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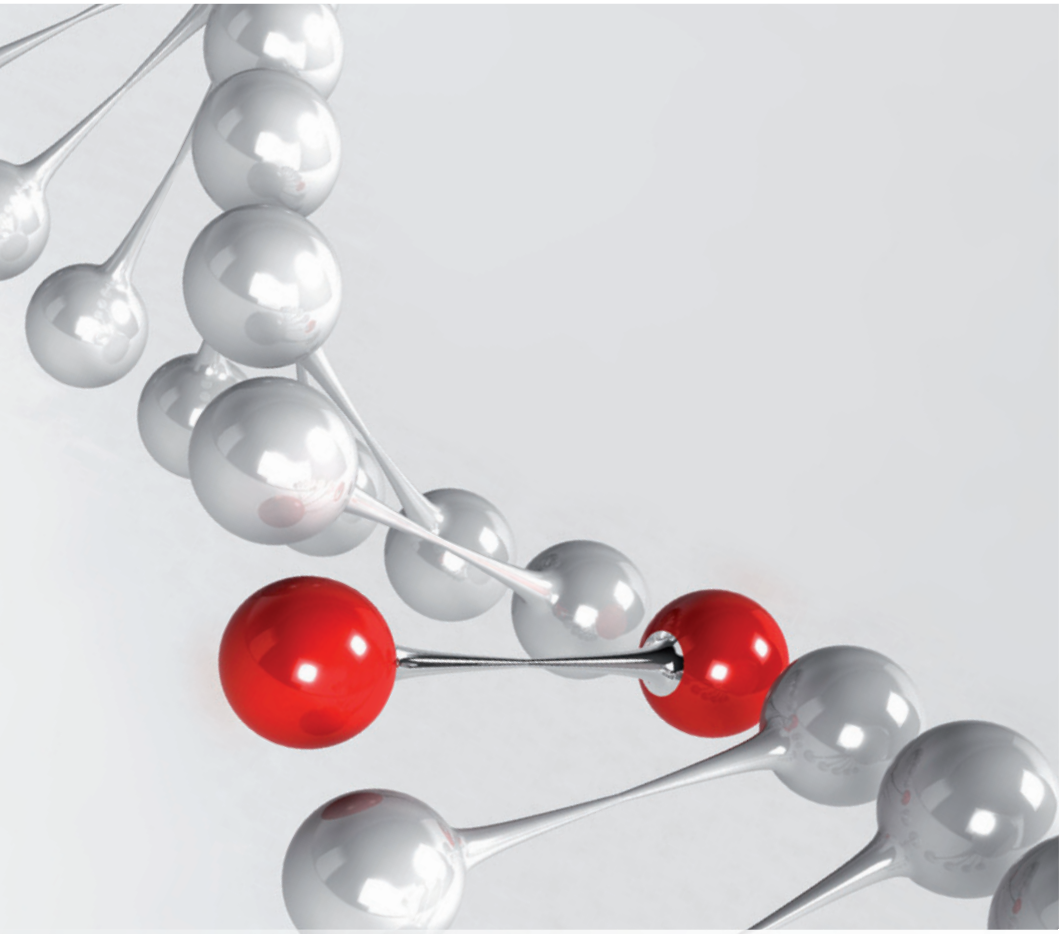

SMARTER NUCLEIC ACID SAMPLE PREPARATION

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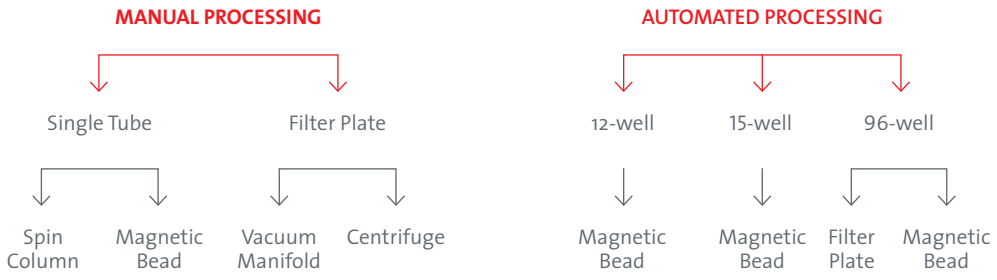
SMARTER NUCLEIC ACID SAMPLE PREPARATION

Striving for greater efficiencies, improved performance and overall better success, STRATEC Molecular presents a most advanced and comprehensive range of kits for nucleic acid purification, unique clinical sample collection and stabilization. The InviGenius® system sets a new milestone in automated sample preparation technology allowing for increased standardization and streamlining of laboratory workflows. STRATEC Molecular will continue to develop automated system solutions for high-throughput nucleic acid sample preparation.

Innovative products meet your needs for easy performance and reliable results in high yield and purity, as well as the highest flexibility with regard to sample throughput:

- A full range of purification products and formats to match your application demands – more than 120 DNA/RNA isolation systems
- A broad selection of products for high-throughput and automated sample processing
- Many products are developed and manufactured in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)



Why »smarter«? What is smarter about STRATEC Molecular solutions?
With our kits you can:

- Improve Efficiency
- Maximize Capabilities
- Improve Safety
- Improve Effectiveness
- Increase Environmental-friendliness

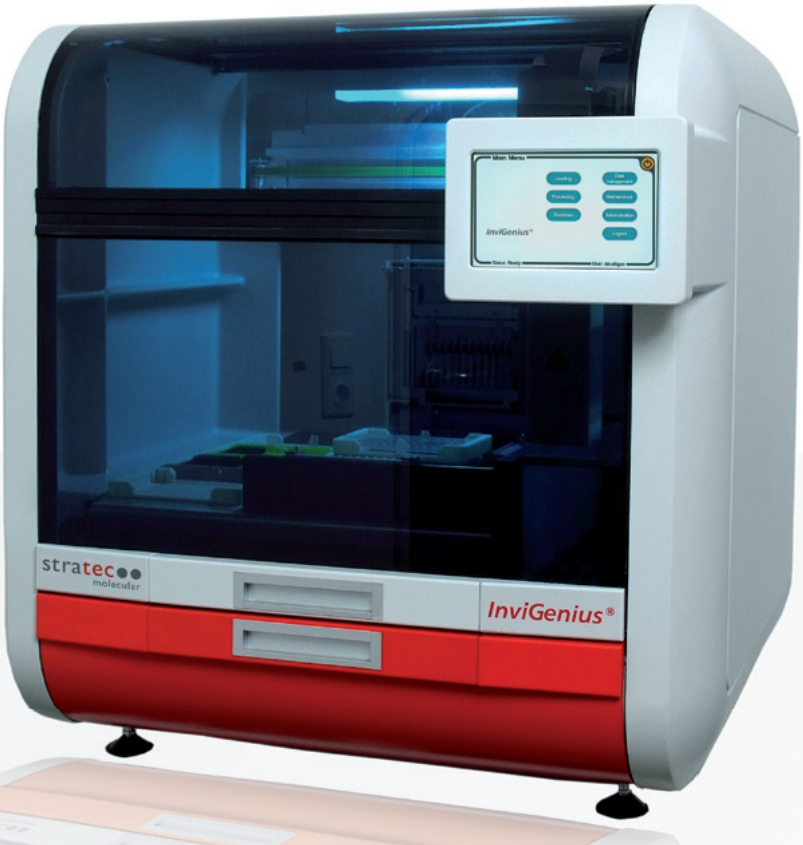
Streamline your sample preparation process
by using STRATEC Molecular products.
www.invitek.de

PRODUCT SELECTION GUIDE

NUCLEIC ACID	TYPE	STARTING MATERIAL	RECOMMENDED KIT
DNA	Genomic	Blood, buffy coat, bone marrow	**Invisorb® Spin Blood Mini Kit**
		Tissue, FFPE tissue	**Invisorb® Spin Tissue Mini Kit**
		Cells (eucaryotic), swabs	**Invisorb® Spin Tissue Mini Kit**
		Plants	**Invisorb® Spin Plant Mini Kit**
		Stool samples	**PSP® Spin Stool DNA *Plus* Kit**
		Saliva	**PSP® SalivaGene DNA Kit**
	Bacterial	Bacteria pellets, tissue, swabs, cell-free body fluids, blood,urine, water, paper points	**RTP® Bacteria DNA Mini Kit**
		Saliva	**PSP® SalivaGene DNA Kit**
		Stool samples	**PSP® Spin Stool DNA *Plus* Kit**
	DNA fragments	PCR products, amplification reaction mixture, cDNA synthesis, ligation mixtures, restriction digestion mixtures	**MSB® Spin PCRapace** **Invisorb® Fragment CleanUp**
		Agarose gel slices	**Invisorb® Fragment CleanUp**
	Plasmid	Bacterial suspension	**Invisorb® Spin Plasmid Mini *Two***
DNA/RNA	Genomic/ total	Eucaryotic cells, tissue, blood	**InviTrap® Spin Universal RNA Mini Kit**
	Viral	Serum, plasma, cell-free body fluids, cell culture supernatants, tissue, swabs	**RTP® DNA/RNA Virus Mini Kit**
RNA	Viral	Serum, plasma, blood, tissue, stool samples, mammalian cells, cell culture supernatants, swabs	**Invisorb® Spin Virus RNA Mini Kit**
		Serum, plasma, blood	**RNAsure® Virus System**
	Total	Eucaryotic cells	**InviTrap® Spin Cell RNA Mini Kit** **InviTrap® Spin Universal RNA Mini Kit**
		Bacteria (Gram-positive and Gram-negative)	**InviTrap® Spin Cell RNA Mini Kit**
		Yeast cells	**InviTrap® Spin Cell RNA Mini Kit**
		Tissue, FFPE tissue	**InviTrap® Spin Universal RNA Mini Kit**
		Blood	**InviTrap® Spin Universal RNA Mini Kit**
		Plants	**InviTrap® Spin Plant RNA Mini Kit**

	SAMPLE VOLUME	YIELD	CE-IVD	AVAILABLE IN 96 WELL FORMAT	AUTOMATED ON	PAGE
	Up to 200 µl	Up to 10 µg	x	x	IG, ep, X, KFmL, KF96, KF24, Ham	26
	Up to 40 mg	Up to 50 µg	x	x	Tec, KF96	24
	Up to 10^6 cells	Up to 6 – 10 µg	x	x	KF96	24
	Up to 100 mg	Up to 50 µg		x	KFmL, KF96	34
	Up to 1 g collected in 8 ml of Stool Stabilizer	Up to 50 µg	x	x	KFmL, KF96	10
	0.5 ml	Up to 50 µg		x	IG, ep, KFmL, KF96	8
	Up to 10^9 cells, 10 mg, 100 µl	Depending on starting material	x	x	KFmL, KF96	22
	0.5 ml	Up to 50 µg		x	IG, ep, KFmL, KF96	8
	Up to 1 g collected in 8 ml of Stool Stabilizer	Up to 50 µg	x	x	KFmL, KF96	10
	100 µl	Up to 95 % recovery		x	ep, X	28 30
	Up to 300 mg gel slices	Up to 95 % recovery		No		30
	0.5 – 2.0 ml	Up to 20 µg		x	ep	32
	Up to 10^7 cells, up to 20 mg, up to 1.5 ml	Depending on starting material		No		14
	Up to 200 µl or 10 mg	Up to 20 µg	x	x	KFmL, KF96	20
	Up to 200 µl or 10 mg	Depending on viral titer	x	x	IG, ep, X, KFmL, KF96	18
	Up to 200 µl	Depending on viral titer		No		12
	Up to 10^7 cells	Up to 150 µg		x	KFmL, KF96	16 14
	Up to 10^9 cells	Up to 50 µg		x		16
	5 x 10^7 cells	Up to 50 µg		x		16
	Up to 20 mg	Up to 80 µg		x	KFmL, KF96	14
	Up to 1.5 ml or 10^7 leukocytes	Up to 5 µg/ml blood		x	KFmL, KF96	14
	Up to 100 mg, up to 10^7 cells			x		17

IG *InviGenius* **X** *X-tractor Gene* **Ham** *Hamilton* **KF96** *KingFisher 96 and Flex 96*
ep *epMotion 5075 Vac* **Tec** *Tecan* **KFmL** *KingFisher mL* **KF24** *KingFisher Flex 24*



PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
InviGenius®	1 unit	5011100000

01//

The InviGenius®
Fully automated DNA/RNA purification

The InviGenius® provides advanced and reliable performance in automated nucleic acid sample preparation. The use of this system in combination with the well established magnetic bead based InviMag® technology for DNA and RNA purification will allow for increased standardization and streamlining of laboratory workflows. Innovative functions and optimized protocols enable reliable results for high quality nucleic acid purification from human samples. The InviGenius® automated system, with built-in touch screen and computer incl. connection to LIMS, provides efficient automation of the sample preparation workflow. (In compliance with the Directive 98/79/EC on in vitro diagnostic medical devices [IVD-Directive])*

TRUE WALK-AWAY PLATFORM
Fully automated purification of 12 samples directly from primary tubes to high quality, PCR-ready DNA/RNA on board

TOUCH SCREEN SUPPORTED PROGRAMMING
Enables easy instrument control and saves space through built-in computer

BEST IN ERROR PREVENTION
Automatic barcode reading and identification of samples and reagents while loading; defined and protected protocols help to prevent user-errors

TOTAL IN-PROCESS CONTROL
Elaborate software control of the entire purification procedure including sample tracking

MAXIMUM SAFETY FOR SAMPLES AND THE ENVIRONMENT
Monitored and cross contamination-free process; UV decontamination of the worktable

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

02 //

PSP® (Preanalytical Sample Processing)
Unique clinical sample stabilization

DNA sample preparation from saliva

The novel SalivaGene Collector introduces a breakthrough simplification of saliva collection designed to provide high DNA yields for downstream applications. The patented lyophilized stabilization buffer supersedes cooling of samples and stabilizes genomic DNA for 12 months at room temperature. The non-invasive saliva collection method reduces puncture-associated infection risks and provides high quality DNA to perform as well as blood on downstream applications. Subsequent DNA purification can be completed using the PSP® SalivaGene DNA Kit. (This product will be CE-marked in March 2012)

PAINLESS SELF-COLLECTION
Pre-filled sample collection tubes for easy saliva collection with lyophilized DNA stabilization buffer

LONG-TERM ROOM TEMPERATURE STABILITY OF SAMPLES
Less costs and sample management during transport and storage without refrigeration

HIGHEST DNA YIELDS
High quality DNA suitable for various downstream applications e.g. genotyping and genomic sequencing, pharmacogenomics

MANUAL OR AUTOMATED DNA PURIFICATION
Seamless integration into automated workflow using the InviGenius®

FIG. 1: REAL-TIME PCR OF STABILIZED SALIVA SAMPLES

Fig. 1: Mean CT values of real-time PCR reactions using primers for GAPDH of DNA aliquots from 200 µl of saliva after 0, 6 and 12 months of storage in PSP® SalivaGene buffer at room temperature (average of 10 different samples, single determinations). DNA was manually isolated using the PSP® SalivaGene DNA Kit.

FIG. 2: AUTOMATED DNA ISOLATION FROM STABILIZED SALIVA SAMPLES

Fig. 2: Genomic DNA was automatically purified on the InviGenius® from 1.6 ml of stabilized saliva samples (pooled samples of ten different donors). 10 µl were analyzed on a 0.8 % agarose gel stained with ethidium bromide. (Marker – GeneRuler™ DNA Ladder, Fermentas)

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
PSP® SalivaGene DNA Kit	50 purifications	1035200200
	250 purifications	1035200300
SalivaGene Collector	50 pieces	1035210200

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02 //

PSP® (Preanalytical Sample Processing)
Unique clinical sample stabilization

DNA sample preparation from stool samples

The PSP® Spin Stool DNA Plus Kit is an integrated system for collection, transportation and storage of stool samples and subsequent DNA purification. Transportation of the stabilized DNA can be carried out in the DNA Stabilizer solution without refrigeration at ambient temperature. The purification kit is designed for DNA isolation from pathogenic microorganisms and from the host organism. The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

ALL-IN-ONE PRODUCT – FROM COLLECTION TO ISOLATION
Pre-filled collection tubes with Stool DNA stabilizer

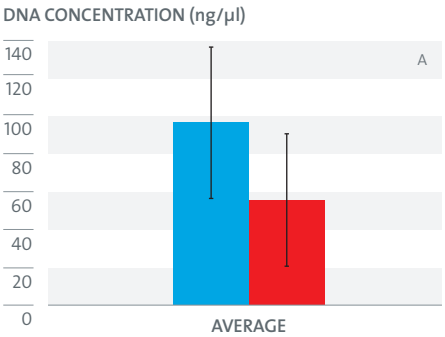
SAFE SAMPLE COLLECTION, TRANSPORTATION AND STORAGE
DNA samples are stable at room temperature for 3 days for easy transport and storage

RELIABLE SAMPLE STABILIZATION
Inactivation of DNases and preservation of the microorganism titre

COMPLETE REMOVAL OF PCR INHIBITORS
Reproducible results in PCR applications, genetic typing, mutation analysis, pathogen analysis

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 3: HIGH DNA YIELDS FROM STOOL SAMPLES



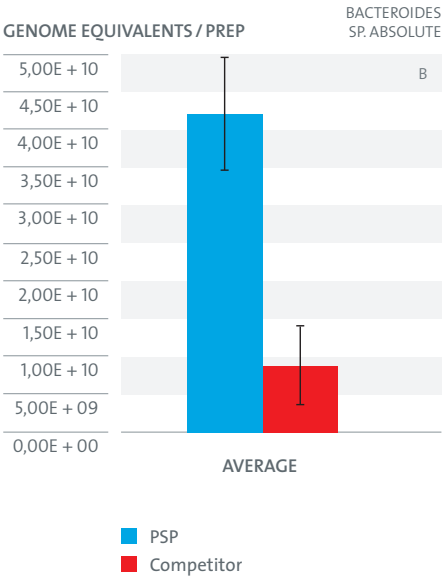


Fig. 3: Total DNA was isolated using the PSP® Spin Stool DNA Plus Kit and a competitor kit Q from 20 different stool samples according to the standard protocols. The total DNA concentration was measured on a NanoDrop® (figure A) and the respective microorganism DNA content (from Bifidobacterium sp., Escherichia coli, Faecalibacterium prausnitzii, Lactobacillus sp.) was analyzed and measured via quantitative real-time PCR (figure B).

Data kindly provided by S.C. Bischoff, University Hohenheim, Stuttgart, Germany

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
PSP® Spin Stool DNA Plus Kit	50 purifications	1038110200
	250 purifications	1038110300
PSP® Spin Stool DNA Kit (without Stool Collection Tubes)	50 purifications	1038100200
	250 purifications	1038100300

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02 //

RNAsure®
Viral DNA/RNA protection

Stabilization and extraction of viral nucleic acids

The RNAsure® Virus System provides a unique solution to the problem of nucleic acid stabilization and sample transportation by protecting nucleic acids in virus samples. RNAsure® specifically protects viral RNA through covalent attachment of protective groups. De-protection of the RNA is achieved by removal of the protective group, and viral RNA/DNA is purified prior to analysis via nucleic acid amplification. DNA is also stable in the RNAsure® buffer system.

The system has been developed for use with 200 µl of virus containing samples of serum and plasma or 100 µl blood samples. The RNAsure® buffer stabilizes the viral RNA/DNA in the sample for months without risk of degradation when stored at room temperature, promoting safer transportation and handling of infectious samples.

VIRUS SAMPLE MANAGEMENT WITHOUT REFRIGERATION
Convenient handling, transport and storage of pathogen samples at room temperature

VIRAL RNA/DNA PROTECTION
Immediate stabilization of viral nucleic acids including reversible chemical modification of RNA, resistant to degradation for up to 12 months

REDUCED RISK OF INFECTION
Immediate cell and virus lysis in RNAsure® buffer system

HIGH SENSITIVITY OF VIRAL DETECTION
Delivers results comparable with common commercial extraction systems (see figure 5)

FIG. 4: STABILITY OF VIRAL RNA FOR 12 MONTH

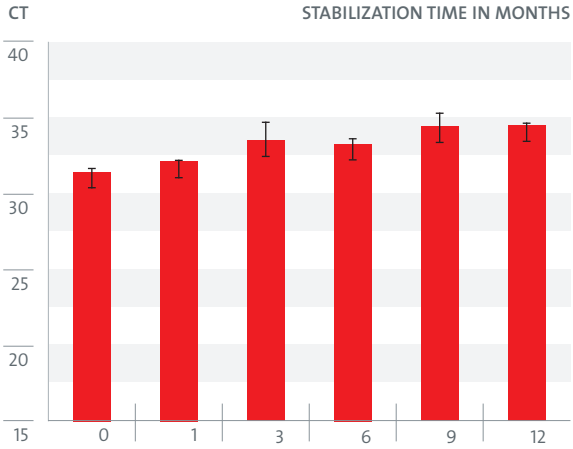

Fig. 4: 200 µl of human plasma were spiked with Influenza A virus (1 µl ++ plasma / 200 µl) and stabilized using the RNAsure® Protection Module I. After indicated months of storage at room temperature viral RNA was isolated using the RNAsure® Spin Virus Kit (extraction in triplicates) and analyzed via RT-qPCR.

FIG. 5: HIGH SENSITIVITY OF VIRAL DETECTION

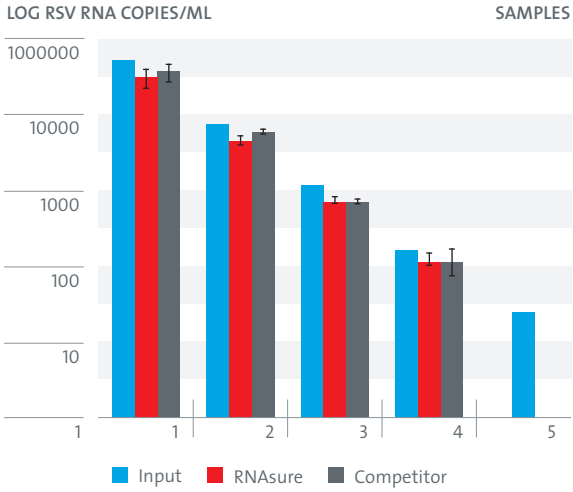

Fig. 5: 200 µl of human plasma were spiked with a dilution series ($5 \times 10^5 - 5 \times 10^1$ copies/ml) of a Respiratory Syncitial Virus (RSV) strain isolated from a patient (RSV B, Virology Würzburg, Germany). Viral RNA was stabilized and isolated using the RNAsure® Virus System in comparison to a standard method Q (in duplicates) and analyzed via LightCycler RT-qPCR. Both methods show the same sensitivity, i.e. the RNAsure® chemistry does not affect the isolation process.

Data kindly provided by K. Göhring and K. Hamprecht, Institute of Medical Virology, Tübingen, Germany

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
RNAsure® Virus System (stabilization + extraction module)	10 purifications	109400900
RNAsure® Spin Virus Kit (extraction only)	50 purifications	1094100200
RNAsure® Protection Module I (stabilization only)	50 purifications	1094200200

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03 //

InviTrap®
Pure RNA without DNase

Universal RNA purification from cells, tissue and blood

The InviTrap® Spin Universal RNA Mini Kit simplifies total RNA isolation from a variety of starting materials. The genomic DNA is removed without an enzymatic digestion step. RNases are inactivated to prevent RNA degradation. Furthermore all InviTrap® RNA kits feature capped spin columns for safe and reliable RNA purification. The isolated RNA is ready to use for a broad panel of downstream applications like RT-PCR, Northern Blotting and array technologies.

PURE RNA WITHOUT DNASE DIGESTION
Selective genomic DNA removal during lysis step

HIGH FLEXIBILITY
One kit for different starting materials, including cells (max. 10^7 cells), tissue (max. 20 mg), FFPE tissue slices and blood samples (max. 1.5 ml)

UNIVERSAL USE
Incl. simultaneous isolation of RNA and proteins or RNA and DNA and for RNA cleanup from Trizol® phases (see figure 6)

HIGH YIELDS
Up to 100 µg pure RNA without DNA contamination for better RT-PCR results

FIG. 6: EFFECTIVE DNA REMOVAL USING INVITRAP®

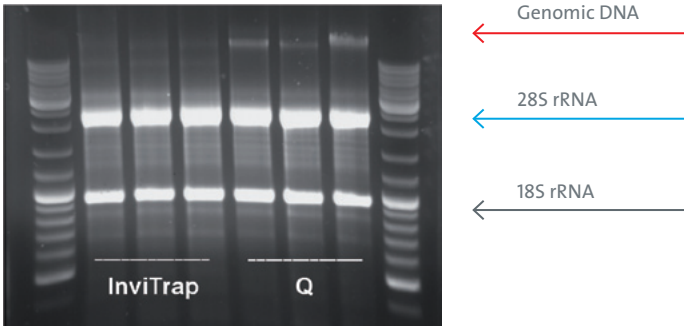

Fig. 6: Total RNA was isolated from 1 × 10^6 NIH 3T3 cells using the InviTrap® Spin Universal RNA Mini Kit and a competitor kit Q. Standard protocols for both kits were used. The RNA was eluted in 50 µl and 5 µl of the eluted RNA were analyzed on a 1.2 % denaturing agarose gel stained with ethidium bromide.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
InviTrap® Spin Universal RNA Mini Kit	50 purifications	1060100200
	250 purifications	1060100300

03 //

InviTrap®
Pure RNA without DNase

From cells

OPTIMIZED PROTOCOLS FOR A VARIETY OF CELL TYPES
Mammalian cell cultures (max. 10^7 cells), Gram-positive and Gram-negative bacteria cells (max. 10^9 cells) and yeast cells (max. 5 x 10^7 cells)

CLEANER RNA FOR BETTER RT-PCR RESULTS
No DNA contamination – up to 150 µg RNA in less than 20 minutes

FIG. 7: RNA CLEANUP FROM TRIZOL®

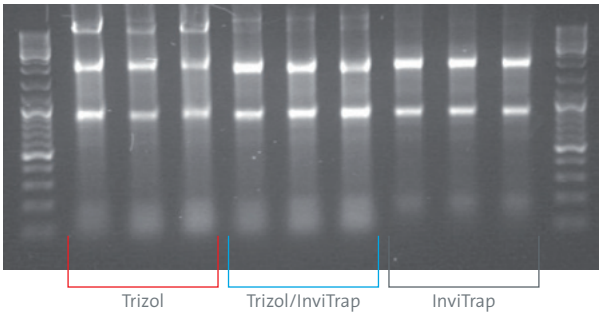

Fig. 7: Total RNA was isolated from 1 x 10^6 Jurkat cells using Trizol® reagent and the InviTrap® Spin Cell RNA Mini Kit. For the purpose of comparison the RNA was pre-purified using Trizol® and subsequently purified using the InviTrap® kit according to the RNA cleanup protocol. For analysis 4 µl of the eluted RNA were loaded onto a 1.2 % denaturing agarose gel.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
InviTrap® Spin Cell RNA Mini Kit	50 purifications	1061100200
	250 purifications	1061100300

03 //

InviTrap®
Pure RNA without DNase

From plants

OPTIMAL PROCESSING OF VARIOUS SAMPLES
Two sample-specific lysis buffers included – contaminants, such as polysaccharides, or polyphenols are removed

HIGH YIELDS
Up to 100 µg pure RNA from 100 mg plant material or 10^7 plant cells, co-purification of viral RNA from phytopathogens (see figure 8)

FIG. 8: EXCELLENT RNA PERFORMANCE IN DOWNSTREAM RT-PCR ASSAYS

Fig. 8: Total RNA was isolated from 100 mg of fresh leaves or young shoots of orange, mandarin and grapefruit plants using the InviTrap® Spin Plant RNA Mini Kit. RNA was eluted in 50 µl of elution buffer and amplified in a RT-PCR assay using viroid specific CVd-IIb primers. Lane M, 50 bp DNA ladder; -, water; H, healthy citrus; +, positive control; 1–4, tested citrus samples

Survey and molecular detection of two citrus viroids affecting commercial citrus orchards in the Northern part of Sudan. Mohamed Yousif Adam Abubaker and Siddig Mohamed Elhassan. Agric. Biol. J. N. Am., 2010, 1(5): 930-937

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
InviTrap® Spin Plant RNA Mini Kit	50 purifications	1064100300
	250 purifications	1064100400

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03 //

Viral RNA from Human Samples

Use the Invisorb® Spin Virus RNA Mini Kit for reliable isolation of high-quality RNA from viruses found in a diverse range of starting materials. The kit simplifies viral RNA isolation by combining efficient lysis of the starting material and the inactivation of exogenous and endogenous RNases to prevent degradation. The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

FAST PROCEDURE
RT-PCR templates in only 20 minutes with high sensitivity at low virus titers

FOR VARIOUS SAMPLE TYPES
Plasma, serum (max. 200 µl), blood (max. 50 µl), tissue (max. 20 mg), stool samples (max. 50 mg), mammalian cells (max. 10^6), cell culture supernatants, rinse liquid from swabs

COMPLETE REMOVAL OF PCR INHIBITORS
Pure viral RNA for downstream analysis, e.g. real-time RT-PCR

SAFER SAMPLE PROCESSING
Safe handling of infectious samples by using capped spin columns

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 9: SENSITIVE DETECTION OF NORWALK VIRUS FROM STOOL SAMPLES

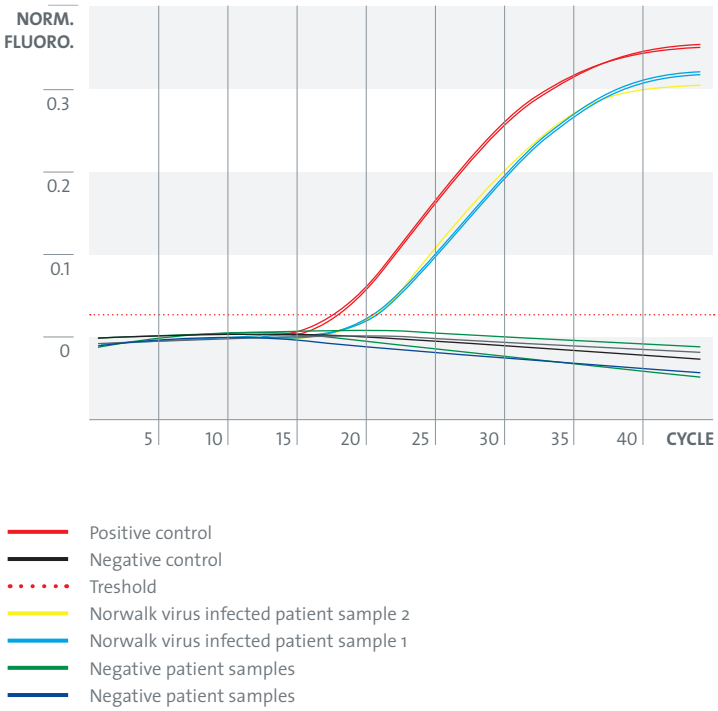

Fig. 9: Viral RNA was isolated from 50 mg NLV infected fecal sample using the Invisorb® Spin Virus RNA Mini Kit. The extracted viral RNA was amplified on a Rotor-Gene™ 3000 using a NLV specific PCR. 10 µl of eluted NLV sample RNA was used per cDNA synthesis.

Data kindly provided by C. Helmeke, H-M., Irmscher, State Office of Consumer Protection, Saxony-Anhalt, Department Medical Microbiology, Magdeburg, Germany

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Spin Virus RNA Mini Kit	50 purifications	1040300200
	250 purifications	1040300300

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04//

RTP® (Ready To Prep)
One step sample lysis

Simultaneous viral RNA/ DNA purification

The RTP® DNA/RNA Virus Mini Kit contains the pre-filled Extraction Tubes with lyophilized lysis components for viral DNA and RNA isolation from up to 200 µl of serum, plasma (see figure), other cell-free body fluids, cell culture supernatants, tissue samples (max. 10 mg), blood (max. 50 µl) and rinse liquid from swabs. After lysis the samples are transferred to a spin column-based procedure with a total preparation time of PCR / RT-PCR templates in just 20 minutes. The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

TIME SAVING AND SAFER SAMPLE HANDLING
60 % less pipetting steps and tip consumption

ONE LYSIS TUBE: READY TO PREP (RTP®)
Pre-filled Extraction Tube with lyophilized lysis components (lysis buffer and Proteinase K), Carrier RNA and internal DNA extraction control; stable at room temperature

UNIVERSAL VIRAL NUCLEIC ACID PURIFICATION SYSTEM
One kit for both DNA and RNA viral purification allowing simultaneous testing of both virus types

ENVIRONMENT-FRIENDLY
Less infectious plastic waste due to reduced hands-on steps

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 10: SENSITIVE VIRAL RNA ISOLATION

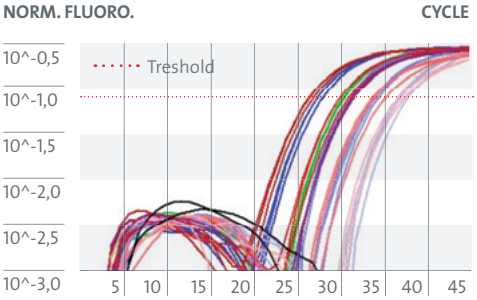

Fig. 10: 200 µl of human plasma samples were spiked with Influenza A virus (1:10 dilution series) and viral RNA was isolated using the RTP® DNA/RNA Virus Mini Kit (blue lines) and the Invisorb® Spin Virus RNA Mini Kit (red lines. The figure shows the real-time amplification results, analyzed in triplicates. The black curve represents the negative control.

SAMPLES	MEAN CT VALUE
RTP Virus 10	27.76
RTP Virus 1	31.42
RTP Virus 0.1	34.28
RTP Virus 0.01	37.31
Spin Virus RNA 10	26.78
Spin Virus RNA 1	30.50
Spin Virus RNA 0.1	34.45
Spin Virus RNA 0.01	37.22
Positive control	**30.60**

FIG. 11: REPRODUCIBLE RECOVERY OF VIRAL DNA

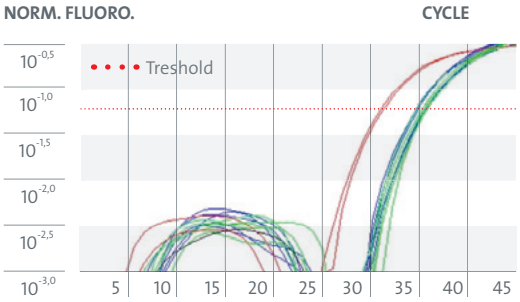

Fig. 11: Viral DNA was isolated from 10 different plasma samples (200 µl) spiked with 500 HBV copies using the RTP® DNA/RNA Virus Mini Kit. The viral DNA (green and blue curves) was eluted in 100 µl and 2.5 µl (12.5 copies per PCR - theoretical amount) were analyzed in a HBV specific real-time PCR assay. The mean Ct standard deviation is 0.41. The red curve represents the positive control.

For simultaneous nucleic acid purification from bacteria and viruses the RTP® Pathogen Kit (1040500200) is also available.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
RTP® DNA/RNA Virus Mini Kit	50 purifications	1040100200
	250 purifications	1040100300

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05 //

RTP® (Ready To Prep)
One step sample lysis

Bacterial DNA from different sample types

The RTP® Bacteria DNA Mini Kit contains the pre-filled Extraction Tubes with lyophilized lysis components for genomic DNA isolation from different bacteria species from a broad range of starting materials. After lysis, the samples are transferred to a spin column-based procedure with a PCR template preparation time of 25 minutes. The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

TIME SAVING AND SAFER SAMPLE HANDLING
60 % less pipetting steps and tip consumption

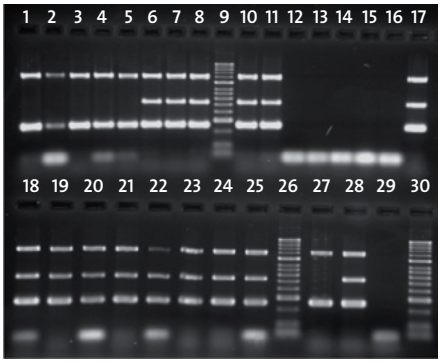
ONE LYSIS TUBE: READY TO PREP (RTP®)
Pre-filled Extraction Tube with lyophilized lysis components (lysis buffer, Lysozyme, Proteinase K), Carrier RNA, and internal DNA extraction control; stable at room temperature

FOR A WIDE VARIETY OF SAMPLES
Bacteria cell pellets (max. 10^9), tissue (max. 10 mg), paraffin embedded tissue (max. 10 mg), cell-free body fluids (max. 200 µl), blood (max. 100 µl), swabs, urine (15 – 50 ml), water (1 l), paper points

ENVIRONMENT-FRIENDLY
Less infectious plastic waste due to reduced hands-on steps

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 12: IDENTIFICATION OF MRSA ISOLATES



LANES	
1–5	Samples, 23S rDNA/nuc positive (MSSA)
6–8 10–11 17–25	Samples, 23S rDNA/nuc/ mec positive (MRSA)
9, 26, 30	Molecular Weight Marker
12–16	Samples, 23 S rDNA/nuc/mec negative
27	MSSA positive internal control
28	MRSA positive internal control
29	Water control

Fig. 12: Identification of MRSA isolates by multiplex-PCR amplification of three target gene sequences (23S rDNA, nuc, mec). Bacterial genomic DNA was isolated using RTP® Bacteria DNA Mini Kit according to the standard protocol. Amplificates were analyzed on a 2.0 % agarose gel.

Data kindly provided by A. Fetsch, Federal Institute for Risk Assessment (BfR), National Reference Laboratory for coagulase positive staphylococci including Staphylococcus aureus, Berlin, Germany

For simultaneous nucleic acid purification from bacteria and viruses the RTP® Pathogen Kit (1040500200) is also available.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
RTP® Bacteria DNA Mini Kit	50 purifications	1033200200
	250 purifications	1033200300

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Low salt DNA binding
Superior non-chaotropic chemistry

DNA isolation from tissue samples

The Invisorb® Spin Tissue Mini Kit enhances genomic DNA purification from a variety of tissue types and cells. PCR inhibitors, which can interfere with the amplification reaction, are efficiently removed. Pure DNA is eluted in 50 – 200 µl EDTA-free buffer or water and can be used in subsequent downstream applications, such as PCR, real-time PCR, SNP detection, Southern Blotting, sequencing and cloning. The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

FAST PROCEDURE
Up to 50 µg DNA in just 15 minutes after lysis step

OPTIMIZED PROTOCOLS FOR A VARIETY OF STARTING MATERIALS
For eucaryotic cells (max. 10^6), various tissue specimens (max. 40 mg), rodent tail, FFPE tissue sections, insects, swabs

MORE INTACT DNA
No DNA degradation by using a gentle, low-salt (non-chaotropic) buffer system

REPRODUCIBLE AMPLIFICATION RESULTS
Complete removal of contaminants and inhibitors

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 13: MORE INTACT DNA

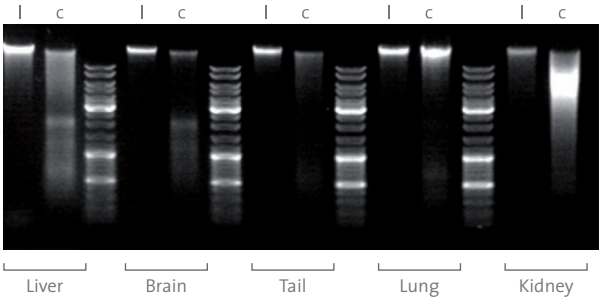

Fig. 13: Equal amounts of rat tissues were used to isolate DNA using the Invisorb® Spin Tissue Mini Kit (I, non-chaotropic buffers). For comparison with chaotropic chemistry an equivalent kit from a major supplier (c) was evaluated. Standard protocols for both kits were used with comparable conditions for Proteinase K treatment. For both kits the DNA was eluted in 200 µl Elution Buffer and 5 µl of the eluates were analyzed on a 0.8 % agarose gel stained with ethidium bromide.

For FFPE tissue sections the Invisorb® Spin FFPE Tissue Kit (1032130200) is also available (buffer for formalin removal is included).

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Spin Tissue Mini Kit	50 purifications	1032100200
	250 purifications	1032100300

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DNA Isolation from Blood Samples

The Invisorb® Spin Blood Mini Kit is designed for fast and convenient purification of genomic DNA from human and animal blood as well as from buffy coat or bone marrow. Fresh or frozen whole blood treated with EDTA or citrate, but not with heparin, from routine blood collection systems can be used (see figure 14). The kit is CE-marked in compliance with the Directive 98/79/EC on in vitro diagnostic medical devices (IVD-Directive)*.

EASY PROCEDURE
Purify up to 10 µg genomic DNA with no additional erythrocyte lysis in 25 minutes

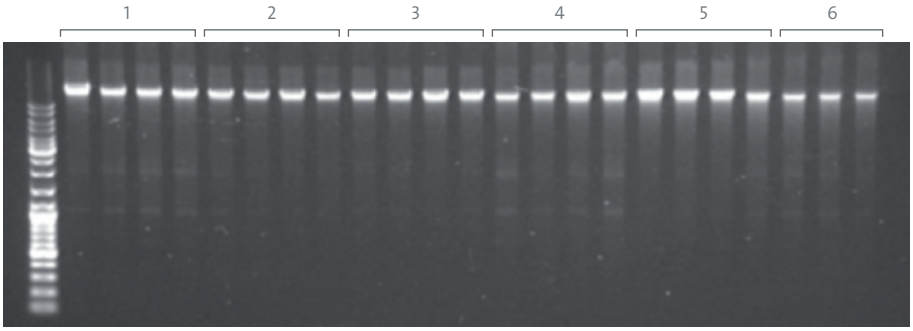
COMPATIBLE WITH A VARIETY OF ANTICOAGULANTS AND TUBES
For human blood, mammalian and non-mammalian animal blood (max. 200 µl), buffy coat (max. 30 µl), bone marrow (20 µl)

EFFECTIVE FOR A VARIETY OF DOWNSTREAM APPLICATIONS
Suitable for applications based on enzymatic amplification and detection of DNA (PCR and real-time PCR, Southern blotting, SNP analysis, genotyping etc.)

SAFER SAMPLE PROCESSING
Safe handling of infectious samples by using capped spin columns

* Products which are CE-marked according to the IVD-Directive can be used for diagnostic applications in countries where this directive is recognized.

FIG. 14: INFLUENCE OF DIFFERENT BLOOD COLLECTION SYSTEMS ON DNA RECOVERY



SAMPLE NO.	PRIMARY TUBE	MANUFACTURER	NOMINAL VOLUME	CATALOGUE NO.
1	Venosafe, EDTA	TERUMO	5.5 ml	VF-0765SDK
2	Vacuette, Citrate	Greiner Bio-One	2 ml	454382
3	Vacutainer, Citrate	BD	2.7 ml	363048
4	Vacuette, EDTA	Greiner Bio-One	9 ml	455036
5	Monovette, Citrate	Sarstedt	8.5 ml	01.1610.001
6	Vacutainer, EDTA	BD	6 ml	367864

Fig. 14: Genomic DNA was isolated from 100 µl of the same blood sample, stabilized with different anticoagulants: EDTA and citrate. Six different blood collection systems were used (see table). 10 µl of the DNA eluates were loaded onto a 0.8 % agarose gel, stained with ethidium bromide. (Marker - GeneRuler™ DNA Ladder, Fermentas)

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Spin Blood Mini Kit	50 purifications	1031100200
	250 purifications	1031100300

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05 //

MSB® (Minimal Salt Binding)
The World´s Fastest DNA Fragment Prep

PCR product purification

The MSB® Spin PCRapace is the fastest system for DNA fragment purification. Use it for DNA product cleanup from amplification reaction mixtures, restriction digestion mixtures, ligation mixtures, cDNA synthesis reactions, dye removal from cycle sequencing reactions (see figure 15), and DNA concentration.

READY IN 7 MINUTES
Remove primers, dNTPs, additives and salts without washing steps

ELUTION VOLUME AS LITTLE AS 10 µl
Use it for demanding downstream applications like sequencing, cloning, ligation, labelling, digestion with restriction enzymes, PCR

HIGH RECOVERIES
95 % recovery of PCR products for fragment sizes from 80 bp – 30 kb

ENVIRONMENT-FRIENDLY
Less plastic waste and less power consumption due to reduced pipetting and centrifugation steps – only »bind-and-elute«

FIG. 15: EFFICIENT DYE REMOVAL FROM CYCLE SEQUENCING REACTIONS

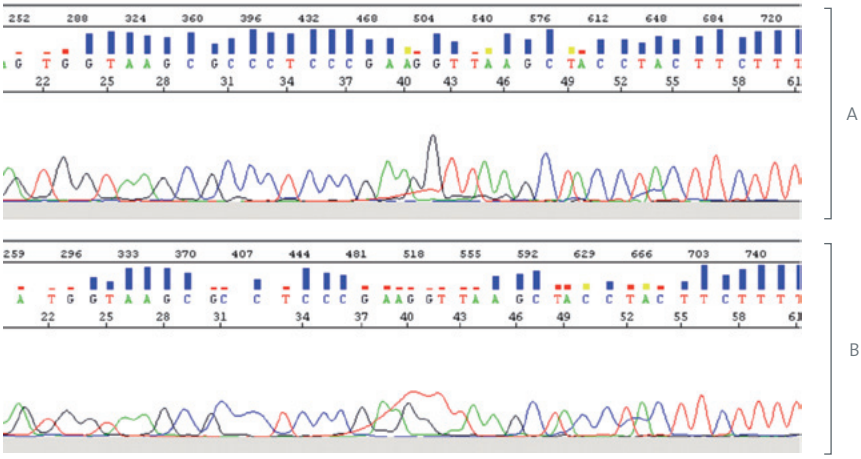

Fig. 15: 100 µl cycle sequencing reaction mixture were purified using the MSB® Spin PCRapace. The DNA was analyzed on ABI 3130 Genetic Analyzer (A). In comparison the cut out of a sequencing run without dye removal is shown in figure B.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
MSB® Spin PCRapace	50 purifications	1020220200
	250 purifications	1020220300
	500 purifications	1020220400

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Featuring MSB® Technology

The World's Fastest DNA Fragment Prep

PCR product purification and agarose gel extraction

The Invisorb® Fragment Cleanup is a fast and efficient solution for DNA fragment purification from PCR reactions, cDNA synthesis, ligation mixtures etc., as well as DNA extraction from agarose gel slices. This kit combines the fastest technology for PCR product purification (MSB® Spin PCRapace – see page 28) with effective agarose gel extraction. The gel extraction is suitable for standard or low melting agarose gels in TAE and TBE buffers.

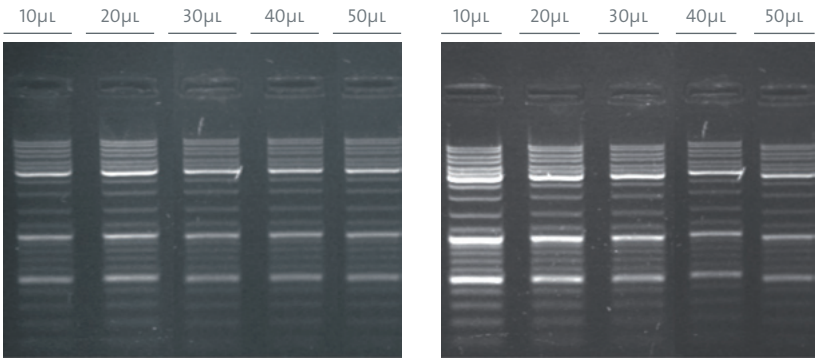
FAST PCR PRODUCT CLEANUP IN JUST SEVEN MINUTES
Remove primers, dNTPs, additives and salts without washing steps (only »bind-and-elute«)

ELUTION IN SMALL VOLUMES (10 – 20 µl)
Use it for demanding downstream applications like sequencing, cloning, ligation, labelling, digestion with restriction enzymes, PCR

DNA FRAGMENTS DIRECTLY FROM GEL SLICES
Remove agarose, ethidium bromide and other impurities in less than 20 minutes (not suitable for plasmid purification)

HIGH RECOVERIES
Up to 95 % recovery of DNA fragments from 80 bp – 30 kb

FIG. 16: HIGH AND REPRODUCIBLE RECOVERY WITH LOW ELUTION VOLUMES



A B

Fig. 16: DNA fragments of different sizes (GeneRuler™ DNA Ladder, Fermentas) were purified according to the standard protocol using different elution volumes as shown. For analysis the DNA was loaded onto a 1 % TAE agarose gel.
(A) Per lane the same DNA amount was loaded onto the gel (2,4,6,8 and 10 µl) to show absolute yield and the reproducibility.
(B) 5 µl of each eluate were loaded onto the gel to show the concentration.

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Fragment CleanUp	50 purifications	1020300200
	250 purifications	1020300300

05 //

Efficient Plasmid DNA Isolation

The Invisorb® Spin Plasmid Mini Two provides an effective and efficient purification of low and high copy plasmid DNA. Multiple samples can be processed simultaneously while reducing the hands-on time to a minimum. This plasmid mini preparation method is highly suitable for routine molecular biology applications.

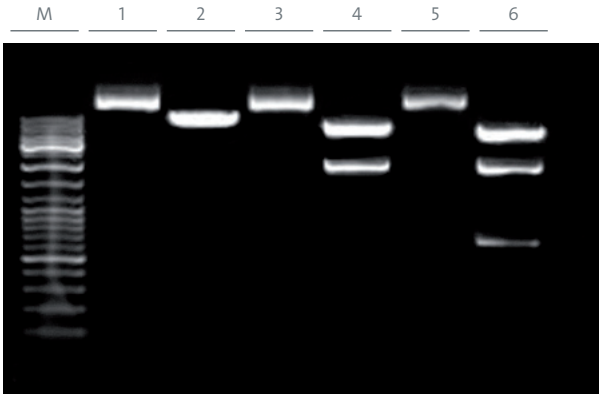
FAST PROCEDURE
Purify up to 20 µg plasmid DNA in 15 minutes

HIGH QUALITY
No RNA or protein contamination – independent from vector or bacteria strain including Gram-positive strains

EFFECTIVE FOR A VARIETY OF DOWNSTREAM APPLICATIONS
Suitable for transformation, transfection of robust cells, sequencing, ligation, restriction digestion (see figure 17), cloning, PCR,

FLEXIBLE HANDLING
Spin filter columns for 0.5 – 2 ml bacteria suspension (up to 10 ml for low copy plasmids or cosmids) for use in a centrifuge or on a vacuum-manifold

FIG. 17: RESTRICTION DIGESTION OF PLASMID DNA



LANES	
1	5.0 µl pDNA, undigested
2	2.5 µl EcoRI digested pDNA
3	5.0 µl pDNA, undigested
4	2.5 µl HindIII digested pDNA
5	5.0 µl pDNA, undigested
6	2.5 µl EcoRI / HindIII digested pDNA

Fig. 17: Restriction digests of pDNA (6 kb pUCpol isolated from 2 ml overnight culture of E.coli DH5a

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Spin Plasmid Mini Two	50 purifications	1010140200
	250 purifications	1010140300
	500 purifications	1010140400

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05 //

Superior Non-chaotropic Chemistry
Low salt DNA binding

DNA isolation from plants

The Invisorb® Spin Plant Mini Kit is an effective solution for isolation of high-quality total cellular DNA from a wide variety of plant species and tissue types. Furthermore the kit is suitable for co-purification of DNA from phytopathogens. Up to 100 mg of fresh or frozen material can be processed in less than one hour. The optimized procedure incorporates the Pre-filtration spin column, a unique filtration and homogenization column that efficiently removes cell debris and improves sample handling following lysis.

MORE INTACT DNA
No DNA degradation by using a gentle, low-salt (non-chaotropic) buffer system

HIGH YIELDS AND PURITY
Up to 35 µg DNA, free of polysaccharides and other secondary metabolites

FOR VARIOUS PLANT MATERIALS
Leaves, roots, fruits, flowers, wood, oily seeds

DOWNSTREAM APPLICATIONS
Suitable for PCR, restriction analysis, real-time PCR, cloning, genotyping etc.

FIG. 18: AMPLIFIED FRAGMENT LENGTH POLYMORPHISM (AFLP) ANALYSIS

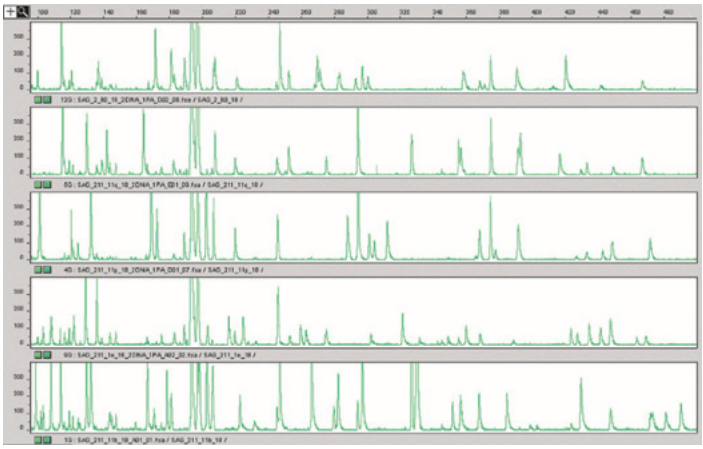

Fig. 18: DNA was isolated from different strains of Chlorella vulgaris using the Invisorb® Spin Plant Mini Kit. Isolated DNA (100 ng) was digested with EcoRI and MseI followed by selective amplification with EcoRI-C/MseI-C primers. The AFLP-analysis was carried out on ABI PRISM 3100 Genetic Analyzer.

Data kindly provided by J. Müller, Albrecht-von-Haller-Institute for Plant Science, University of Göttingen, Germany

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
Invisorb® Spin Plant Mini Kit	50 purifications	1037100200
	250 purifications	1037100300

KIT OVERVIEW

NUCLEIC ACID	TYPE	ORIGIN	PRODUCTS	PAGE
DNA	DNA fragments	DNA fragments, PCR products (PCR products, ligation reaction mixture, enzyme digestion mixture, cDNA synthesis mixture, PCR products with primer dimers)	**MSB® Spin PCRapace** **Invisorb® Fragment CleanUp** **Invisorb® DNA Cleanup** **MSB® HTS PCRapace**	28 30 * *
		Agarose gel slices or reaction mixture	**Invisorb® Fragment CleanUp** **Invisorb® Spin DNA Extraction Kit**	30 *
DNA	Plasmid	Bacterial suspension	**Invisorb® Spin Plasmid Mini Two** **Invisorb® Plasmid Midi Kit** **Invisorb® Plasmid Maxi Kit** **Invisorb® Plasmid HTS 96 Kits**	32 * * *
DNA	Genomic	Human and animal blood, bone marrow (fresh, old, frozen whole blood with common anticoagulants [EDTA or citrate, no heparin], buffy coat)	**Invisorb® Spin Blood Mini Kit** **Invisorb® Spin Micro DNA Kit** **Invisorb® Blood Universal Kit** **Invisorb® Blood Mini HTS 96 Kits** **InviMag® Blood DNA Mini Kits** **InviMag® Blood DNA Midi Kits** **InviMag® Blood DNA Maxi Kit / IG** **InviMag® Blood DNA Giga Kit / IG**	26 * * * * * * *
		Human and animal tissue, rodent tails, formalin fixed paraffin embedded tissue or insects (fresh and frozen tissue)	**Invisorb® Spin Tissue Mini Kit** **Invisorb® Spin FFPE Tissue Kit** **Invisorb® Spin Micro DNA Kit** **Invisorb® DNA Tissue HTS 96 Kits** **InviMag® Tissue DNA Mini Kit / KF96**	24 * * * *
		Human and animal cells, cell cultures	**Invisorb® Spin Tissue Mini Kit** **Invisorb® Spin Micro DNA Kit** **Invisorb® DNA Cell HTS 96 Kits** **InviMag® Tissue DNA Mini Kit / KF96**	24 * *
		Bacteria species (from different kinds of starting materials, bacteria pellets, tissue samples, blood, cell-free body fluids, urine, stool samples, swabs, saliva, sputum, BALB, water)	**RTP® Bacteria DNA Mini Kit** **RTP® Pathogen Kit** **RTP® Mycobacteria Kit** **Invisorb® Universal Bacteria HTS 96 Kits** **InviMag® Bacteria Kits** **PSP® SalivaGene DNA Kit** **PSP® SalivaGene DNA HTS 96 Kits** **InviMag® SalivaGene DNA Kits** **PSP® Spin Stool DNA Plus Kit** **PSP® Spin Stool DNA Kit** **InviMag® Stool DNA Mini Kits**	22 * * * * 8 * * 10 * *

NUCLEIC ACID	TYPE	ORIGIN	PRODUCTS	PAGE
DNA	Genomic	Forensic material (clotted blood, bones, teeth, ancient bones, nail clippings, hair roots, blood, saliva and sperm stains, chewing gum, cigarette butts, stamps and envelopes, tissue, swab material)	**Invisorb® Spin Forensic Kit** **Invisorb® Forensic Kit I** **Invisorb® Spin Micro DNA Kit** **Invisorb® Forensic HTS 96 Kits**	* * * *
		Saliva and swab material (buccal, pharyngeal, vaginal)	**PSP® SalivaGene DNA Kit** **Invisorb® Spin Tissue Mini Kit** **PSP® SalivaGene DNA HTS 96 Kits** **InviMag® SalivaGene DNA Kits**	8 24 * *
		Stool samples (fresh or frozen)	**PSP® Spin Stool DNA Plus Kit** **PSP® Spin Stool DNA Kit** **InviMag® Stool DNA Mini Kits**	10 * *
		Food of animal origin (fresh, preserved, cooked or frozen animal tissue)	**Invisorb® Spin Tissue Mini Kit**	24
		Food of plant origin (fresh, dried, preserved, cooked or frozen vegetable tissue, leaves, flour, corn, bread, fruits, vegetables, GMO)	**Invisorb® Spin Food Kit II**	*
		Plant material (fresh, frozen or dried plant tissue, such as leaves, roots, fruits or seeds)	**Invisorb® Spin Plant Mini Kit** **Invisorb® DNA Plant HTS 96 Kits** **InviMag® Plant DNA Mini Kits**	34 * *
DNA	Viral	Clinical samples (fresh or frozen plasma, serum, whole blood, cell-free body fluids of human origin, rinse liquid from swabs)	**Invisorb® Spin Virus DNA Mini Kit** **Invisorb® Virus DNA HTS 96 Kits** **InviMag® Virus DNA Mini Kits**	* * *
		Plant material (fresh, frozen or dried plant tissue, such as leaves, roots, fruits or seeds)	**Invisorb® Spin Plant Mini Kit** **Invisorb® DNA Plant HTS 96 Kits** **InviMag® Plant DNA Mini Kits**	34 * *
DNA/ RNA	Viral	Clinical samples (serum, urine, plasma, biopsy sample, small blood sample, cell culture supernatants and other cell free body fluids, human swab and lavage material)	**RTP® DNA/RNA Virus Mini Kit** **RTP® Pathogen Kit** **InviMag® Virus DNA/RNA Mini Kits**	20 * *

* please find more information online at www.invitek.de

KIT OVERVIEW

NUCLEIC ACID	TYPE	ORIGIN	PRODUCTS	PAGE
DNA/ RNA	Simul-taneous genomic DNA/ total RNA	Human and animal cells, tissue, blood samples	**InviTrap® Spin Universal RNA Mini Kit**	14
RNA	Total	Human and animal cells, cell cultures	**InviTrap® Spin Universal RNA Mini Kit** **InviTrap® Spin Cell RNA Mini Kit** **InviTrap® RNA Cell HTS 96 Kits** **InviMag® Universal RNA Mini Kits**	14 16 * *
		Human and animal blood (whole blood with common anticoagulants like EDTA and citrate (no heparin), buffy coat, lymphocytes pellet)	**InviTrap® Spin Universal RNA Mini Kit** **InviTrap® Spin Blood RNA Mini Kit** **InviMag® Universal RNA Mini Kits**	14 * *
		Human and animal tissue (fresh and frozen tissue)	**InviTrap® Spin Universal RNA Mini Kit** **InviTrap® Spin Tissue RNA Mini Kit** **InviTrap® RNA Tissue HTS 96 Kits** **InviMag® Universal RNA Mini Kits**	14 * * *
		Bacteria, yeast	**InviTrap® Spin Cell RNA Mini Kit**	16
		Plant material (fresh or frozen plant tissue and filamenteous fungi)	**InviTrap® Spin Plant RNA Mini Kit** **InviTrap® RNA Plant HTS 96 Kits**	17 *
RNA	Viral	Clinical samples (cell-free body fluids of human origin, rinse liquid or transport media from swabs, cell culture supernatants, mammalian cells, tissue samples, stool samples)	**Invisorb® Spin Virus RNA Mini Kit** **RNAsure® Virus System** **Invisorb® Virus RNA HTS 96 Kits** **InviMag® Virus RNA Mini Kits**	18 12 * *
		Plant material (fresh or frozen plant tissue and filamenteous fungi)	**InviTrap® Spin Plant RNA Mini Kit** **InviTrap® RNA Plant HTS 96 Kits**	17 *
DNA/RNA	Genomic, bacterial, viral DNA/ viral RNA	Clinical samples (blood, serum plasma, rinse liquid from swabs, cell-free body fluids, sputum)	**InviMag® Universal Kit / IG**	*

* please find more information online at www.invitek.de

The Invisorb® and InviTrap® HTS kits in 96 well format can be used in a centrifuge, on a vacuum manifold or on robotic workstations. The InviMag® kits using magnetic particles are designed for use on the Invi-Genius® or on different KingFisher® platforms (from Thermo Scientific) or on other robots. For adaption to robotic platforms please contact us (info.berlin@stratec.com) or your local sales representative.

For more information on products and applications
please visit www.invitek.de.

ORDERING INFORMATION

PRODUCT	PACKAGE SIZE	CATALOGUE NUMBER
InviGenius®	1 unit	5011100000
PSP® SalivaGene DNA Kit	50 purifications 250 purifications	1035200200 1035200300
SalivaGene Collector	50 pieces	1035210200
PSP® Spin Stool DNA Plus Kit	50 purifications 250 purifications	1038110200 1038110300
RNAsure® Virus System	10 purifications	109400900
RNAsure® Spin Virus Kit	50 purifications	1094100200
RNAsure® Protection Module I	50 purifications	1094200200
InviTrap® Spin Universal RNA Mini Kit	50 purifications 250 purifications	1060100200 1060100300
InviTrap® Spin Cell RNA Mini Kit	50 purifications 250 purifications	1061100200 1061100300
InviTrap® Spin Plant RNA Mini Kit	50 purifications 250 purifications	1064100300 1064100400
Invisorb® Spin Virus RNA Mini Kit	50 purifications 250 purifications	1040300200 1040300300
RTP® DNA/RNA Virus Mini Kit	50 purifications 250 purifications	1040100200 1040100300
RTP® Bacteria DNA Mini Kit	50 purifications 250 purifications	1033200200 1033200300
Invisorb® Spin Tissue Mini Kit	50 purifications 250 purifications	1032100200 1032100300
Invisorb® Spin Blood Mini Kit	50 purifications 250 purifications	1031100200 1031100300
MSB® Spin PCRapace	50 purifications 250 purifications 500 purifications	1020220200 1020220300 1020220400
Invisorb® Fragment CleanUp	50 purifications 250 purifications	1020300200 1020300300
Invisorb® Spin Plasmid Mini Two	50 purifications 250 purifications 500 purifications	1010140200 1010140300 1010140400
Invisorb® Spin Plant Mini Kit	50 purifications 250 purifications	1037100200 1037100300

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6J/10/2011

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