license)

Product	Order number			
Camera & Lens Kit	**ChemStudio**			
	ChemStudio	SA	PLUS manual	PLUS motorized
CCD-Cam. 510, 12.5-75 f/1.2, man.	849-00110-0	-	-	-
CCD-Cam. 510, 12.5-75 f/1.2, mot.	849-00111-0	849-00112-0	849-00113-0	-
CCD-Camera 610, 50 f/1.2	849-00120-0	-	-	849-00120-0
CCD-Camera 610, 30 f/1.4	849-00121-0	-	-	849-00121-0
CCD-Camera 810, 50 f/1.2	849-00130-0	849-00131-0	849-00130-0	849-00130-0
CCD-Camera 810, 30 f/1.4	849-00132-0	849-00133-0	849-00132-0	849-00132-0

Order number		Description
Transilluminator		
230 V	**100 / 115 V**	
849-20021-0	849-20021-4	benchUV 26Xi Benchtop transilluminator, 8 W, 302 nm, variable intensity, 25 x 26 cm filter size
849-20014-0	849-20014-4	benchUV 26SML Benchtop Transilluminator, 8 W, 254/302/365 nm, 21 x 26 cm filter size

Accessories

Product	Order number	Comment
Gel ruler, fluorescent	849-20600-0	Included with order of darkrooms, double pack
Gel tray	849-20605-0	29 x 23 cm, scope of delivery of darkrooms
Gel cutter	849-20603-0	Double pack
Gel scooper	846-057-013	UV transparent, 14 x 15 cm
Faceshield	849-20602-0	UV blocking
Focus target, fluorescent	849-20601-0	Scope of delivery of darkrooms, double pack
LED white light plate	849-20500-0	Scope of delivery of ChemStudio PLUS
Chemi tray (black)	849-20501-0	Scope of delivery of darkrooms

Software

Product	Order number	Comment
VisionWorksLS Acquisition & Analysis	849-00202-0	Single user license
VisionWorksLS Acquisition & Analysis	849-00203-0	Five user license

Converter plate

Product	Order number	Comment
Converter UV to white	849-20510-0	21 x 26 cm
Converter UV to white	849-20511-0	25 x 26 cm
Converter UV to white	849-20512-0	20 x 40 cm
Visi-Blue Converter	849-20520-0	460 – 470 nm, 21 x 26 cm
Visi-Blue Converter	849-20521-0	460 – 470 nm, 25 x 26 cm
Visi-Blue Converter	849-20522-0	460 – 470 nm, 20 x 40 cm

MultiSpectral light sources

Product	Order number		Comment
	230 V	100/115 V	
eLITE Xenon	849-00300-2	849-00300-4	Kit with epi light fibers
eLITE motorized	849-00301-2	849-00301-4	Kit with epi light fibers
eLITE manual	849-00302-2	849-00302-4	Kit with epi light fibers

Order information

Emission filter

Product	Order number	Comment
Emission Filter 580 - 630 nm	849-00400-0	Deep Purple, EtBr, RFP
Emission Filter 510 - 560 nm	849-00401-0	SYBR® Green
Emission Filter 520 - 620 nm	849-00402-0	SYBR® Gold
Emission Filter 465 - 495 nm	849-00403-0	CFP mice
Emission Filter 503 - 523 nm	849-00404-0	GFP mice
Emission Filter 513 - 557 nm	849-00405-0	Cy2®, FITC, FAM™, GFP, SYBR® Green, SYBR® Gold
Emission Filter 565 - 625 nm	849-00406-0	Alexa555®, Cy3®, SYPRO® Orange
Emission Filter 607 - 682 nm	849-00407-0	Alexa568®, SYPRO® Red, TexasRed®
Emission Filter 668 - 722 nm	849-00408-0	Alexa633®, Cy5®
Emission Filter 700 - 740 nm	849-00409-0	IRDye 680®, CF 680
Emission Filter 767 - 807 nm	849-00410-0	Alexa750®, Cy7®
Emission Filter 780 nm long pass	849-00411-0	Alexa750®
Emission Filter 800 nm long pass	849-00412-0	IRDye 800®, CF 770

Excitation filter for eLITE motorized and eLITE Xenon

Product	Order number	Comment
Excitation Filter 450 nm short pass	849-00330-0	CFP, SYPRO® Ruby
Excitation Filter 455 - 495 nm	849-00331-0	Cy2®, FITC, FAM™, GFP, SYBR® Green
Excitation Filter 502 - 547 nm	849-00332-0	Deep Purple, Et Bromide, RFP
Excitation Filter 533 - 587 nm	849-00333-0	Alexa568®, Rhodomine Red™, SYPRO® Red
Excitation Filter 600 - 645 nm	849-00334-0	Alexa633®, Cy5®, IRDye 680®, CF 680
Excitation Filter 687 - 748 nm	849-00335-0	Alexa750®, Cy7®, IR
Excitation Filter 700 - 740 nm	849-00336-0	
Excitation Filter 750 - 780 nm	849-00337-0	IRDye 800®, CF 770

Excitation filter for eLITE manual

Product	Order number	Comment
Excitation Filter 450 nm short pass	849-00330-0	CFP, SYPRO® Ruby
Excitation Filter 455 - 495 nm	849-00331-0	Cy2®, FITC, FAM™, GFP, SYBR® Green
Excitation Filter 502 - 547 nm	849-00332-0	Deep Purple, Et Bromide, RFP
Excitation Filter 533 - 587 nm	849-00333-0	Alexa568®, Rhodomine Red™, SYPRO® Red
Excitation Filter 600 - 645 nm	849-00334-0	Alexa633®, Cy5®, IRDye 680®, CF 680
Excitation Filter 687 - 748 nm	849-00335-0	Alexa750®, Cy7®, IR
Excitation Filter 700 - 740 nm	849-00336-0	
Excitation Filter 750 - 780 nm	849-00337-0	IRDye 800®, CF 770

Transilluminators | High-quality transilluminators for UV fluorescent stains

UV transilluminators for UV fluorescent stains

- Filter sizes from 15 cm x 15 cm up to 25 cm x 26 cm or 20 cm x 40 cm
- Exceeding uniform illumination
- High-grade filter glass for low background
- Wide choice of standard and high-performance models

The UV transilluminators feature a uniform and bright illumination. The exclusive application of high-grade filter glass provides for excellent documentation results with lowest background signal. The great illumination uniformity allows the reliable quantification of electrophoretically separated fluorescent samples.

benchUV 26Xi

benchUV 20SML

The bench UV transilluminators are equipped with an ultraviolet blocking cover to shield the user from UV radiation. The base is painted with high-quality, scratch-resistant powder coat. Models include a stainless steel top assembly or powder coat paint.

Features	Benefit
Compact size with small footprint	Saves bench space and is compatible with GelStudio gel documentation darkhoods
Stainless steel filter frame	Robust and easy to clean for daily routine
Freely adjustable UV protection shield	User UV protection during handling the gel
Lamp control with electronic high-frequency operating system	Flicker-free illumination and extended lamp durability
Quiet, temperature controlled ventilation	Samples are protected from heating

Benchtop UV transilluminator

The compact models of the **benchUV line** include the economical single intensity and variable intensity transilluminators which are equipped with 8-watt, 302 nm UV tubes.

The variable intensity models feature:

- High setting allows UV excitation of fluorophores on gels for routine photography. Also excites gels with low sample concentration.
- The medium intensity is excellent for viewing and quick single-band excision.
- Low setting is used for positioning and preparation of the gel, excising multiple bands, and focusing for photography.

For users who prefer the choice between 302 nm UV and 365 nm UV the **benchUV ML** models are suited. These models come with single intensity setting and 8-watt UV bulbs of 302 nm and 365 nm. Available filter sizes are 20 cm x 20 cm or 21 cm x 26 cm.

Transilluminators with extraordinary uniform illumination

The **benchUV FirstLight®** transilluminators represent a unique highly uniform 302 nm UV excitation source for quantitative fluorescent imaging in a wide range of applications.

- Produces <5% coefficient of variance (CV) across the full filter area
- Exceptionally uniform, edge-to-edge illumination
- Accurate gel to gel comparison
- Uniformity ensures consistent illumination over the imaging surface resulting in high quality images
- Applications range from DNA and protein gel documentation and analysis

Achieve accurate and reproducible RNA, DNA and protein results. The illuminator emits 302 nm UV excitation and combined with a patented phosphor coating configuration generates exceptionally uniform UV illumination over each band and lane. Multiple gels may be placed on the surface with assurance of uniformity for each gel.

benchUV FirstLight®

High performance UV transilluminators

All high performance UV transilluminators **benchUV i** include the exclusive 25-watt ultraviolet tubes and provide a total of 100-watts of brilliant UV illumination.

- Deliver high UV output and intensity, no light flicker, fast lamp start-up and reduced electrical consumption
- Stainless steel frame enables easy cleaning
- The back-lit UV illumination is further enhanced with long-life filter and uniformity screen
- UV blocking cover, included with each transilluminator, is adjustable for access to the filter surface

benchUV 40Lhi

Transilluminators | Blue light transilluminators for fluorescent stains

Blue light transilluminators are a quite interesting alternative to UV transilluminators as there is no risk of sample damage during illumination. This is important when samples shall be processed furthermore after gel documentation. Users also benefit from it as there is no risk of UV exposure. Blue light excitation is applicable for fluorescent dyes for nucleic acid or protein stains with excitation wavelengths around 470 nm. Examples for compatible stains are: SYBR® Green, GelGreen™, SYBR® Safe, SYBR® Gold or SYPRO® Ruby and GFP stains.

The blue light illuminator **benchBL** is available as compact 8-watt model and in its size similar to the benchtop models „benchUV". The amber protective cover blocks blue light transmission, allows visualization of most samples above 500 nm.

- Blue light illumination for e.g. green fluorescent stains
- Safe solution: No damage of DNA, no risk of UV exposure for users

benchBL 26

UV-to-blue converter plates

Alternative to a blue light transilluminator a converter plate can be applied on top of a UV transilluminator to convert UV light to blue light. Three different sizes of the **Visi-Blue converter plate** are available. In combination with a camera system an amber camera filter has to be applied.

Visi-Blue converter plate

Transilluminators | Documentation of visible colored samples

White/UV transilluminator: benchUV WL.
The benchUV transilluminator is also available as dual use version: UV table and white light table. benchUV WL features a 20 cm x 20 cm filter size for UV fluorescent samples and additional a 20 cm x 20 cm filter size for white light transillumination. The white light table can be used for the documentation of all visible colored samples like silver or Coomassie Blue stained gels as well as for radiographs. The benchUV WL can not be integrated into a GelStudio darkhood due to its geometry.

benchUV WL

UV to white light converter plates
Alternatively to the use of a white light table a converter plate can be applied at the top of a UV transilluminator. The converter plate converts the UV light to visible light and thus economically extents the application scope of all UV table models to the visualisation of colored dyes.

White light table benchWL
For documentation of only visible colored samples without the need for any UV light the white light transilluminator benchWL is the table of choice. It comes with a 21 cm x 26 cm filter size. The exceeding uniform illumination provides for bright sample images.

benchWL

Order information

Order number		Description
230 V	**110 - 115 V**	**UV transilluminators without intensity setting, 302 nm UV**
849-20015-0	849-20015-4	benchUV 15, filter size 15 cm x 15 cm, 8 W 302 nm UV, UV protection shield
849-20016-0	846-20016-4	benchUV 20, filter size 20 cm x 20 cm, 8 W 302 nm UV, UV protection shield
849-20017-0	849-20017-4	benchUV 26, filter size 21 cm x 26 cm, 8 W 302 nm UV, UV protection shield
		UV transilluminators with variable intensity setting, 302 nm UV
846-20018-0	846-20018-4	benchUV 15i, filter size 15 cm x 15 cm, 8 W 302 nm UV, high/medium/low intensity setting, UV protection shield
849-20019-0	849-20019-4	benchUV 20i, filter size 20 cm x 20 cm, 8 W 302 nm UV, high/medium/low intensity setting, UV protection shield
849-20020-0	849-20020-4	benchUV 26i, filter size 21 cm x 26 cm, 8 W 302 nm UV, high/medium/low intensity setting, UV protection shield
849-20021-0	849-20021-4	benchUV 26Xi, filter size 25 cm x 26 cm, 8 W 302 nm UV, high/medium/low intensity setting, UV protection shield
		UV transilluminators without intensity setting, 2 UV wavelengths: 302 nm, 365 nm
849-20011-0	849-20011-4	benchUV 20ML, filter size 20 cm x 20 cm, 8 W 302/365 nm UV, UV protection shield
849-20012-0	849-20012-4	benchUV 26ML, filter size 21 cm x 26 cm, 8 W 302/365 nm UV, UV protection shield
		UV transilluminators without intensity setting, 3 UV wavelengths: 245 nm, 302 nm, 365 nm
849-20013-0	849-20013-4	benchUV 20SML, filter size 20 cm x 20 cm, 8 W 254/302/365 nm UV, UV protection shield
849-20014-0	849-20014-4	benchUV 26SML, filter size 21 cm x 26 cm, 8 W 254/302/365 nm UV, UV protection shield
		FirstLight® uniform UV transilluminators, without intensity setting, 302 nm UV
849-20001-0	849-20001-4	benchUV FirstLight® 20, filter size 20 cm x 20 cm, 302 nm UV grid, UV protection shield
849-20003-0	849-20003-4	benchUV FirstLight® 26, filter size 25 cm x 26 cm, 302 nm UV grid, UV protection shield
		High-Performance UV transilluminators with variable intensity setting, 302 nm or 365 nm UV
849-20035-0	849-20035-4	benchUV 20hi, filter size 20 cm x 20 cm, 25 W 302 nm UV, high/medium/low intensity setting, UV protection shield
849-20037-0	849-20037-4	benchUV 30hi, filter size 25 cm x 30 cm, 25 W 302 nm UV, high/medium/low intensity setting, UV protection shield
849-20034-0	849-20034-4	benchUV 40Lhi, filter size 20 cm x 40 cm, 25 W 365 nm UV, high/medium/low intensity setting, UV protection shield
		Blue light transilluminator, 460 - 470 nm with variable intensity setting
849-20070-0	849-20070-4	benchBL 26, filter size 21 cm x 26 cm, 8 W 460 - 470 nm, high/medium/low intensity setting, amber protection shield
		UV (302 nm)/white light transilluminator, without intensity setting
849-20052-0	849-20052-4	benchUV WL20, filter size 20 cm x 20 cm for UV and 20 cm x 20 cm for white light, 8 W 302 nm UV, 8 W white light, UV protection shield
		White light transilluminator, without intensity setting
849-20060-0	849-20060-4	benchWL 26, filter size 21 cm x 26 cm, 8 W white light

Order number	Description
	Converter plates
849-20510-0	Converter plate UV-to-white, 21 cm x 26 cm filter size
849-20511-0	Converter plate UV-to-white, 25 cm x 26 cm filter size
849-20512-0	Converter plate UV-to-white, 20 cm x 40 cm filter size
849-20520-0	Converter plate UV-to-blue "Visi-Blue", 21 cm x 26 cm filter size, 460 nm - 470 nm*
849-20521-0	Converter plate UV-to-blue "Visi-Blue", 25 cm x 26 cm filter size, 460 nm - 470 nm*
849-20522-0	Converter plate UV-to-blue "Visi-Blue", 20 cm x 40 cm filter size, 460 nm - 470 nm*
849-20523-0	Converter plate UV302-to-UV365, 25 cm x 26 cm filter size*

* Includes amber 50 mm square camera filter, compatible with UVsolo, GelStudio SA.

For compatibility of transilluminators with Analytik Jena imaging systems please check this table:

	Gel imaging system		
Transilluminator version	GelStudio digital compact GelStudio live compact	GelStudio digital GelStudio live GelStudio SA	Dimensions (height incl. protection shield) H x W x D, cm
benchUV with 8 W tubes	+	+	12.2 x 35.6 x 27.9 For SML models: 13.7 x 35.6 x 27.9
benchUV FirstLight®	+	+	14.3 x 35.6 x 27.9
benchUV high performance with 25 W tubes	+ (but not with benchUV 40Lhi)	-	
benchBL	+	+	14.3 x 48.6 x 33.7
benchUV WL	-	-	14.3 x 48.6 x 33.7
benchWL	+	+	10.8 x 33.7 x 24.1

Accessories

Order number	Description
849-20602-0	UV light face protection shield
846-055-002	UV light protecting glasses
849-20605-0	UV transparent acrylic tray for preparative tasks on a transilluminator, 29 cm x 23 cm
846-057-013	UV transparent gel scoop, scoop area 14 cm x 15 cm

Spare parts

Bestellnummer	Description
846-057-007	UV bulb 8 W, 254 nm
846-057-002	UV bulb 8 W, 302 nm
846-057-009	UV bulb 8 W, 365 nm
846-057-016	UV bulb 25 W, 302 nm
846-057-017	UV bulb 25 W, 365 nm
34-9-720-007	White light bulb, 8 W

UV transparent gel scoop

PCR UV Cabinets and Workstations |
Systems for a contamination free work area

Analytik Jena offers a complete line of PCR UV systems. PCR UV hoods use shortwave ultraviolet to control unwanted transfers of nucleic acids. The systems bring together UV irradiation and antimicrobial coated stainless steel and aluminum to create a dual-attack environment against PCR contaminations.
In addition to standard PCR UV² models, PCR UV³ HEPA systems with integrated three-stage filters are available. The equipment provides efficient use of lab space and a perfect arranged working area for any application, like sample preparation, nucleic acid isolation, PCR or Real-Time PCR preparation and more.

Two styles are available: The standard PCR UV and the PCR UV HEPA systems.

Two sizes are available: The cabinet features a smaller work area than the workstation.

- Up to three built-in shortwave (254 nm) UV tubes for decontamination between experiments
- Timer sets UV exposure up to 12 h
- Safety shut-off switch automatically turns the UV light off when door is opened
- Keylock prevents accidental exposure of samples to UV
- Unique, easy-clean antimicrobial coating on the stain less steel and aluminum surfaces
- Hinged door flips up for easy access to the work area
- Built-in power outlets for operation of equipment inside the work area
- Two shelves allow placement of small equipment
- MAKROLON® panels block UV below 400 nm
- With or without three-stage HEPA filter
- Different sizes: Cabinet or Workstation to meet each individual need

High efficient UV decontamination

All PCR UV Cabinets and Workstations create an ideal environment for preparing PCR master mixes and other reactions by reducing any possible sample contamination significantly by the built-in 254 nm UV tubes for inactivation of DNA / RNA between experiments. Thereby the use of UV irradiation is a reliable standard laboratory practice and reduces surface and airborne contaminants in the chamber. Maintain a clean work area to save time and reduce the repeat experiments.
The hoods include a timer to control UV decontamination of the chamber, by simply setting the desired time. A key operates the UV providing a means for preventing accidental UV irradiation of samples. Both types feature a safety shut-off switch, which automatically turns the UV light off when the door is opened, protecting users from UV exposure.

- Decontaminate apparatus and reagents within minutes
- Integrated timer to set UV irradiation from 5 min up to 12 h
- Important features for user and sample protection

Perfect antimicrobial protection

Additional contamination control is provided with a coated stainless steel and aluminum design that maintains antimicrobial efficacy. The durable coating material is a safe and natural agent for continuous protection. Resultant the easy-clean surface is stain as well as fingerprint resistant and suppresses the growth of bacteria, molds and fungi on surfaces.

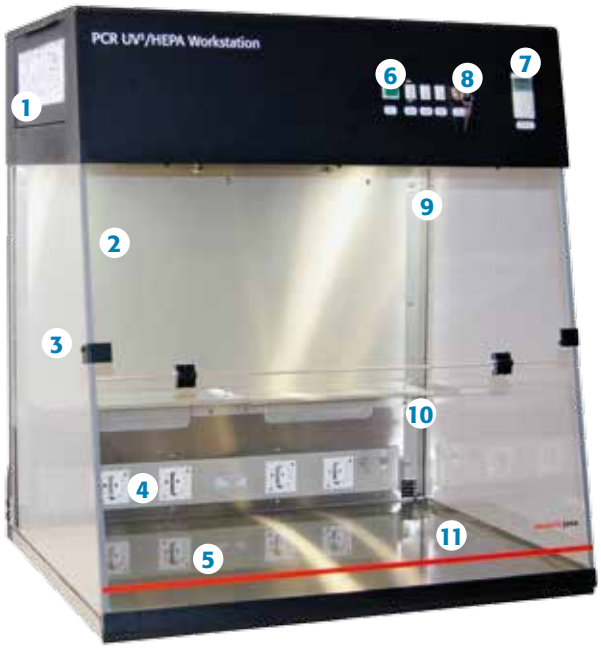
Efficient work area

PCR UV systems are designed for placement of large instruments on the work area or small items on the two removable shelves. Overhead white light brightly illuminates the work area and up to four built-in power outlets allow operation of additional equipment within the chamber. Furthermore the non-ventilated, circulation free chamber limits exposure of equipment to an open lab environment.

Cabinets and larger workstations sizes are available for both the PCR UV² and UV³ HEPA styles.

Sophisticated platform for any sample preparation

All Analytik Jena Cabinets and Workstations combine a whole slew of important features for contamination-sensitive applications:



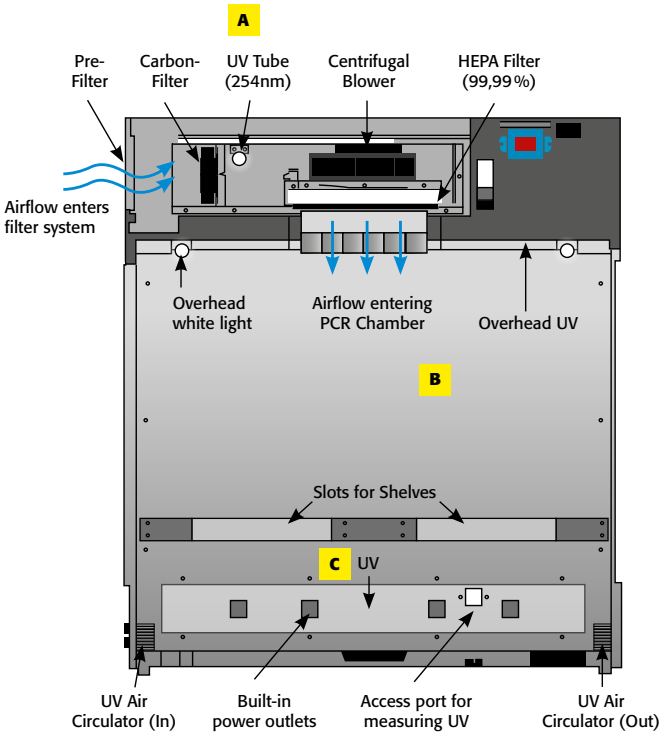
1. Three-stage filter system:
   Pre-filter; Carbon-filter; HEPA Filter; Plus UV to decontaminate
2. Antimicrobial coated surface prevents contamination
3. MAKROLON® panels blocks UV below 400 nm
4. Built-in power outlets for operating equipment inside
5. Large working area
6. Power switches are conveniently located
7. UV timer
8. UV lock prevents accidental UV exposure of samples
9. Shortwave 254 nm UV light for decontaminating the chamber
10. Two removable shelves for placement of small objects
11. Door flips open for easy access to interior;
    UV shuts off when door is open

PCR UV³ HEPA feature

Next to all specifications noted above the PCR UV³ Cabinet & Workstation also include a three-stage filter module with built-in 254 nm shortwave UV light source. The system circulates filtered and decontaminated air into the PCR chamber.
This positive pressure laminar flow can be set to high or low, whereby a honeycomb metal grid guarantees a stabilized air flow.

- Pre-filter helps to preserve the life of other filters by capturing large dust particles
- Activated carbon filter specializes in capturing ozone, gases, odors and smoke
- HEPA filter provides a barrier (99.99 %) against dust, bacteria and mold down to 0.3 microns

A side access with a slide out design makes changing filters and UV tube easy. Protection is given due to the automatic safety switch, which shuts UV off when the side door is opened.



PCR UV³ HEPA drawing

The PCR UV³ HEPA drawing (below) front cut-out view demonstrates the air flow through the filter module. These models supply three UV sources (UV³) which are indicated in the drawing: filter area (A), chamber (B) and UV/air circulator (C).

Technical data

	PCR UV²		PCR UV³ HEPA	
	Cabinet	**Workstation**	**Cabinet**	**Workstation**
UV source	▪ Two 254 nm shortwave UV sources ▪ Chamber and UV/air circulator		▪ Three 254 nm shortwave UV sources ▪ Chamber, UV/air circulator and filter module	
White light	Overhead white light brightly illuminates the work area			
Three-stae filter module	-	-	▪ Pre-filter ▪ Carbon filter ▪ HEPA filter	
Power outlets	2	4	2	4
Shelves	2	2	2	2
Design	Antimicrobial coated aluminum			
Dimensions	222 x 102 mm	330 x 107 mm	222 x 102 mm	330 x 107 mm
Timer	UV timer	UV timer	UV timer	UV timer
Adjustment 1	5 – 60 minutes in increments of 5 minutes			
Adjustment 2	1 – 12 hours in increments of 15 minutes			
Safety shut off	Automatic switch off of ultraviolet light, when door is opened			
Design	Stainless steel, aluminum and MAKROLON®			
Interior	▪ Uniquely coated stainless steel and aluminum design and easy-clean surface ▪ Durable coating material contains silver ions: a. Providing continuous antimicrobial protection b. Stain and fingerprint resistant c. Listed by Food and Drug Administration (FDA) and Environmental Protection Agency (EPA) as an antimicrobial agent d. Suppresses growth of bacteria, molds and fungi on surfaces			
Interior	Aluminum powder coated			
Door and side panel	MAKROLON® panels block wavelength below 400 nm			
Dimensions	(W x D x H)	(W x D x H)	(W x D x H)	(W x D x H)
Exterior [mm]	544 x 610 x (729)	737 x 610 x (729)	544 x 610 x (826)	737 x 610 x (826)
Interior [mm]	500 x 544	706 x 544	500 x 544	706 x 544
Weight [kg]	40.8 kg	46.7 kg	57.6 kg	63.5 kg

Order information

Order number	Description
849-00001-02	**PCR UV² Cabinet,** 230 V (UK plug)
849-00001-03	**PCR UV² Cabinet,** 230 V (Euro plug)
849-00001-04	**PCR UV² Cabinet,** 115 V (US plug)
849-00001-05	**PCR UV² Cabinet,** 100 V (US plug)
849-00002-02	**PCR UV³ HEPA Cabinet,** 230 V (UK plug)
849-00002-03	**PCR UV³ HEPA Cabinet,** 230 V (Euro plug)
849-00002-04	**PCR UV³ HEPA Cabinet,** 115 V (US plug)
849-00002-05	**PCR UV³ HEPA Cabinet,** 100 V (US plug)

Order number	Description
849-00005-02	**PCR UV² Workstation,** 230 V (UK plug)
849-00005-03	**PCR UV² Workstation,** 230 V (Euro plug)
849-00005-04	**PCR UV² Workstation,** 115 V (US plug)
849-00005-05	**PCR UV² Workstation,** 100 V (US plug)
849-00006-02	**PCR UV³ HEPA Workstation,** 230 V (UK plug)
849-00006-03	**PCR UV³ HEPA Workstation,** 230 V (Euro plug)
849-00006-04	**PCR UV³ HEPA Workstation,** 115 V (US plug)
849-00006-05	**PCR UV³ HEPA Workstation,** 100 V (US plug)

UVLink 1000 Crosslinker | Immobilisation of nucleic acids to membranes

The UVLink 1000 crosslinker is a microprocessor controlled UV irradiation system dedicated to nucleic acid linking to membranes for Southern, Northern, Dot and Slot Blot applications. It can also be used for UV sterilisation and for elimination of PCR contaminations.

- Crosslinking of DNA and RNA to nylon or nitrocellulose membranes
- Microprocessor control provides precise UV dosis control
- Irradiation can be defined as Energy (Joules/cm²) or Time (seconds)
- Preset programs for nucleic acid immobilisation at 120 mJoule/cm²
- Safety interlock door with UV protection glass

Microprocessor control provides reproducibility

The programmable microprocessor constantly monitors the UV light emission. The irradiation stops exactly when the programmed energy is achieved. Thus the effect of decreasing UV intensity due to bulb aging is compensated.

Durability

The UVLink 1000 Crosslinker combines the latest UV technology with high quality manufacturing: UV exposure chamber in stainless steel, protective quartz disk on the UV sensor cell and a highly resistant keypad.

Ease of use

The large display providing a series of predefined methods makes the crosslinker an easy to use but yet powerful instrument for immobilisation of nucleic acids to membranes. The programmed data are shown on the LED display.

Technical data

UV light	5 × 8 W 254 nm
UV irradiation energy	0 up to 99.99 J/cm²
Maximum time of exposure	999.9 min
Instrument dimensions (H x W x D, cm)	22.2 x 40.0 x 34.9
Chamber (inside) dimensions (H x W x D, cm)	12.7 × 25.4 × 30.5

Order information

Order number	Description
849-30101-2	**UVLink 1000 Crosslinker,** 254 nm UV, 230 V
849-30101-4	**UVLink 1000 Crosslinker,** 254 nm UV, 115 V
846-057-007	UV tube, 8 Watt, 254 nm, 29 cm long

Consumables supplied by Analytik Jena | Life Science combine an outstanding price/ performance ratio with exceptional quality. All delivered consumables are optimzied for our devices and therefore easen up your work and will meet your requirements.

Consumables/Accessories

Selection chart for *rapid*PCR and real-time *rapid*PCR

Device and blocks / Plastics	Order number	SpeedCycler² 96 LPR/LP (1 × 96 well) Low-Profile	36 LPR (1 × 36 well) Low-Profile	48 SPR (1 × 48 well) 0.2 ml	96 SPR / 96 SP (1 × 96 well) 0.2 ml
Tubes					
0.2 ml thin-walled tubes	844-70010-0			×	×
0.2 ml Tubes	846-050-310			×	×
0.5 ml thin-walled tubes	844-70015-0				
0.5 ml Tubes	846-050-320				
Microplates					
Microplate 36 LP	844-70000-0		×		
Microplate 96 LP	844-70050-0	×			
Microplate 48 well	846-050-225			×	×
Microplate 96 non-skirted	844-70030-0				×
Microplate 96 well w/o skirt	846-050-253				×
Microplate 96 well w/o skirt, low-profile	846-050-213				×
Microplate 96 semi-skirted	844-70031-0				×
Microplate 96 well full skirted	846-050-232				×
Microplate 96 well full skirted, white, white wells	846-050-259				×
Microplate 96 well full skirted, black, white wells	846-050-260				x
Microplate 384 fully-skirted	844-70032-0				
Microplate 384 well full skirted	846-050-231				
Strips					
8 well Strip LP	844-70060-0	×			
8 well strip 0.2ml, domed caps	846-050-255			×	×
8 well strip 0.2ml, flat caps	846-050-254			×	×
RoboStrip® PC clear 8 well Strips (0.2 ml)	847-0501000103			×	×
RoboStrip® PC clear 8 well Strips low profile (0.1 ml)	847-0501000203			×	×
RoboStrip® PP clear 8 well Strips low profile (0.1 ml)	847-0501000502			×	×
RoboStrip® PP white 8 well Strips low profile (0.1 ml)	847-0501000602			×	×

	SpeedCycler			qTOWER
	96 (LPR) (1 × 96 well)	36 (LPR) (1 × 36 well)	24 (SPR) (1 × 24 well)	96 (LPR) (1 × 96 well)
	Low-Profile	Low-Profile	0.2 ml	Low-Profile
		×		
	×			×
	×	×	×	

Selection chart for standard PCR and real-time PCR

Device and blocks / Plastics		FlexCycler			
		Twin30 (2 × 30 well) Mono60 (1 × 60 well) TwinMix (1 × 30 well)	Twin48 (2 × 48 well) TwinMix (1 × 48 well)	Mono96 (1 × 96 well)	
	Order number	0.5 ml	0.2 ml	0.2 ml	
Tubes					
0.2 ml thin-walled tubes	844-70010-0		×	×	
0.2 ml Tubes	846-050-310		×	×	
0.5 ml thin-walled tubes	844-70015-0	×			
0.5 ml Tubes	846-050-320				
Microplates					
Microplate 36 LP	844-70000-0				
Microplate 96 LP	844-70050-0				
Microplate 48 well	846-050-225		×		
Microplate 96 non-skirted	844-70030-0			×	
Microplate 96 well w/o skirt	846-050-253				
Microplate 96 well w/o skirt, low-profile	846-050-213				
Microplate 96 semi-skirted	844-70031-0			×	
Microplate 96 well full skirted	846-050-232				
Microplate 96 well full skirted, white, white wells	846-050-259				
Microplate 96 well full skirted, black, white wells	846-050-260				
Microplate 384 fully-skirted	844-70032-0				
Microplate 384 well full skirted	846-050-231				
Strips					
8 well Strip LP	844-70060-0				
8 well strip 0.2ml, domed caps	846-050-255		×		
8 well strip 0.2ml, flat caps	846-050-254		×		
RoboStrip® PC clear 8 well Strips (0.2 ml)	847-0501000103				
RoboStrip® PC clear 8 well Strips low profile (0.1 ml)	847-0501000203				
RoboStrip® PP clear 8 well Strips low profile (0.1 ml)	847-0501000502				
RoboStrip® PP white 8 well Strips low profile (0.1 ml)	847-0501000602				

* Plates are divisible into 12 strips at 8 wells; use ½ plate for the 48 well blocks and a ¼ plate for 24 well blocks

	FlexCycler²				qTOWER 2.0 / 2.2
Mono384 (1 × 96 well)	Twin48 | 48G (2 × 48 well)	Mono96 | 96G (1 × 96 well)	Twin30 (30 × 0,5 ml)	Twin combi (48 × 0,2 ml / (18 × 0,5 ml)	96 Well (1 × 96 well)
0.2 ml	0.2 ml	0.2 ml			0.2 ml
				×	
	×	×		×	
	×	×		×	
			×		
			×	×	
	×			×	
		×			
		×			
		×			
		×			
		×			
		×			×
					×
×					
×					
				×	
	×	×		×	
	×	×		×	
	×				
	×				
	×				
	×				×

Strips and tubes

0.2 ml thin-walled tubes with flat cap

Order number	Quantity	Description
844-70010-0	500 tubes, transparent	0.2 ml thin-walled tubes with flat cap standard PCR
844-70011-0	500 tubes, red	0.2 ml thin-walled tubes with flat cap standard PCR
844-70012-0	500 tubes, yellow	0.2 ml thin-walled tubes with flat cap standard PCR
844-70013-0	500 tubes, green	0.2 ml thin-walled tubes with flat cap standard PCR
844-70014-0	500 tubes, blue	0.2 ml thin-walled tubes with flat cap standard PCR
846-050-310	1000 pcs., transparent	0.2 ml tubes with caps

Green 0.2 ml thin-walled tube with flat cap

Red 0.2 ml thin-walled tube with flat cap

Blue 0.2 ml thin-walled tube with flat cap

0.5 ml thin-walled tubes with flat cap

Order number	Quantity	Description
844-70015-0	500 tubes, transparent	0.5 ml thin-walled tubes with flat cap for standard PCR
846-050-320	1000 pcs., transparent	0.5 ml tubes with caps

Ultrathin-walled 8 well Strip LP

Order number	Quantity	Description
844-70060-0	Packet of 125 pieces	Ultrathin-walled 8 well strip, low profile format for *rapid*PCR, Optimized for 2 – 20 µl, Sealing foils are available seperately (see 2.3 Sealing foils)
844-70061-0	Packet of 500 pieces	Ultrathin-walled 8 well strip, low profile format for *rapid*PCR, Optimized for 2 – 20 µl, Sealing foils are available seperately (see 2.3 Sealing foils)

8 well strips with caps

Order number	Quantity	Description
846-050-254	Packet of 125 pcs.	0.2 ml strips of 8 tubes and flat caps
846-050-255	Packet of 125 pcs.	0.2 ml strips of 8 tubes and domed caps 125 pcs.

8 Well RoboStrip® to be closed with sealing tapes

Order number	Quantity	Description
847-0501000103	Package á 125 pieces	**RoboStrip® PC clear 8 Well Strips (0.2 ml)** Polycarbonat, clear, UV exposed, thin-walled 8 Well Strips, excellent heat transfer and temperature resistance properties, 4-fold increased surface for improved stuck adherence of covers, capless, to be closed with adhesive covers, specially developed for Immuno-PCR
847-0501000203	Package á 125 pieces	**RoboStrip® PC clear 8 Well Strips low profile (0.1 ml)** Polycarbonat, clear, UV exposed, thin-walled 8 Well Strips, excellent heat transfer and temperature resistance properties, 4-fold increased surface for improved stuck adherence of covers, capless, to be closed with adhesive covers, specially developed for Immuno-PCR
847-0501000502	Package á 125 pieces	**RoboStrip® PP clear 8 Well Strips low profile (0.1 ml)** Polypropylen, clear, UV exposed, thin-walled 8 Well Strips, excellent heat transfer properties, 4-fold increased surface for improved stuck adherence of covers, capless, to be closed with adhesive covers, ideal for Standard PCR & liquid handling applications
847-0501000602	Package á 125 pieces	**RoboStrip® PP white 8 Well Strips low profile (0.1 ml)** Polypropylen, white, UV exposed, thin-walled 8 Well Strips, excellent heat transfer properties, 4-fold increased surface for improved stuck adherence of covers, capless, to be closed with adhesive covers, improved PCR product yield (sensitivity) in real-time PCR application

Microplates

Microplate 36 LP

Order number	Quantity	Description
844-70000-0	Packet of 25 pieces	Ultrathin-walled 36 well microplate, low profile format for *rapid*PCR. Sealing foils seperately available (see 2.3 Sealing foils)
844-70001-0	Packet of 100 pieces	Ultrathin-walled 36 well microplate, low profile format for *rapid*PCR. Sealing foils seperately available(see 2.3 Sealing foils)
844-70002-0	Packet of 250 pieces	Ultrathin-walled 36 well microplate, low profile format for *rapid*PCR. Sealing foils seperately available(see 2.3 Sealing foils)

Microplate 96 LP

Order number	Quantity	Description
844-70050-0	Packet of 25 pieces	Ultrathin-walled 96 well microplate, low profile format for *rapid*PCR and real-time *rapid*PCR. Sealing foils are available seperately (see 2.3 Sealing foils)
844-70051-0	Packet of 100 pieces	Ultrathin-walled 96 well microplate, low profile format for *rapid*PCR and real-time *rapid*PCR. Sealing foils are available seperately (see 2.3 Sealing foils)
844-70052-0	Packet of 250 pieces	Ultrathin-walled 96 well microplate, low profile format for *rapid*PCR and real-time *rapid*PCR. Sealing foils are available seperately (see 2.3 Sealing foils)

Microplate 48 well

Order number	Quantity	Description
846-050-225	50 pieces	48 well microplate

Microplate 96 well

Order number	Quantity	Description
844-70030-0	50 pieces	Thin-walled microplate 96, non-skirted, transparent
844-70031-0	50 pieces	Thin-walled microplate 96, semi-skirted, transparent
846-050-259	50 pieces	96 well microplate, fully-skirted, white, suitable for real-time PCR
846-050-232	25 pieces	96 well skirted
846-050-213	25 pieces	96 well non-skirted (low profile)
846-050-253	25 pieces	96 well non-skirted
846-050-260	50 pieces	96 well microplate, black fram, white wells , suitable for real-time PCR

Microplate 384 well

Order number	Quantity	Description
844-70032-0	50 pieces	Thin-walled microplate 384, fully-skirted, transparent
846-050-231	50 pieces	HSQ 384 well skirted

Sealing foils and sealing films

Sealing foil S36

Order number	Quantity	Description
844-70020-0	Packet of 25 pieces	Adhesive sealing foil S36, aluminium, piercing and peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm
844-70021-0	Packet of 100 pieces	Adhesive sealing foil S36, aluminium, piercing and peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm
844-70022-0	Packet of 250 pieces	Adhesive sealing foil S36, aluminium, piercing and peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm

Sealing foil PP36

Order number	Quantity	Description
844-70025-0	Packet of 25 pieces	Adhesive sealing foil PP36, transparent polypropylene, peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm
844-70026-0	Packet of 100 pieces	Adhesive sealing foil PP36, transparent polypropylene, peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm
844-70027-0	Packet of 250 pieces	Adhesive sealing foil PP36, transparent polypropylene, peeling able, suitable for 36 well microplate low profile format, dimension 50 × 55 mm

Sealing foil S96

Order number	Quantity	Description
844-70070-0	Packet of 25 pieces	Adhesive sealing foil S96, aluminium, piercing and peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm
844-70071-0	Packet of 100 pieces	Adhesive sealing foil S96, aluminium, piercing and peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm
844-70072-0	Packet of 250 pieces	Adhesive sealing foil S96, aluminium, piercing and peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm

Sealing foil PP96

Order number	Quantity	Description
844-70075-0	Packet of 25 pieces	Adhesive sealing foil PP96, transparent polypropylene, peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm
844-70076-0	Packet of 100 pieces	Adhesive sealing foil PP96, transparent polypropylene, peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm
844-70077-0	Packet of 250 pieces	Adhesive sealing foil PP96, transparent polypropylene, peeling able, suitable for 96 well microplate low profile format, dimension 74 × 40 mm

Adhesive sealing foil strip

Order number	Quantity	Description
844-70080-0	Packet of 125 pieces	Adhesive sealing foil strip, transparent polypropylene, peeling able, suitable for ultrathin-walled 8 well Strip low profile format, dimension 65 × 10 mm
844-70081-0	Packet of 500 pieces	Adhesive sealing foil strip, transparent polypropylene, peeling able, suitable for ultrathin-walled 8 well Strip low profile format, dimension 65 × 10 mm

Adhesive sealing foils

Order number	Quantity	Description
846-050-256	Packet of 100 pieces	Adhesive sealing film, RNase- and DNase-free, transparent
846-050-258	Packet of 100 pieces	Adhesive sealing film for optical detection (real-time PCR), RNase- and DNase-free, transparent
844-70042-0	Packet of 100 sheets	Adhesive sealing foils, RNase- and DNase-free

Consumables for KingFisher® systems

Consumables for KingFisher® FLEX

Order number	Quantity	Description
845-KF-1296010	KFFLX Plate Set	50× KF 96 DW Plate, 10× KF 96 Tip Comb with KF 96 DW Plate, 10× KF 96 Plate

Tips for GeneTheatre

All sterile tips are certified to be DNase, RNase, DNA, pyrogen and ATP-free.
Non-sterile tips are certified to be RNase and DNase free.

Order number	Quantity	Description
844-70129-0	96 tips/box, 10 boxes per packing	50 µl Tip Box for GeneTheatre, non-steril, PCR-certified
844-70130-0	96 tips/box, 10 boxes per packing	50 µl Tip Box for GeneTheatre, pre-sterilized, PCR-certified
844-70131-0	96 tips/box, 10 boxes per packing	50 µl Tip Box for GeneTheatre, net volume 40 µl, pre-sterilized with ART-filter, PCR-certified
844-70132-0	96 tips/box, 10 boxes per packing	250 µl Tip Box for GeneTheatre, non-steril, PCR-certified
844-70133-0	96 tips/box, 10 boxes per packing	250 µl Tip Box for GeneTheatre, pre-sterilized, PCR-certified
844-70134-0	96 tips/box, 10 boxes per packing	250 µl Tip Box for GeneTheatre, net volume 160 µl, pre-sterilized with ART-filter, PCR-certified
844-70135-0	96 tips/rack, 16 racks per packing	1000 µl TipRack for GeneTheatre, non-steril, PCR-certified
844-70136-0	96 tips/rack, 16 racks per packing	1000 µl TipRack for GeneTheatre, pre-sterilized, PCR-certified
844-70137-0	96 tips/rack, 16 racks per packing	1000 µl TipRack for GeneTheatre, pre-sterilized with ART-filter, PCR-certified

Tips for SELMA 96

High precision pipetting tips (polypropylene) for SELMA 96, ready-to-use racked in a disposable tray

10 µl TipTray for SELMA 96 (25 µl and 60 µl)

Order number	Quantity	Description
844-70170-0	96 tips/tray, 30 trays per package	10 µl TipTray, non-sterile
844-70171-0	96 tips/tray, 30 trays per package	10 µl TipTray, sterile
844-70172-0	96 tips/tray, 30 trays per package	10 µl TipTray, sterile, PCR certified

25 µl TipTray for SELMA 96 (25 µl and 60 µl)

Order number	Quantity	Description
844-70173-0	96 tips/tray, 24 trays per package	25 µl TipTray, non-sterile
844-70174-0	96 tips/tray, 24 trays per package	25 µl TipTray, sterile
844-70175-0	96 tips/tray, 24 trays per package	25 µl TipTray, sterile, PCR certified
844-70186-0	96 tips/tray, 24 trays per package	25 µl TipTray for SELMA 96, sterile, PCR certified, with filter

60 µl TipTray for SELMA 96 (25 µl and 60 µl)

Order number	Quantity	Description
844-70176-0	96 tips/tray, 24 trays per package	60 µl TipTray, sterile
844-70177-0	96 tips/tray, 24 trays per package	60 µl TipTray, sterile, PCR certified
844-70178-0	96 tips/tray, 24 trays per package	60 µl TipTray, sterile, PCR certified, with filter
844-70179-0	96 tips/tray, 24 trays per package	60 µl TipTray, sterile, PCR certified, with filter

250 µl TipTray for SELMA 96 (250 µl)

Order number	Quantity	Description
844-70180-0	96 tips/tray, 18 trays per package	250 µl TipTray, non-sterile, DW for usage of deep well plates
844-70181-0	96 tips/tray, 18 trays per package	250 µl TipTray, sterile, DW for usage of deep well plates
844-70182-0	96 tips/tray, 18 trays per package	250 µl TipTray, sterile PCR certified, DW for usage of deep well plates
844-70183-0	96 tips/tray, 18 trays per package	250 µl TipTray, sterile, PCR certified, with filter, net volume 250 µl, DW for usage of deep well plates
844-70184-0	96 tips/tray, 18 trays per package	250 µl TipTray, non-sterile, SW for usage of shallow well plates
844-70185-0	96 tips/tray, 24 trays per package	250 µl TipTray, sterile, SW for usage of shallow well plates
844-70186-0	96 tips/tray, 24 trays per package	250 µl TipTray, sterile, PCR certified, SW

1000 µl TipRack for SELMA 96 (1000 µl)

For usage with SELMA 96 (1000 µl) tips has to be transferred from TipRack to a tip magazine (metal; 844-00190-2). Therefore a tip-transfer tool (844-00191-2) is available.

Order number	Quantity	Description
844-70192-0	96 tips/rack, 16 racks per package	1000 µl TipRack, non-sterile
844-70193-0	96 tips/rack, 16 racks per package	1000 µl TipRack, sterile
844-70194-0	96 tips/rack, 16 racks per package	1000 µl TipRack, sterile, with filter

Tips for SELMA 384

10 µl TipTray for SELMA 384 (25 µl)

Order number	Quantity	Description
844-70160-0	384 tips/tray, 30 trays per package	10 µl, unsteril
844-70161-0	384 tips/tray, 30 trays per package	10 µl, sterile
844-70162-0	384 tips/tray, 30 trays per package	10 µl, sterile, PCR certified

25 µl TipTray for SELMA 384 (25 µl)

Order number	Quantity	Description
844-70163-0	384 tips/tray, 24 trays per package	25 µl, non-sterile
844-70164-0	384 tips/tray, 24 trays per package	25 µl, sterile, PCR certified
844-70165-0	384 tips/tray, 24 trays per package	25 µl, sterile, PCR certified, with filter, net volume 13 µl

60 µl TipTray for SELMA 384 (60 µl)

Order number	Quantity	Description
844-70166-0	384 tips/tray, 24 trays per package	60 µl, non-sterile
844-70167-0	384 tips/tray, 24 trays per package	60 µl, sterile, PCR certified
844-70168-0	384 tips/tray, 24 trays per package	60 µl, sterile, PCR certified, with filter, net volume 18 µl

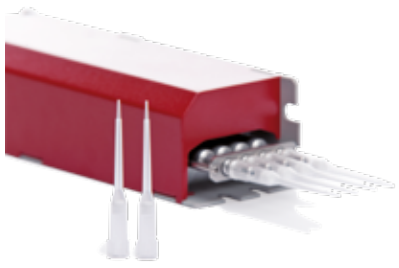
Tips for FasTrans

All sterile tips are certified to be DNase, RNase, DNA, pyrogen and ATP-free.
Non-sterile tips are certified to be RNase and DNase free.

Tips for pipetting

Order number	Quantity	Description
844-70120-0	One unit*	10 µl Poly (clear), with ART-filter, pre-sterilized
844-70121-0	One unit*	20 µl Poly (clear), pre-sterilized
844-70122-0	One unit*	20 µl Poly (clear), non-sterile
844-70123-0	One unit*	50 µl Poly (clear), with ART-filter, pre-sterilized
844-70124-0	One unit*	50 µl Poly (clear), pre-sterilized
844-70125-0	One unit*	50 µl Poly (clear), non-sterile
844-70126-0	One unit*	175 µl Poly (clear), with ART-filter, pre-sterilized
844-70127-0	One unit*	200 µl Poly (clear), pre-sterilized
844-70128-0	One unit*	200 µl Poly (clear), non-sterile

* 1 unit includes always 96 tips/tray, 10 trays/pack, in total 960 tips



4 channel pipetting head with 50 µl pipetting tips

Working hand in hand with Analytik Jena's subsidiary AJ Blomesystem, we can generate customized Laboratory Information and Management Systems.

With 30 years of experience in this field the AJ Blomesystem GmbH is the perfect partner.

LIMS

LABbase®

LABbase® is a Laboratory Information Management System, based on blomesystem®, which can be adjusted to the special requirements of each customer. It comprises all functionalities necessary for the daily work routine in a professional laboratory.

With the blomesystem® Designer you receive a tool with which trained staff is able to further customize the system – without jeopardizing the update ability of the system.

A LIMS for all and everything

LABbase® handles the entire workflow of a modern laboratory. The modular design as well as integrated customization tools allow our licensed contractors to address the requirements of their customers individually, modify the analytic – if required – and adjust the reporting to changing requirements. Modular extensions are available for laboratories which work production or batch orientated.

Validation and QA

LABbase® is a completely qualified product. All 800 integrated objects were evaluated using risk analysis and were tested to exhaustion. Therefor the effort for validating the LIMS is greatly reduced for laboratories deciding on LABbase®.
AJ Blomesystem is DIN EN ISO 9001 certified. Customer audits confirm the outstanding quality guaranteed by this system.

Multilingualism

Applications are currently available in English, French and German. A module for the translation of mask and block titles as well as field labels etc. is available. Reports are independent from the language the user interface is set to.

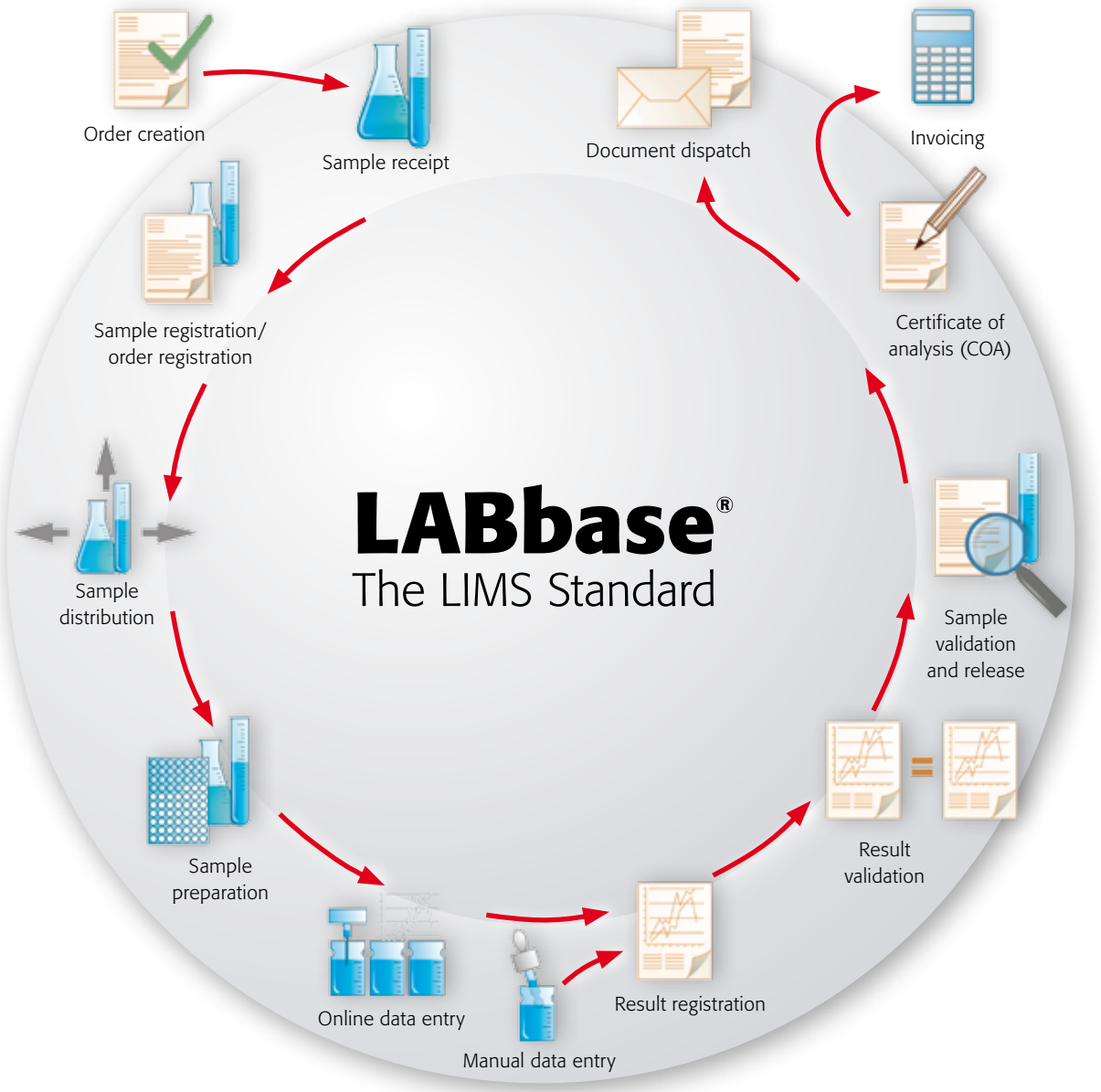
Multi location support

Your company has several locations? With LABbase® there is only one central database needed – the same master files can be used by all users. Defined access rights control the access to the data for individual users groups. Due to the combination of multilingualism and interfaces to modern office communication technology, LABbase® opens up a new dimension of multi location labwork. Database maintenance and security tasks are centralized in one location.

Service and support

If you wish continuing support after the completion of a project and implementation of the blomesystem® application, it is advisable to conclude a software maintenance contract. Software maintenance includes services for updates, upgrades and, if desired, a hotline service. As an option, the software maintenance contract can be expanded by a defined quota of service days. These service days can be called up according to requirements. Moreover, comprehensive training courses are offered and regular user meetings are organized. In addition, we provide the possibility to use the extensive support forum on our website.

LABbase® in action



LABbase® workflow

Customization with the blomesystem® Report Generator and Designer

LABbase® – one software and two unique tools:

1. The blomesystem® Report Generator

The blomesystem® Report Generator is an exclusive tool for query, definition and input of data. Depending on requirements, the trained user will be able to create data entry forms, reports, evaluations and statistics, without the need to change the source code of the application or the database design.

Flexibility...

Printable templates can be generated and be used for data entry. Standardized, given paper forms can be replicated as entry mask on the screen – it eases orientation and saves time.

...Efficiency

As results and reports are directly created and saved in LABbase®, there is no need to export data into other applications. This means that administrative work, like filing and protecting Office documents, is no longer necessary. Additionally, the fields in mask and report allow the user to insert and save text of unlimited size. Thus, an additional word processing program is not needed.

Conclusion: The blomesystem® Report Generator increases your workflow efficiency and avoids potential errors.

2. The blomesystem® Designer

The integrated blomesystem® Designer empowers the user to customize the preconfigured standard application and creates a product that exactly meets your requirements. This tool enables you to comprehensively modify and extend the functionality of the application as well as the underlying data-base.

flexibel and...

The Designer is a fully developed and reliable tool thanks to the active input of numerous leading companies. It is beneficial for those customers who want to integrate LABbase® into their current company IT. It is up to you whether you commission changes to the relevant modules or whether you make changes by yourself.

...unrestricted updateable

A unique feature of the blomesystem® Designer: despite of changes made to the application one is able to carry the structures and programs including the data into the next higher system version when an update is available. It is possible because all changes to the application are saved in a separate installation directory while the source code remains unchanged.

Conclusion: The blomesystem® Designer is the optimal tool to customize LABbase®.

Data and facts

- Tight network of certified service partners
- Customer-specific adjustments
- Rapid prototyping
- Concurrent licensing
- Client capability
- Multilingualism (applications, master data, labels)
- Ad hoc limits
- Transparent, bidirectional interface to Microsoft Office
- GAMP level III standard system
- Suitable for working under GxP requirements

Modules which are part of the LABbase® core functionality:

Basics – General functions and record keeping (i. e. users, contacts, etc.)
Core **LIMS** – All information required for sample processing
Audit trail – Configurable change history
Storage of binary objects – Allocation of files to each record
Limits administration – Interactive evaluation of results
Test methods – Administration of test parameters and methods
Units – Administration of units and their conversion
Sample locations – Administration of sampling locations
Device management – Administration and maintenance of instruments
Reporting – Adminstration and creation of COAs based on templates

Optional add ons for LABbase®:

Accounts – Accounting module (from order to invoice)
Production – Production module (items, recipes and production oriented samples)
Control charts – Control chart module (average, blank, range and spike charts)
Calibration – Calibration (calculation of process data)
SOP administration – Standard Operating Procedures (location dependent)
CRM – Customer administration and reminder module
Interface module – Interface module to connect with various systems (e. g. TEIS)
CSP – Cyclical sample planning (planning module for cyclic samples)
Projects – Project administration
Public Web Server – Module for retrieving sample information via the web

readyLIMS®

readyLIMS®is a modern multilingual *commercial off-the-shelf* Laboratory Information Management System which follows the concept of multi tier architecture.

The application will consist of three logical layers:

Persistence Layer (Database Tier)
The data of an object are transferred into a non-volatile condition here. This basically corresponds to the storage of data in a database.

Business Layer (Logic Tier)
The processing of data takes place on this layer. The essential tasks of the application server are realized here.

Presentation Layer (Client Tier)
This task is primarily represented by the Client. The user interacts with the data or calls up functions with which the data can be manipulated and modified. The processing basically takes place on the Business Layer level.

readyLIMS®offers a number of advantages:

Webfarm:
readyLIMS®can be allocated, depending upon user load, on different servers. This includes vertical and horizontal scaling. An extension of hardware can be the upgrade of a server or the extension of the server farm by new servers.

Clusterable:
readyLIMS®supports the use of cluster databases.

Multi-tier-architecture
Modern multi layer application which separates database, application and client.

Web based:
Fast connection of clients via WWW.

SSL encryption for secure communications:
Data encryption via SSL over TCP/IP and HTTP.

Click-Once-Deployment
Simple installation on a client computer which fulfills the system requirements.
The client can be downloaded from the company-owned intranet without assistance by an external IT-worker on site.

Native Windows application:
- Windows look and feel
- Comfortable GUI with extensive possibilities of data aggregation and assortment
- Support of Windows Vista and Windows 7
- Support of function keys (e.g. F1 – F12 in combination with Alt and/or Strg) and shortcuts (Strg+S for memory or Strg+L for load,...)
- Application is as far as possible controllable over the keyboard
- Contextsensitive menu
- Support of different charts

Crystal Reports as a reporting tool:
Creates your reports with the common reporting tool Crystal Reports.

Integrated document management:
Filing of reports as PDFs directly in the database.

Integrated formula interpreter:
Calculation formula can be defined freely.

Configurable workflow
Release mechanisms for master and other data can be managed via state machines.

Individual optimized processes
Use of work lists and automatic modes for quick execution of individual tasks in the system.

readyLIMS®is offered as Software-as-a-Service (SaaS). In addition, you only need for the Clients the appropriate number of computers with Internet connection and Microsoft. Net Framework version 2.0 + 3,5, which can be downloaded from the Internet free of charge. readyLIMS®as SaaS model brings your LIMS from local servers to heavy-duty machines of professional providers and uses the possibilities of operational fund division. It contributes to the idea of Green IT and additional expenditures with the purchase of data processing technology such as computers and servers are avoided as far as possible.

readyLIMS® in action

Worksheet samples

ENMO®hydro

ENMO®hydro is a software system for the efficient control, administration and evaluation of automated water quality measuring networks and offers new possibilities in an innovative software environment. The functionality of the 100 % web-based multi-tier-system comprises workflows for automatic sampling and quality assurance, the administration and control of equipment in the measuring stations, numerous options for data evaluation, illustration and export as well as a notification system. ENMO®hydro furthermore complies with the requirements for a certification of the measuring network according to EN/ISO 17025.

ENMO®hydro consists of three components:

- ENMO® Site
- ENMO® Server
- ENMO® Client

ENMO® Site continuously collects data, status messages and error reports from the installed measuring systems in the measuring stations. The data records are buffered on the ENMO®-Site-Computers and are then transmitted via the Internet to the ENMO® Server. With the optional available ENMO® IT SEES plug-in, the system checks the data for irregularities and an automatic alarm index is generated, which simplifies a fast evaluation of the current water situation.

ENMO® Server: The data and status messages of all measuring stations are collected in a measuring network centre and are stored in an Oracle database. The ENMO® Server automatically evaluates incoming data – if the alarm index points to a suspicious water condition, the responsible users are informed automatically by SMS and email. At the same time, a workflow is started for the analysis of the automatically obtained alarm samples from the measuring stations.

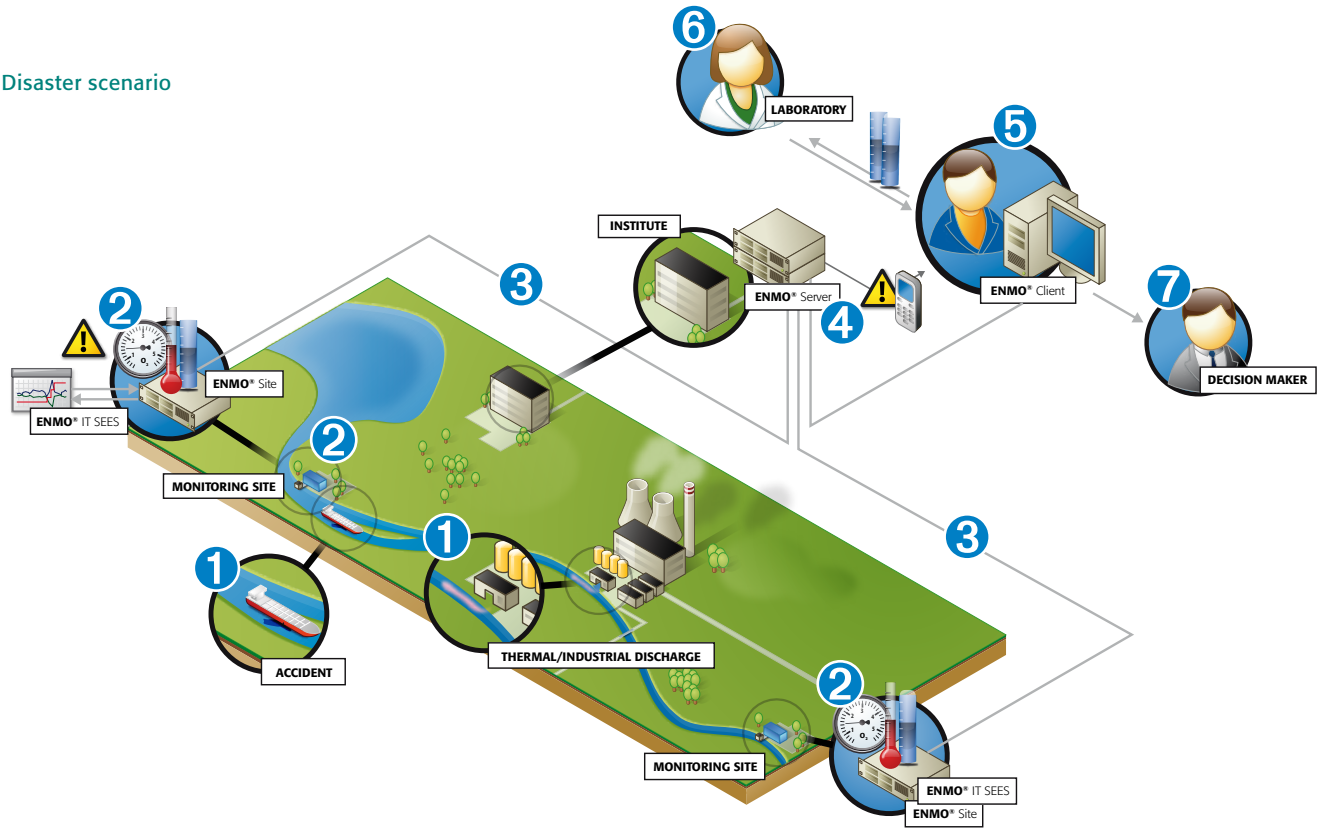
ENMO® Client: Transmitted datasets can be displayed, evaluated and validated via the modern, intuitive interface ENMO® Client – this is made possible by a multitude of tools (see below). With little effort, the client can be configured in such a way that the user can obtain an overview of all the measurands necessary for an assessment of the water quality within the shortest possible time. The equipment, master data, access rights and schedules including maintenance routines can also be managed using the client. In order to be able to present the data obtained without unnecessary efforts, the ENMO® Client is able to export vector graphics, Excel sheets and bitmap graphics – at the same time, the layout defined in the client remains unchanged.

The ENMO® IT SEES plug-in – automatic alarm index creation

With the optionally available ENMO® IT SEES plug-in – a tool for the real-time detection of unnatural or conspicuous water conditions – the functionality of ENMO®hydro is considerably extended once again. ENMO® IT SEES analyses and evaluates fed-in data sets – i.e. classic water parameters and biomonitors – with respect to whether they fulfil the criteria of "conspicuousness".
ENMO® IT SEES determines the alarm index from all suspicious events with different weightings. Each irregularity increases the value of the alarm index by a value defined for the respective measurement. If defined thresholds are exceeded, ENMO® IT SEES generates a warning. When the highest threshold is crossed, the "announcement stage" is reached. Dynamic detection procedures such as the double-sigma test and Hinkley detector offer a sensitive detection of irregularities in the water and thus also significantly reduce the probability of a false alarm. ENMO® IT SEES was developed by bbe Moldaenke, Kiel and Hamburg's water quality measuring network within the context of the research and development project "EASE – Development of Alarm Criteria and Incident Measurement in Measuring Stations for International Danger Prevention."

ENMO®hydro represents the newest developments in dynamic, continuous and automated water quality monitoring and thus makes an important contribution to the early detection of disasters or accidents as well as to the evaluation of hazard potentials. With respect to the illustration of all workflows relevant for water monitoring as well as regarding the possibilities for data evaluation, export and illustration, ENMO®hydro is unique to date.

Disaster scenario

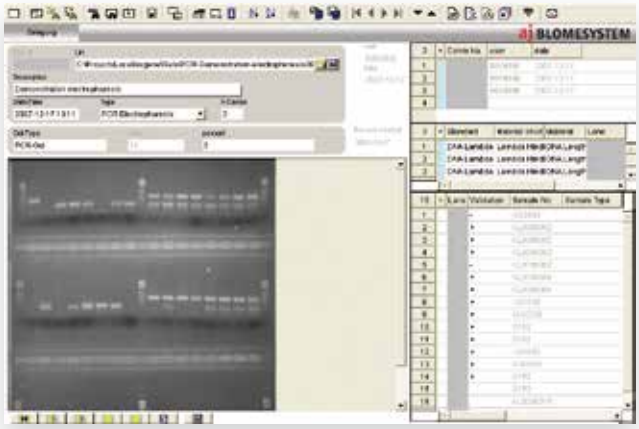


1) A toxic substance is emitted into a river for example after a disaster at a tanker or a chemical factory.
2) ENMO® Site reads the values and transmits them to ENMO® IT SEES – the alarm index "warning" or "announcement stage" is created.
3) Values and alarm index are transmitted via Internet to ENMO® Server.
4) ENMO® Server evaluates alarm index as significant. The user is notified by SMS and email. Automatic sampling in the measuring station to store the samples.
5) The user analyses the values and alarm index via ENMO® Client to ensure that with the utmost probability a non-natural event has occurred. The user then obtains the samples from the measuring station and initiates an analysis in the laboratory.
6) The laboratory delivers an analysis of the samples.
7) The user immediately informs the authority responsible for the warning and alarm plan.

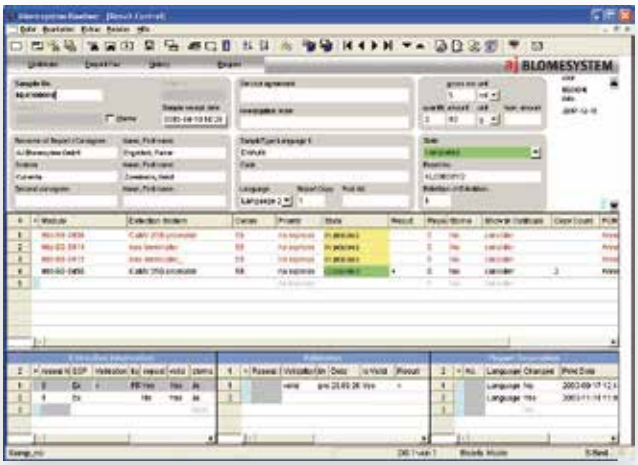
Unlike classic LIMS, working processes in Molecular Biology are extremely heterogeneously. Classic LIMS present their user interfaces in a sample-oriented manner. A LIMS in the biotechnology sector has to present user interfaces focused on the specific methodology. Most LIMS are standardized systems, which can be configured on field level but not in the design structure.

AJ Blomesystem allows to extend and change the structure of their products by using a specifically developed blomesystem® Designer to meet these requirements.
Through structural changes AJ Blomesystem allows maintaining the natural workflow of each laboratory and thus directs the functionality to the unique features of their customers.

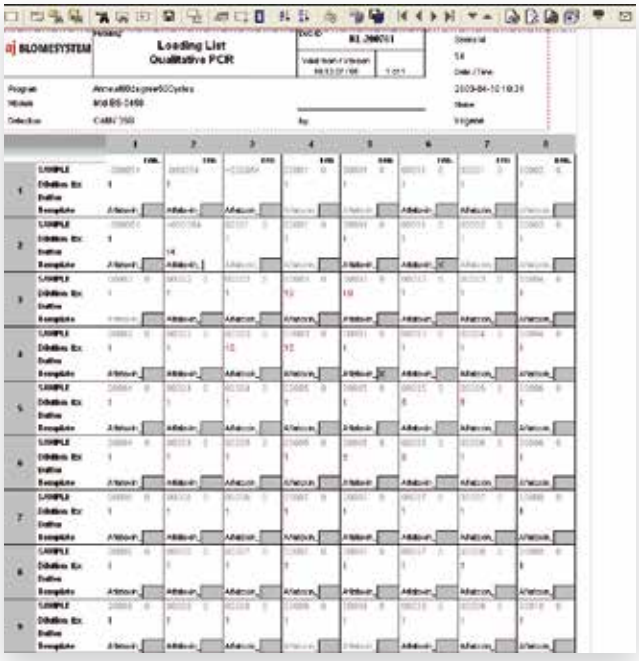
Following some examples for the capability of AJ Blomesystem applications:



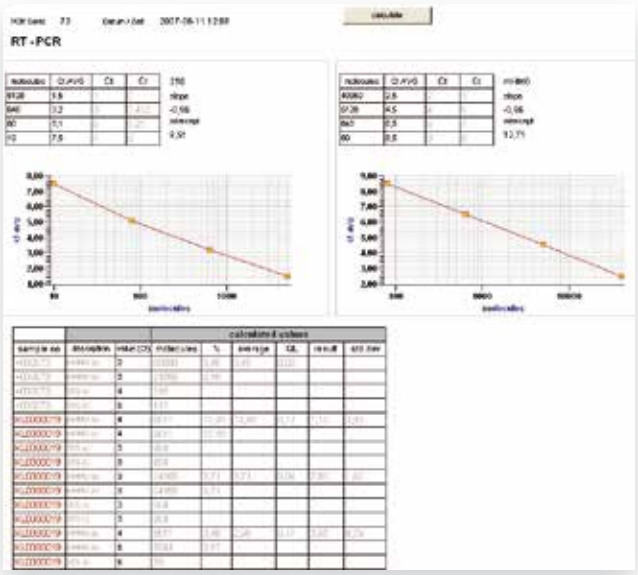
Process and manage non structured information together with structured data. In this case the validation of qualitative PCR or DNA extraction.



With multifunctional worksheets, complex workflows in life science laboratories can be surveyed and validation can be done in situ.



AJ Blomesystem reports have the unique ability, to be editable. This allows presenting and editing the data in various structures, here in a microtiter plate like manner.



Quantitative calculation of signals received by reverse PCR. Shown graphics are real-time graphics, which are automatically updated with each change in data.

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the optimal solution has been found.

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