Nucleic Acid Isolation Guide

Highly Efficient Extraction

meridian BIOSCIENCE®
LIFE DISCOVERED. LIFE DIAGNOSED.

A great start leads to an excellent finish

ISOLATE II Kits for nucleic acid isolation are the perfect place to start the analysis of your precious samples.

The kits are designed for fast and efficient isolation of RNA and DNA from a wide range of biological materials, including animal tissue, cultured cells, buccal swabs, blood, bacterial cells, plant tissue as well as PCR products and agarose gels.

Meridian has a well established and proven track record of providing superior quality molecular biology reagents. The ISOLATE II range of nucleic acid isolation kits are designed to make it easier for our customers to obtain high-quality, reliable reagents for every step of their research from a single source. The kits perfectly complement our well proven range of downstream PCR reagents such as DNA polymerases, polymerase mixes, qPCR, reverse transcriptase and cloning products.

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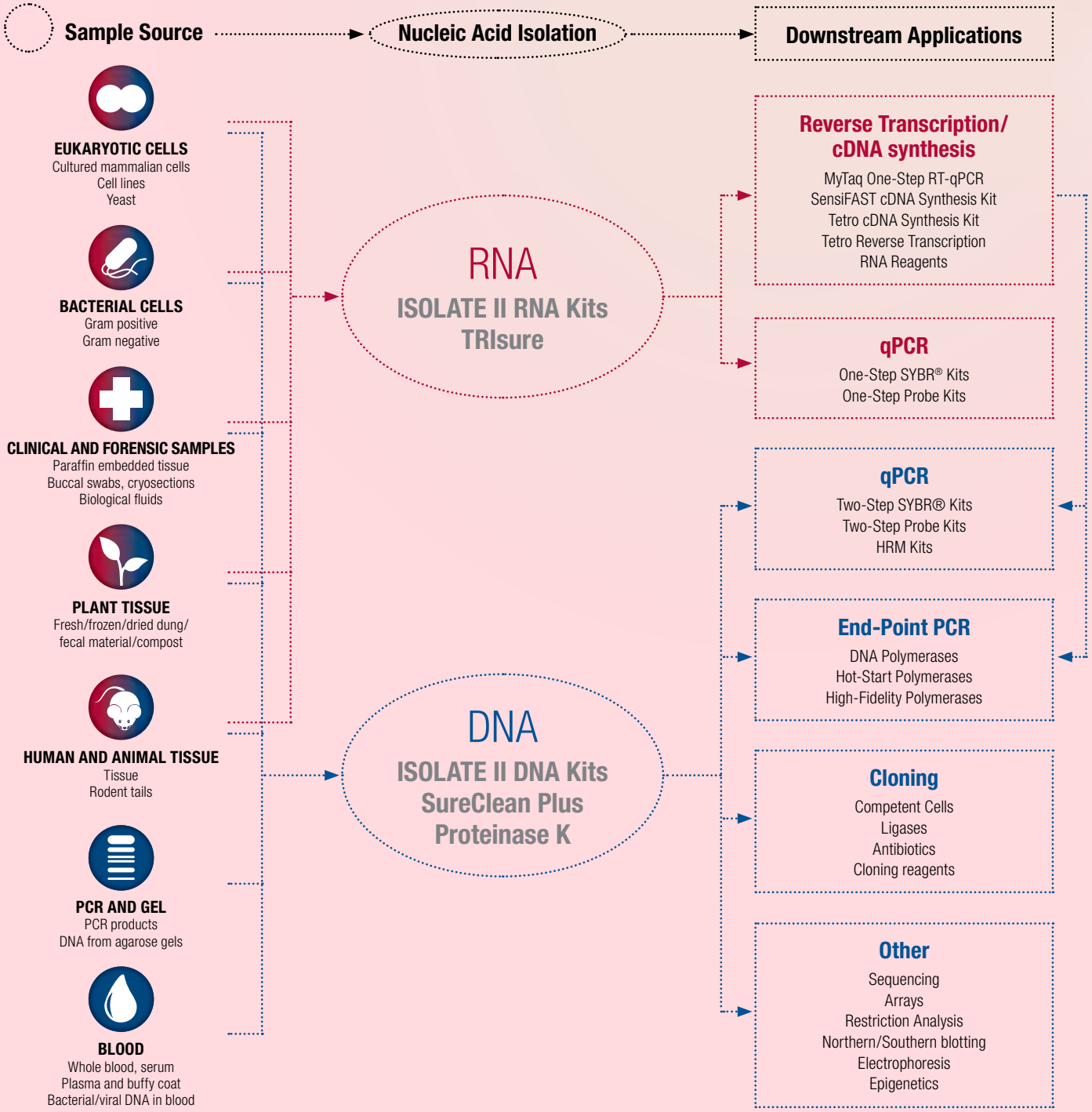
ISOLATE II Nucleic Acid Isolation

ISOLATE II use silica-based technology, which selectively binds nucleic acids allowing the separation of contaminants to give high purity DNA or RNA.

The isolated nucleic acids are ready-to-use in downstream applications such as end-point PCR, qPCR, cloning, reverse transcription, cDNA synthesis, next generation sequencing and genotyping. For high throughput we offer ultra-filtration technology in a convenient 96-well format. Meridian also provides TRIsure and SureClean Plus, column-free products for RNA and DNA isolation.

Each kit is supplied with a splash-proof bench-top protocol for quick reference. For a comprehensive manual which contains detailed protocols and additional helpful information, go to www.bioline.com/all-products.



With ISOLATE II you can count on Meridian to provide you with a great start to your research.

Meridian ISOLATE II features:

- Rapid and easy-to-use complete kits
- High-yield and high purity nucleic acid
- Highly reproducible results
- Over 40 sample types covered in the range
- Splash-proof, bench-top protocols
- DNase and/or RNase included
- Filters (shredders) provided

✔ Recommended for	RNA Kits RNA	RNA Mini Kit	RNA Micro Kit	RNA Plant Kit	DNA Kits	Plasmid Mini Kit	Genomic DNA Kit	PCR and Gel Kit	Plant DNA Kit	Fecal DNA Kit	Column-free isolation	SureClean Plus (DNA)	TriSure (RNA, DNA, proteins)
Animal tissue		✔	✔				✔						✔
Bacterial cells		✔				✔	✔						✔
Biological fluids		✔					✔						
Biopsy			✔				✔						✔
Blood/serum							✔						✔
Buccal swabs							✔						
Clean-Up from reaction mixes			✔					✔				✔	✔
Compost and dung									✔				
Cryosections		✔	✔				✔						✔
Cultured cells			✔			✔	✔						✔
Fecal (mammalian)							✔		✔	✔			
Fungi				✔					✔				✔
Hair							✔						✔
Insect							✔						
Paraffin embedded tissue		✔					✔						✔
PCR products								✔				✔	
P1 constructs & cosmids						✔							
Plant tissue & cells				✔					✔				✔
Rodent tail							✔						✔
Soil									✔				
TAE & TBE gels								✔					
Virus							✔						
Yeast		✔					✔						✔
Crude RNA			✔										

For more information please visit www.bioline.com/isolate

ISOLATE II RNA Mini Kit

ISOLATE II RNA Mini Kit is designed for the fast and efficient isolation of pure total RNA from a variety of sources.

FEATURES

- Rapid protocol: 30 min/6 preps
- High-purity RNA (A_{260}/A_{280} ratio 1.9 - 2.1)
- RNA integrity number (RIN) >9
- RNA binding capacity up to 200 µg
- Extra filters (shredders) included to enhance sample homogenization
- DNase I included for complete removal of genomic DNA
- Isolated RNA is ready for downstream applications

APPLICATIONS

- Animal tissues
- Eukaryotic cells
- Bacterial cells
- Yeast
- Biological fluids (cell-free)

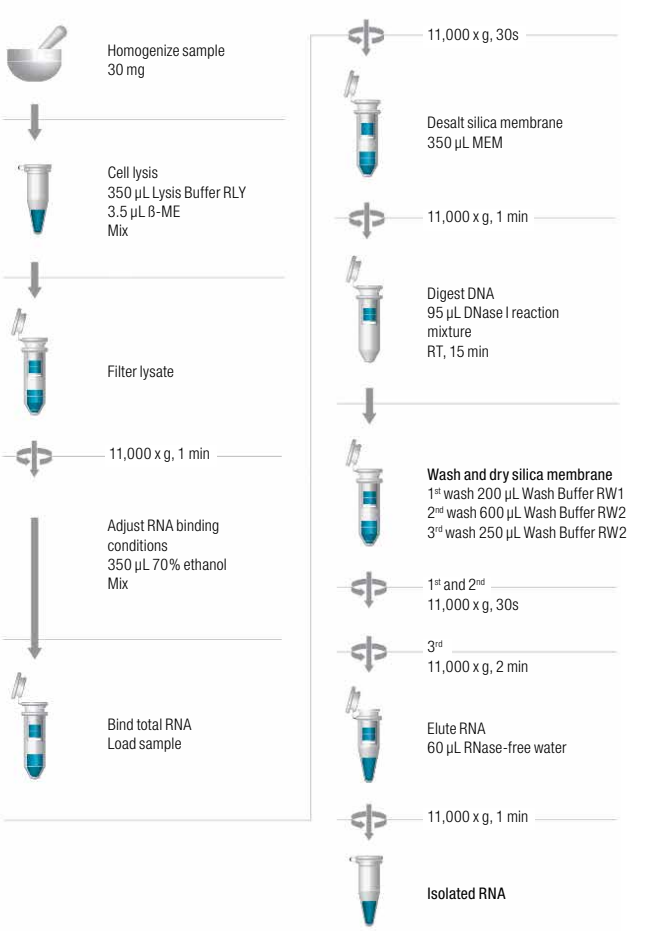
The kit is compatible with animal tissues, cultured cells, bacterial cells, yeast and cell-free biological fluids. Biological samples which are sometimes difficult to process will yield high-quality RNA e.g. mouse tissue (liver, brain), various tumour cell lines, *Streptococci and Actinobacillus pleuropneumoniae*.

The sample is lysed in an easy stepwise protocol with an optimized lysis buffer containing chaotropic ions, which simultaneously inactivates RNases to prevent degradation of the released RNA. The lysate is applied to a spin column to selectively remove genomic DNA (RNase-free DNase I supplied). The RNA is then bound to the silica membrane, washed and high-quality RNA is eluted in the final step with RNase-free water (Fig. 1).

Isolated RNA shows excellent performance in downstream applications such as reverse transcription, primer extension, qPCR (Fig. 2), microarrays, next generation sequencing and RNA protection assays.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II RNA Mini Kit	10 Preps	BIO-52071
	50 Preps	BIO-52072
	250 Preps	BIO-52073

Total RNA Isolation



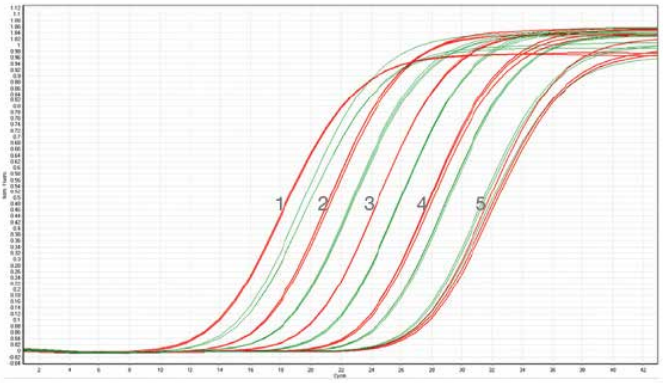


Fig. 2 Superior performance in real-time applications
RNA was isolated in a 10-fold serial dilution (14000, 1400, 140, 14 and 1.4 cells, 1-5 respectively) from mouse 3T3 cells, using ISOLATE II RNA Mini Kit (red traces) and Supplier Q's kit (green traces). Subsequently, RT-qPCR reactions were performed using primers for a fragment of *AOS* gene and SensiFAST SYBR® No-ROX One-Step Kit (BIO-72005). The results illustrate the quality of the extraction process and the efficient amplification of the extracted RNA.

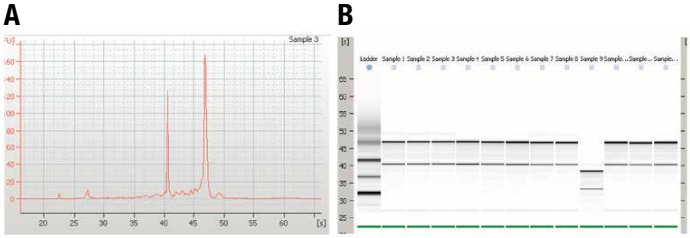


Fig. 1 High-quality RNA
RNA was isolated from HeLa cells using ISOLATE II RNA Mini Kit and analyzed by the Bioanalyzer 2100 (Agilent Technologies). A) The quality of RNA was found to be exceptional (RIN: 9.2) and B) highly reproducible.

ISOLATE II RNA Micro Kit

ISOLATE II RNA Micro Kit is designed for the fast and efficient isolation of pure total RNA from very small samples. Typical sample material comprises small amounts of cells (up to 5 x 10^5) and tissue (up to 5 mg).

FEATURES

- Rapid protocol: 40 min/12 preps
- Perfect for small samples: biopsy or single cells
- High-yield and purity (A_{260}/A_{280} ratio 1.9 - 2.1)
- Excellent RNA recovery and integrity (RIN >9)
- Highly concentrated RNA
- Extra filters (shredders) and DNase I included
- Isolated RNA is ready for downstream applications

APPLICATIONS

- Single cells
- Pellets of cultured cells
- Biopsy materials
- Cryosections
- Laser captured cells
- Small amounts of tissue
- Flow sorted cells

The protocol is easy to follow and cells are lysed with an optimized lysis buffer containing large amounts of chaotropic ions. These simultaneously inactivate RNases and prevent degradation of the released RNA. The lysate is then applied to a spin column to selectively remove genomic DNA (RNase-free DNase I supplied). The RNA is then bound to the silica membrane (the novel design allows elution of RNA in as little as 5–20 µL). Simple wash steps remove the remaining cell debris. Pure, highly concentrated RNA is eluted in the final step with RNase-free water (Fig. 1).

The isolated RNA shows excellent performance in downstream applications such as reverse transcription, primer extension, qPCR (Fig. 2), microarrays, next generation sequencing and RNA protection assays.

A **B**

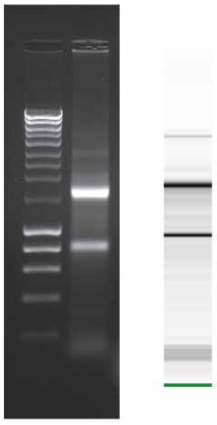
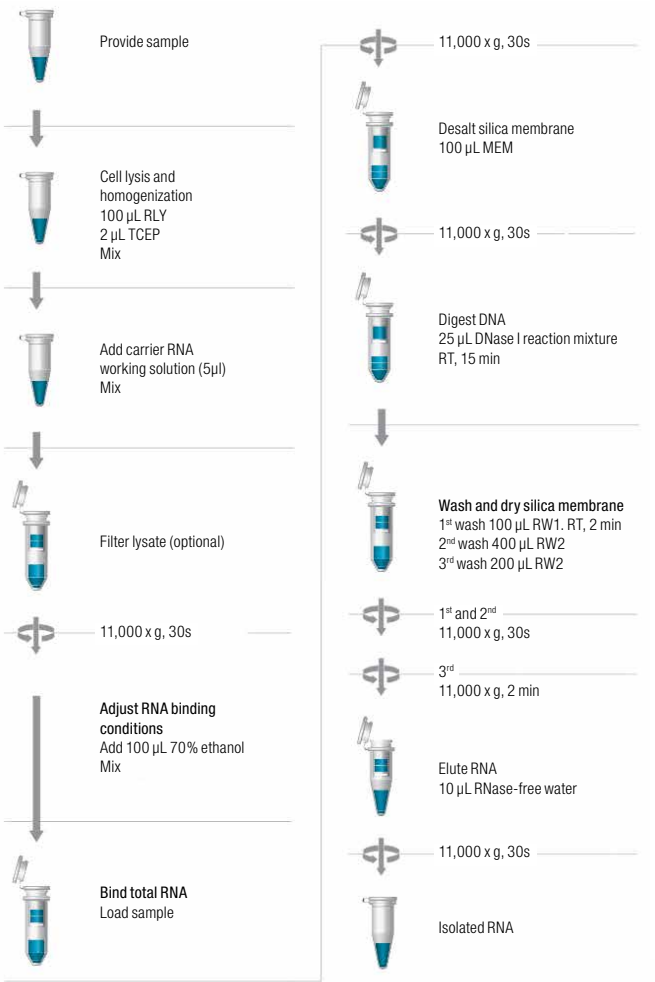


Fig. 1 High-quality RNA
RNA was isolated from HeLa cells using ISOLATE II RNA Micro Kit and A) run on 1.5% agarose gel along with HyperLadder 1 kb and B) analyzed using a Bioanalyzer 2100 (Agilent Technologies). The results illustrate the quality of total RNA, which is clean and has a RIN value of 9.5.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II RNA Micro Kit	10 Preps	BIO-52074
	50 Preps	BIO-52075

Total RNA Isolation



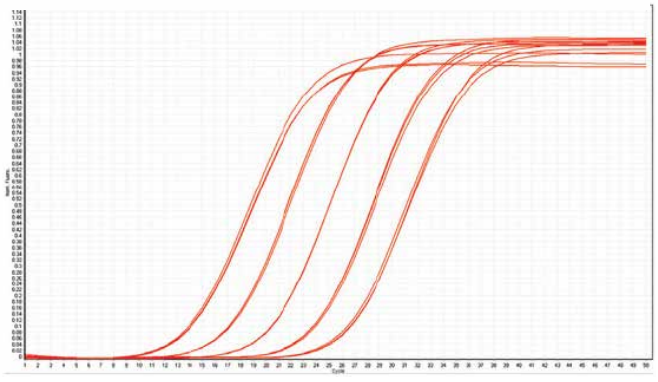


Fig. 2 Superior performance in real-time applications
RNA was isolated in a 10-fold serial dilution of HeLa cells, using ISOLATE II RNA Micro Kit. Subsequently, RT-qPCR reactions were performed using primers for a fragment of *ß-actin* gene and SensiFAST SYBR® No-ROX One-Step Kit (BIO-72005). The results illustrate the quality of the extraction process and the efficient amplification of the extracted RNA.

ISOLATE II RNA Plant Kit

ISOLATE II RNA Plant Kit is designed for the fast and efficient isolation of pure total RNA from a variety of plant tissues.

FEATURES

- Rapid protocol: 30 min/6 preps
- High-purity RNA (A_{260}/A_{280} ratio 1.9 - 2.1)
- Excellent RNA recovery and integrity (RIN>9)
- Extra filters (shredders) to enhance sample homogenization included
- DNase I included for complete removal of contaminating genomic DNA
- Isolated RNA is ready for downstream applications

APPLICATIONS

- Fresh plant cells and tissue
- Frozen and dried plant tissue
- Filamentous fungi

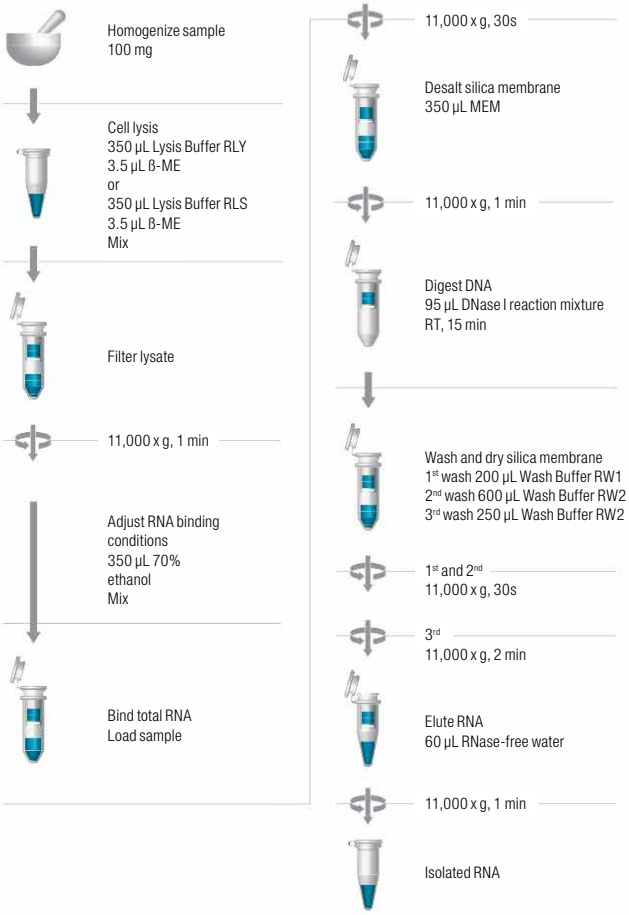
ISOLATE II RNA Kit can rapidly and efficiently isolate total RNA from leaves, bark, roots, fruits, etc. Up to 100 mg starting material can be processed per spin column.

The protocol is easy to follow on a step-by-step basis. Two highly optimized lysis buffers, containing Guanidinium thiocyanate and Guanidinium-HCl for all plant samples are provided. The lysis buffers also inactivate RNases, protecting the released RNA. The lysate is applied to a spin column to selectively remove contaminating genomic DNA, eliminating the need to perform a separate DNase I digestion step. The RNA is then bound to a silica membrane. Simple wash steps remove the remaining cell debris and pure RNA is eluted with RNase-free water.

The isolated RNA shows excellent performance in downstream applications such as qPCR (Fig. 1), reverse transcription (Fig. 2), microarrays, next generation sequencing and RNA protection assays.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II RNA Plant Kit	10 Preps	BIO-52076
	50 Preps	BIO-52077

Plant RNA Isolation



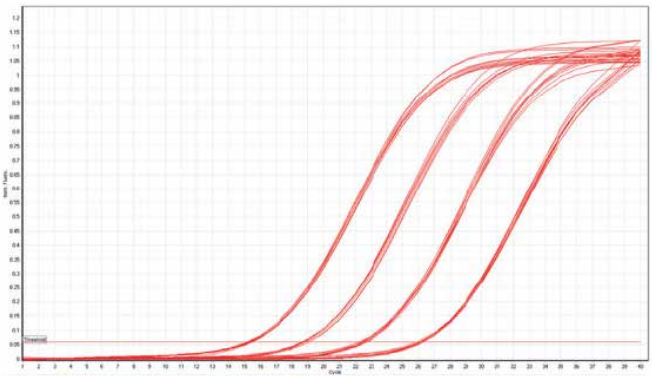


Fig. 1 Superior performance in real-time applications
RNA was isolated from 20 mg freeze-dried budding leaves of *Arabidopsis thalianausing* ISOLATE II RNA Plant Kit. The RNA was split into twelve replicates and diluted in a 10-fold series. Real-time reactions were performed using primers for a fragment of *UBQ10* gene and SensiFAST SYBR® No-ROX One-Step Kit (BIO-72005). The results illustrate the quality of the RNA extracted through the reproducibility of the amplification.

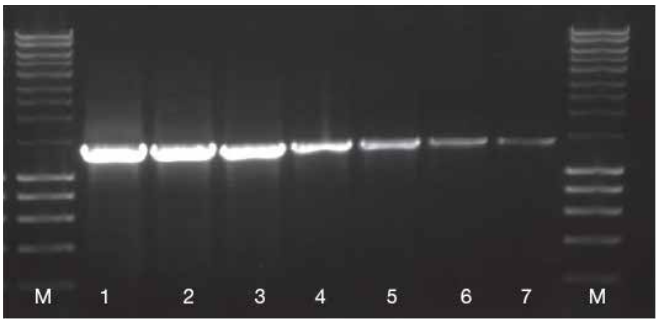


Fig. 2 High-quality RNA isolated from plant tissue
RNA was isolated from 20 mg freeze-dried budding leaves of *Arabidopsis thaliana* using ISOLATE II RNA Plant Kit. The extracted RNA was diluted in a 2-fold serial dilution (1 mg, 500 ng, 250 ng, 125 ng, 60 ng, 30 ng and 15 ng, lanes 1-7 respectively) and PCR was performed using MyTaq One-Step RT-PCR Kit (BIO-65048) to amplify a 1.4 kb fragment of the allene oxide synthase gene. HyperLadder 1kb (M). Products were run on a 1.5% agarose gel. The results illustrate the quality of the RNA obtained, as it can be used for very sensitive cDNA synthesis and PCR without further purification.

ISOLATE II Plasmid Mini Kit

ISOLATE II Plasmid Mini Kit is designed for the rapid and efficient isolation of high purity plasmid DNA from bacterial cultures using silica-membrane spin column technology.

FEATURES

- High-capacity plasmid preparation kit
- Rapid protocol: 25 minutes/18 preps
- High-purity plasmid DNA: typical A_{260}/A_{280} ratio >1.8
- High-yields: up to 40 µg from 10 mL *E. coli* culture
- Isolated DNA perfect for downstream application

APPLICATIONS

- Isolation of high-copy plasmid DNA
- Isolation of low-copy plasmid DNA, P1 constructs and cosmids
- Isolation of plasmid DNA from Gram-positive bacteria

The isolation process of the Plasmid Mini Kit combines an alkaline lysis, clarification of the lysate and subsequent specific binding of plasmid DNA directly to the column membrane. Contaminants are efficiently removed during washing. In the final step, high-quality purified plasmid DNA is eluted.

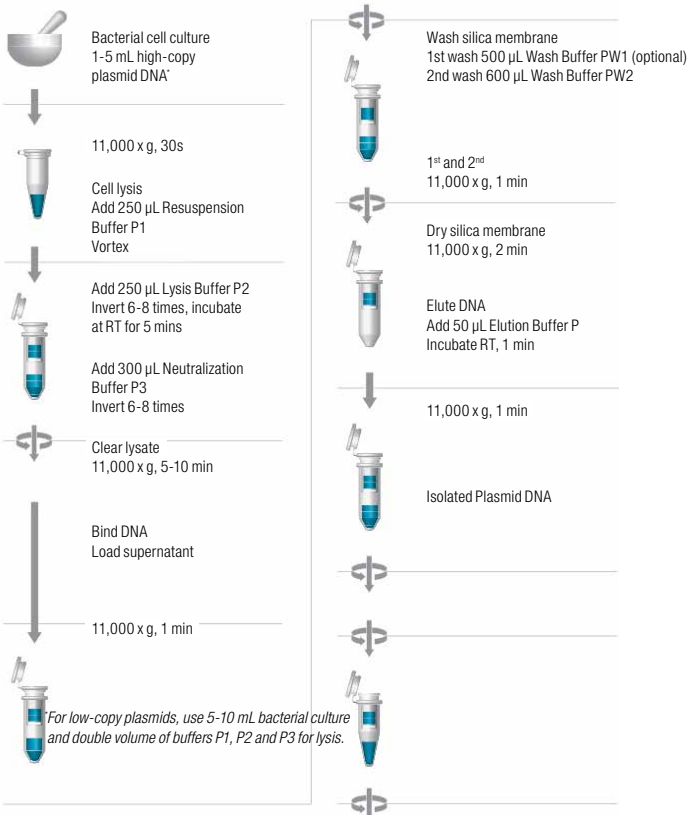
The kit shows excellent recovery of plasmid DNA and reproducible results (Fig. 1) even from low culture volumes (Fig. 2). The isolated DNA shows excellent performance in downstream molecular biology applications such as PCR, transformation, cloning, sequencing, restriction analysis, etc.

Separate protocols are provided for the isolation of high-copy and low-copy plasmids. In each case, intact, high-purity plasmid DNA is isolated within 25 minutes. Typically, up to 25 µg and 40 µg plasmid DNA is obtained from 5 mL and 10 mL cultures, respectively.

Isolation of low-copy plasmids, P1 constructs and cosmids requires increased buffer volumes.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II Plasmid Mini Kit	10 Preps	BIO-52055
	50 Preps	BIO-52056
	250 Preps	BIO-52057

Plasmid DNA Isolation



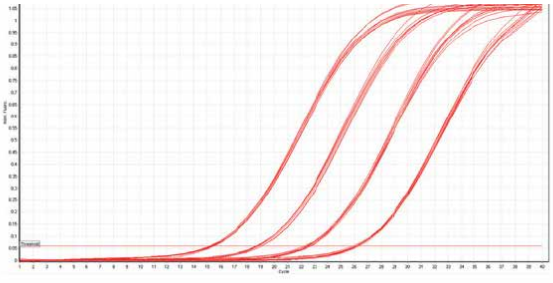


Fig. 1 Reproducible results
pUC19 plasmid was isolated from 5 mL *E. coli* overnight LB culture and cut with various restriction enzymes before analysis on 1% TAE agarose gel. Each restriction digest was performed in triplicate. Each lane represents an individual ISOLATE II miniprep. HyperLadder 1 kb (M)

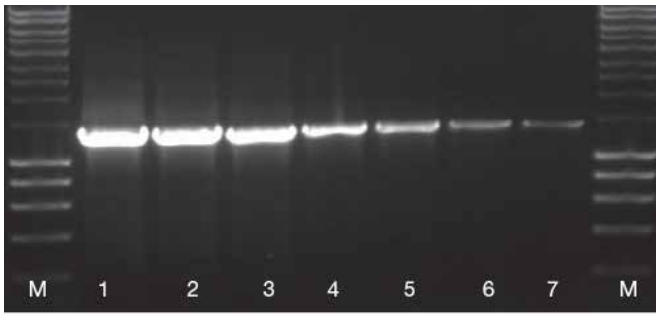


Fig. 2 High purity plasmid mini prep
Excellent recovery of plasmid DNA pUC19 from increasing culture volumes of *E. coli* grown in LB medium using ISOLATE II Plasmid Mini Kit and run on 1.5% TAE agarose gel. 0.05 mL, 0.1 mL, 1 mL, 3 mL and 5 mL culture (lanes 1- 5 respectively) HyperLadder 1 kb (M)

ISOLATE II Genomic DNA Kit

ISOLATE II Genomic DNA Kit is designed for the rapid and efficient isolation of high purity genomic DNA from a variety of starting materials.

FEATURES

- Rapid protocol: ~20 minutes (after lysis)
- High-purity genomic DNA: typical A_{260}/A_{280} ratio 1.7- 1.9
- High-yields: up to 35 µg genomic DNA
- Universal kit with over 17 protocols
- Isolated genomic DNA ready-to-use for downstream applications

APPLICATIONS

Isolation of genomic DNA from:

- Animal tissue
- Rodent tail
- Paraffin embedded tissue
- Clinical and forensic samples
- Bacterial cells
- Eukaryotic cells (yeast, cultured mammalian

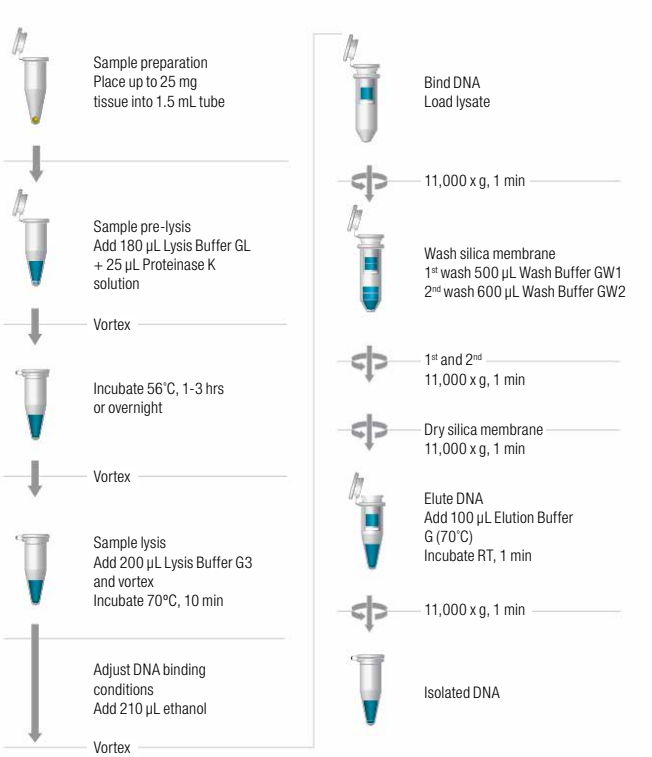
ISOLATE II Genomic DNA Mini Kit uses silica-membrane spin column technology. The isolation process combines fast lysis of the starting material with Proteinase K, followed by specific binding of DNA directly to the membrane in a spin column. Subsequent to washing steps, high-quality DNA is eluted.

Genomic DNA can be isolated from animal tissues, paraffin embedded tissue, mouse or rodent tail, buccal swabs, bacteria and eukaryotic cells. Over 17 optimized protocols are provided generating highly reproducible results with every sample (Fig. 1-2).

The isolated DNA is suitable for downstream molecular biology applications such as multiplex PCR, qPCR, next generation sequencing and restriction analysis.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II Genomic DNA Kit	10 Preps	BIO-52065
	50 Preps	BIO-52066
	250 Preps	BIO-52067

Genomic DNA Isolation



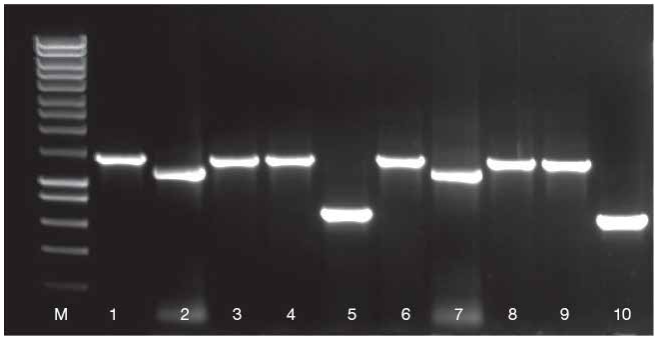


Fig. 1 Excellent results from a variety of sample types
Genomic DNA was isolated in duplicate from *E. coli*, mouse tail, mouse lung, HeLa cells and 3T3 cells, using ISOLATE II Genomic DNA Kit (lanes 1-5 and 6-10 respectively), and the 18s RNA gene amplified by PCR using MangoMix (BIO-25033). The products were run on 1.5% TAE agarose gel. HyperLadder 1 kb (M). The results illustrate the consistency, not just in replicates, but also between completely different species.

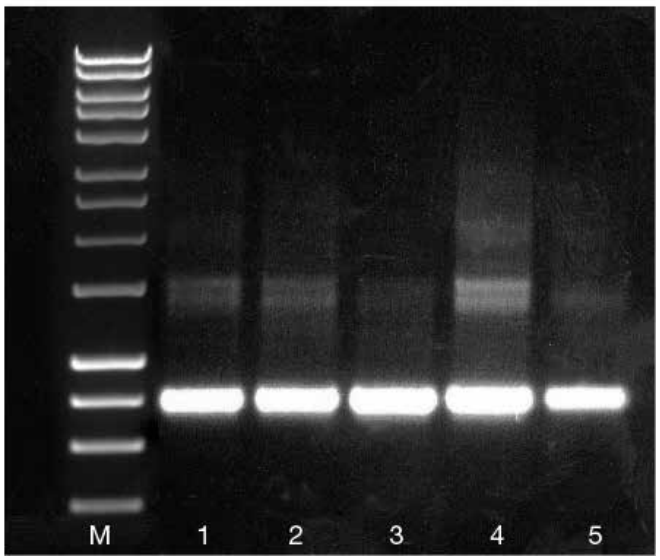


Fig. 2 Genomic DNA extracted from hair follicles from a number of different primate species
Genomic DNA was isolated from hair follicles of eastern lowland gorilla *(G. beringei graueri)* western gorilla *(G. gorilla)*, northern plains gray langur *(S. entellus)*, white-headed langur *(T. poliocepha-lus)* (museum sample) and red-shanked douc *(P. nemaeus)*, lanes 1 – 5 respectively. This genomic DNA was then used to PCR a 620 bp fragment to illustrate the quality and purity of the DNA extracted in a PCR reaction. HyperLadder 1 kb (M)

ISOLATE II PCR and Gel Kit

ISOLATE II PCR and Gel Kit is designed for the purification of and clean up of PCR products from Agarose gels.

FEATURES

- Quick Clean-Up kit for PCR products (10 min) and DNA gel extraction (20 min)
- High-purity DNA: typical A_{260}/A_{280} ratio 1.8 - 1.9
- Excellent recovery rate: 70-95%
- Highly optimized buffer
- Highly purified DNA is ready for downstream application

APPLICATIONS

- Purification of PCR products
- Isolation of DNA from TAE and TBE agarose gels
- Purification of DNA from contaminants (enzymes, dNTPs, primers etc.)

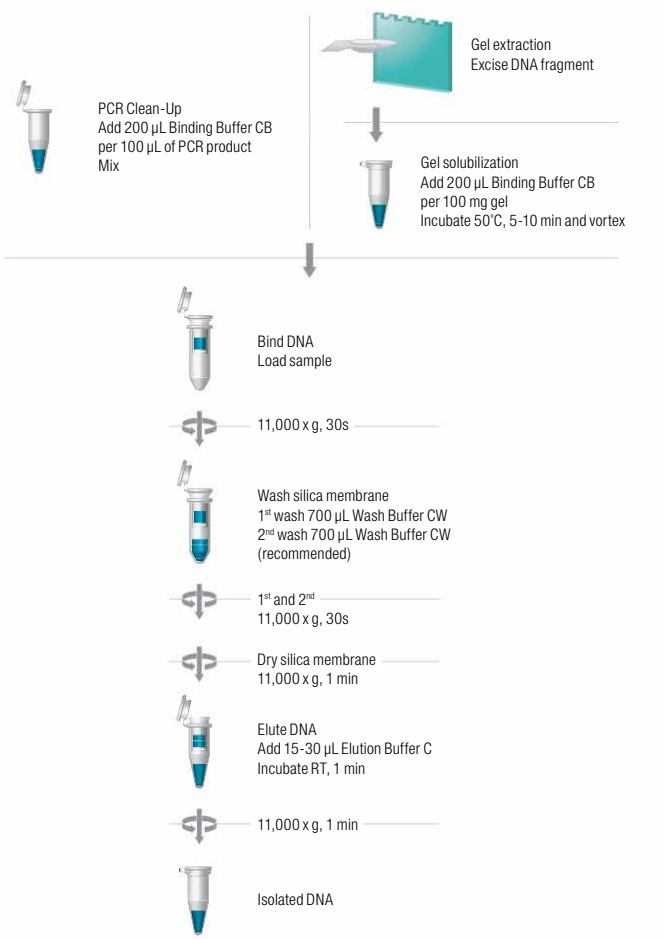
The PCR and Gel Kit is the simplest option for the purification of PCR products (Fig. 1) and for the isolation of DNA fragments from TAE and TBE agarose gel slices (Fig. 2). A fast and easy-to-follow protocol is given for each application.

PCR products are purified in only 10 minutes (6 preps) using simple binding and elution steps. Concentrated PCR products ranging between 60 bp and 15 kb can be eluted in 15-50 µL of buffer with a recovery rate of 70-95%. DNA fragments between 50 bp and 20 kb can be extracted in 20 minutes from agarose gel slices with an excellent recovery rate of 75-90%.

The isolated DNA is suitable for downstream applications such as transformation, cloning, sequencing and restriction analysis.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II PCR and Gel Kit	10 Preps	BIO-52058
	50 Preps	BIO-52059
	250 Preps	BIO-52060

Genomic DNA Isolation



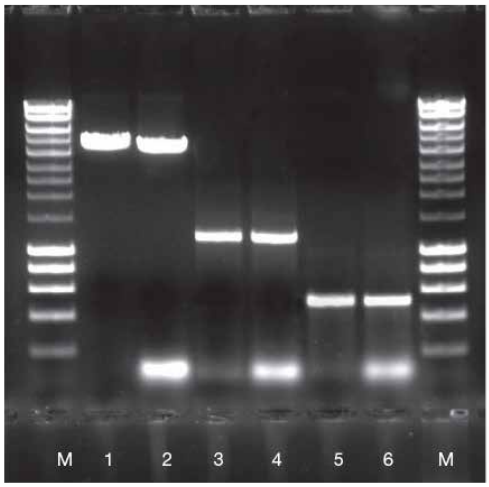


Fig. 1 PCR product purification
PCR was performed to amplify 5 kb, 1.2 kb and 500 bp fragments. The products were purified with ISOLATE II PCR and Gel Kit and run on a 1.5% TAE agarose gel. Lanes 1, 3, 5: PCR products after cleanup, lanes 2, 4, 6: PCR products before cleanup. HyperLadder 1 kb (M). The results illustrate complete cleanup of primer-dimers, without loss of the PCR product.

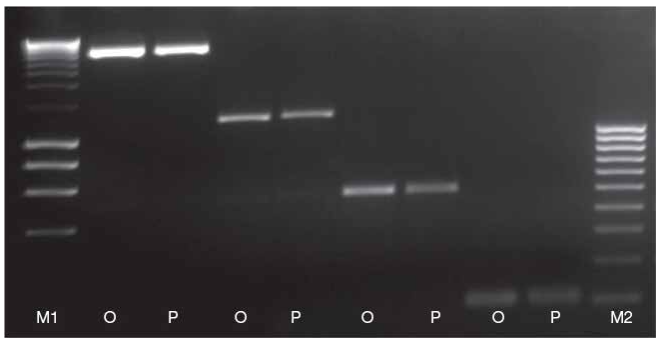


Fig. 2 Recovery of DNA from agarose gel
Various sized DNA fragments were run on 1% TAE agarose gel and extracted using ISOLATE II PCR and Gel Kit. The isolated fragments were again run on 1% TAE agarose gel (P) along with the original fragments (O). HyperLadder 1 kb and 100 bp (M1 and M2 respectively). The results illustrate very high recovery rates of DNA fragments.

ISOLATE II Plant DNA Kit

ISOLATE II Plant DNA Kit is designed for the rapid purification of genomic DNA from a variety of wet or dry plant material.

FEATURES

- Plant genomic DNA isolated in 30 minutes
- High-purity DNA: typical A_{260}/A_{280} ratio 1.6 - 1.9
- Choice of two lysis buffers
- Extra filters for clarification of lysate included
- RNase A included
- Isolated DNA is ready for downstream application

APPLICATIONS

- Fresh/frozen/lyophilized plant material
- Herbarium specimens
- Fung

The plant DNA Kit processes samples as diverse as leaves, bark, roots, fruits, etc. Up to 100 mg wet plant material and up to 20 mg dry plant material can be processed per spin column. The plant samples are homogenized, lysed and filtered in order to remove polysaccharides and cellular debris. Following binding of DNA to the silica membrane, contaminants are washed away and genomic DNA is eluted.

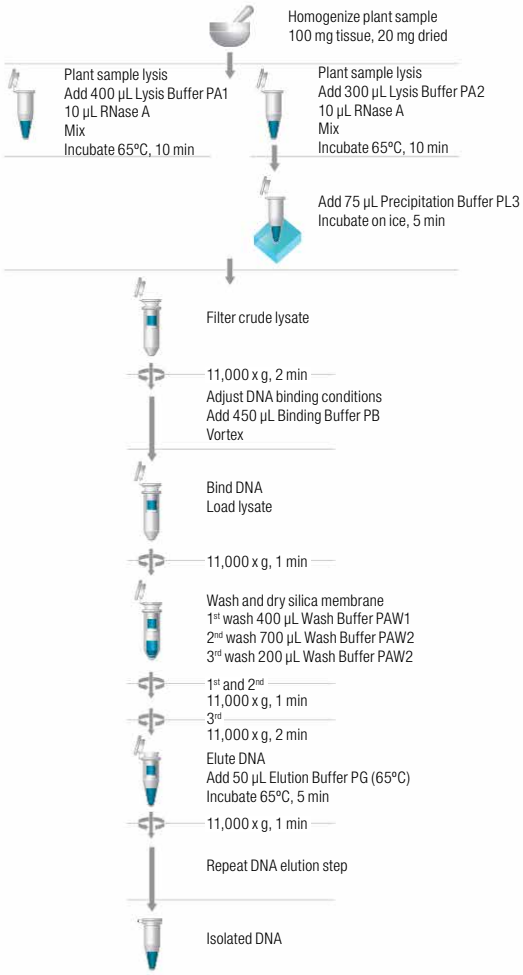
The kit contains two optimized lysis buffer systems based on the established CTAB and SDS methods. RNase A is included to remove RNA and to allow photometric quantification of pure genomic DNA.

ISOLATE II Plant DNA Kit shows excellent recovery of plant DNA when different homogenization techniques are used (Fig. 1). High yields are obtained with every miniprep (Fig. 2).

The isolated DNA is ready for use in downstream applications such as PCR, qPCR, cloning, next generation sequencing, genotyping and restriction analysis.

PRODUCT	PACK SIZE	Cat. #
ISOLATE II Plant DNA Kit	10 Preps	BIO-52068
	50 Preps	BIO-52069
	250 Preps	BIO-52070

Plant DNA Isolation



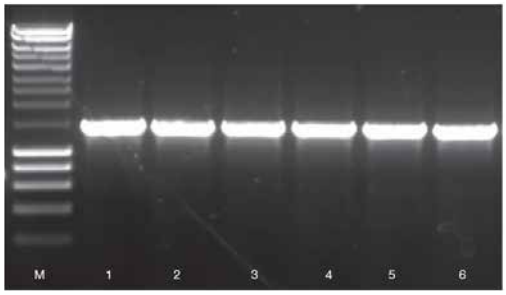


Fig. 1 Excellent recovery of plant DNA using different homogenization techniques
Freeze-dried budding leaves of *Arabidopsis thaliana* were homogenized in a mortar and pestle in the presence of liquid nitrogen (lanes 1-3 respectively) and with a rotor stator homogenizer (lanes 4-6 respectively). Genomic DNA was isolated using ISOLATE II Plant DNA Kit. A 1.4 Kb fragment of *AOS* gene was amplified from the isolated DNA using MangoMix (BIO-25033). HyperLadder 1 kb (M). The results illustrating that the ISOLATE II Plant DNA Kit gives consistent results with either extraction technique.

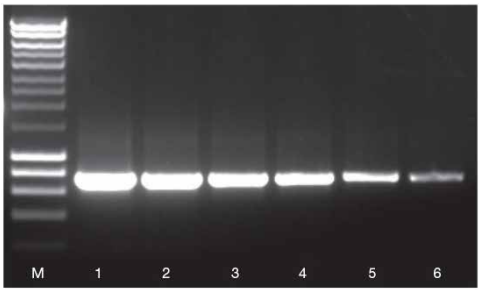


Fig. 2 High yields of plant genomic DNA
Genomic DNA was isolated from 20 mg freeze-dried budding leaves of *Arabidopsis thaliana* using ISOLATE II Plant DNA Kit. Using a 2-fold dilution of the miniprep (200 ng, 100 ng, 50 ng, 25 ng, 12,5 ng and 6.25 ng, lanes 1-6 respectively), a 1.4 kb fragment of *AOS* gene was amplified from the isolated DNA using MangoMix (BIO-25033). HyperLadder 1 kb (M).

ISOLATE II Fecal DNA Kit

ISOLATE II Fecal DNA Kit is designed for the rapid and efficient extraction and isolation of DNA from a variety of fecal samples.

FEATURES

- Fast isolation protocol
- High-quality, inhibitor-free DNA
- No need for organic denaturants or proteinases
- Can be used with many different specie

APPLICATIONS

Fecal samples from:

- Human origin
- Birds
- Rodents (e.g. rats, mice)
- Rabbits
- Cattle

The use of fecal material can be advantageous as it is non-invasive and large amounts can be collected. Even so, the isolation of DNA from feces can be challenging. ISOLATE Fecal DNA Kit is specifically developed for the simple, rapid isolation of high-quality DNA from a variety of fecal samples including humans, birds, rats, mice (Fig. 1), rabbits, cattle, etc. Bacterial, protist or host DNA, can be effectively isolated from ≤150 mg sample of mammalian feces.

The easy to follow procedure can be completed in as little as 15 minutes. Fecal samples are added directly to a Bashing Beads Lysis Tube and are rapidly lysed by bead beating in a vortex, without the use of organic denaturants or proteinases. The DNA is then bound to a spin column isolated and purified.

The eluted DNA, free from contaminants and inhibitors, is ideal for downstream molecular biology applications including PCR (Fig. 2), microarrays, sequencing and genotyping.

PRODUCT	PACK SIZE	Cat. #
ISOLATE Fecal DNA Kit	50 Preps	BIO-52082

Fecal DNA Isolation

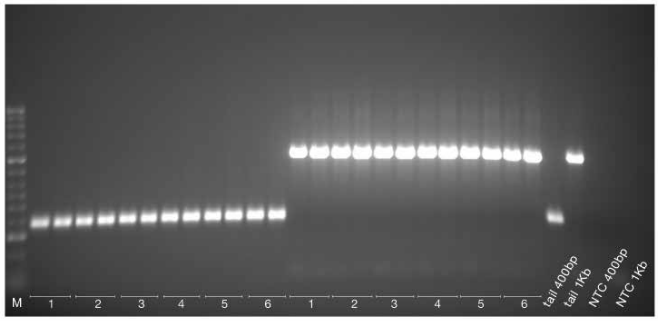


Fig. 1 PCR amplification from mouse fecal DNA
Genomic DNA was extracted from various amounts of mouse fecal matter (6 mg, 12.5 mg, 29 mg, 53.5 mg, 104 mg and 139 mg (lanes 1-6)) and mouse tail (control) using ISOLATE II Fecal DNA Kit. PCR was performed using two primer sets for the rn18s gene (400 bp and 1 kb). HyperLadder 1 kb (M).

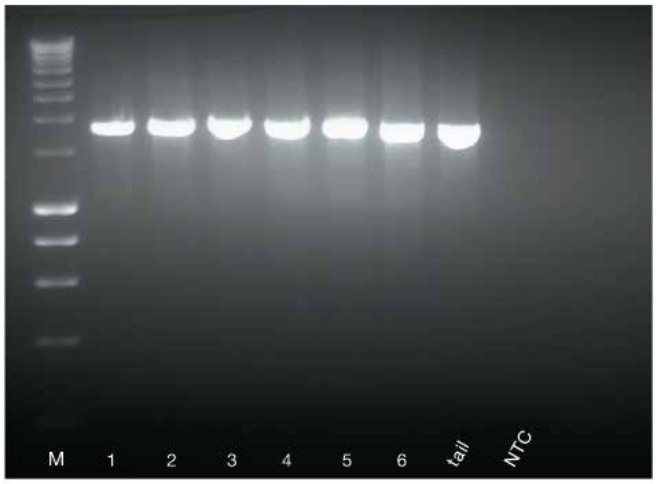


Fig. 2 PCR amplification from mouse fecal DNA.
DNA was extracted from various sources of mouse fecal matter and mouse tail (control) using ISOLATE Fecal DNA Kit. PCR was performed using a primer set for the rn 18s gene (1.8 kb). HyperLadder 1 kb (M)

TRIsure™

TRIsure is a ready-to-use reagent for the isolation of high-quality total RNA from diverse biological materials.

FEATURES

- Isolation of high-quality RNA in 60 minutes
- Ready-to-use for a wide variety cells and tissues
- No mechanical or enzymatic lysis steps required
- Cost-effective and simple protocol
- Isolated RNA is ready for downstream application

APPLICATIONS

- Animal tissues
- Cultured cells
- Plant tissues
- Bacterial cells

TRIsure can be employed to rapidly isolate RNA from animal tissues and cells, as well as plant tissues rich in polysaccharides and proteoglycans. TRIsure maintains the integrity of the extracted RNA, while disrupting cells and subsequently dissolving cell components.

The biological sample is homogenized or lysed in TRIsure and then separated into organic and aqueous phases. The RNA remains in the aqueous phase and is subsequently recovered by precipitation with isopropyl alcohol. High-yield (Table 1) and high-quality RNA can be extracted from multiple sample types (Fig. 1).

The isolated RNA is suitable for any downstream application such as RT-qPCR, hybridization assays, and *in vitro* translation. 1 mL of TRIsure is sufficient to isolate total RNA from 1 x 10^7 cells or 100 mg of tissue.

PRODUCT	PACK SIZE	Cat. #
TRIsure	100 mL	BIO-38032
	200 mL	BIO-38033

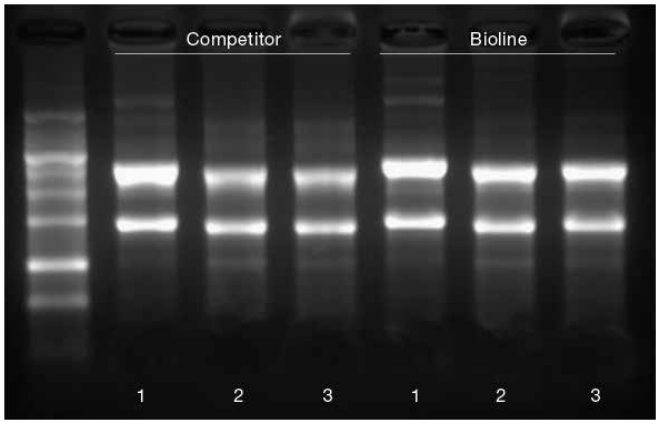


Fig. 1 High-quality and yield of RNA extracted using TRIsure.
RNA extracted from 3T6 cells and mouse tissue, using TRIsure and another supplier's reagent. 4 µg of total RNA was used for 3T6 cells, mouse kidney tissue and mouse liver tissue Lanes 1-3 respectively. M: RNA Ladder

Table 1. Expected yield of RNA from different samples using TRIsure

Sample type	Sample quantity	Expected yield
Cultured epithelial cells	1 x 10^6	8-15 µg
Cultured fibroblasts	1 x 10^6	20-25 µg
Mouse kidney tissue	1 mg	2-5 µg
Mouse liver tissue	1 mg	5-10 µg

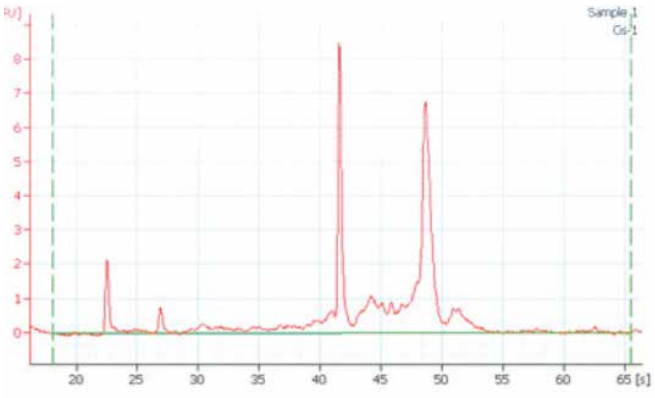


Fig. 2 Isolation of high-quality RNA
1.5 mL log phase culture of *Bacillus subtilis* was pre-treated with SDS/proteinase K, followed by isolation of RNA using TRIsure. The RNA was analyzed using the Bioanalyzer 2100 (Agilent Technologies) and was found to be of high-quality and purity.

SureClean Plus

SureClean Plus is a novel, inexpensive solution, which provides a column-free method for nucleic acid purification, in a simple and rapid procedure.

FEATURES

- Column-free PCR Clean-Up
- Post-PCR recovery up to 98%
- Cost-effective and simple protocol
- Isolated products suitable for downstream applications

APPLICATIONS

- Removes primers, non-specifics, dNTPs and restriction enzymes
- DNA or dsRNA purification or concentration
- Buffer exchange

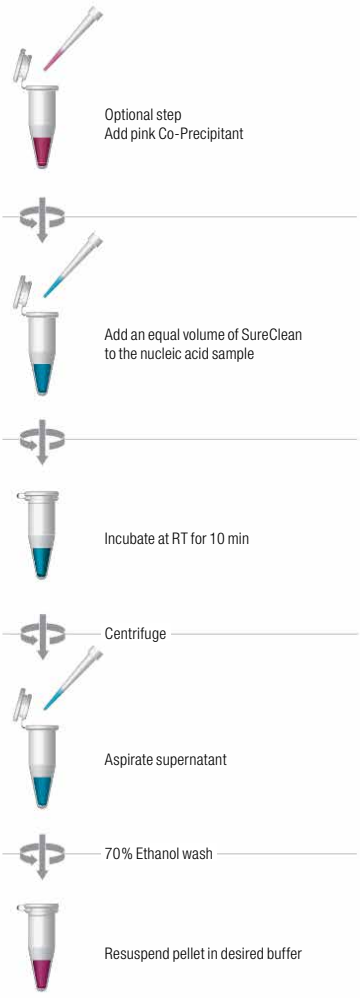
SureClean can be used to rapidly purify or concentrate DNA or dsRNA from PCR reactions or any enzymatic digests. This method is easy to follow, combining convenience, speed and excellent recovery rates.

A very straightforward protocol allows the precipitation of nucleic acids ≥75 bp with up to 98% recovery of the original sample without the need for organic solvents, glass milk or expensive spin columns (Fig. 1). SureClean Plus enables the researcher to resuspend the cleaned-up nucleic acids in any buffer and volume of choice, thus permitting the purification process to be tailored specifically to suit the experiment. SureClean Plus purifies nucleic acids without the use of chaotropic salts (which often contribute to denaturation of the DNA duplex). SureClean Plus is compatible with downstream applications, such as cloning and sequencing.

SureClean Plus also contains a pink co-precipitant that can be added to the sample to facilitates easy visualization of the purified pellet. The co-precipitant does not interfere with downtown applications and so SureClean Plus is suitable for use in all cloning, standard PCR, qPCR and other enzymatic reactions.

PRODUCT	PACK SIZE	Cat. #
SureClean Plus	5 mL	BIO-37047
	25 mL	BIO-37048

SureClean Plus Protocol



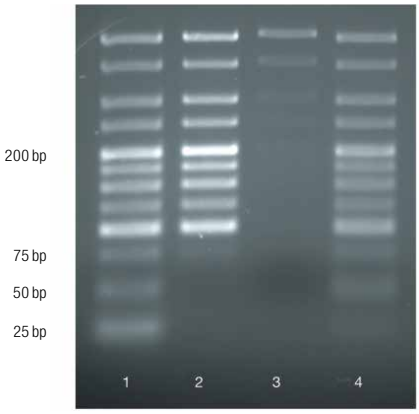


Fig. 1 DNA purification using SureClean and Supplier Q's & X's spin column purification methods
30 µL of HyperLadder 25 bp was purified using the manufacturer's protocols. For each of the methods DNA was resuspended in 30 µL TE, of which 5 µL was loaded on to a 3.5% agarose gel. HyperLadder 25 bp, HyperLadder 25 bp purified using SureClean Plus, HyperLadder 25 bp purified using spin-columns from Supplier X and HyperLadder 25 bp purified using spin-columns from Supplier Q Lane 1-4 respectively.

Ordering Information

RNA Kits	Size	Cat. #
ISOLATE II RNA Mini Kit	10 Preps	BIO-52071
	50 Preps	BIO-52072
	250 Preps	BIO-52073
ISOLATE II RNA Micro Kit	10 Preps	BIO-52074
	50 Preps	BIO-52075
ISOLATE II RNA Plant Kit	10 Preps	BIO-52076
	50 Preps	BIO-52077

DNA Kits	Size	Cat. #
ISOLATE II Plasmid Mini Kit	10 Preps	BIO-52055
	50 Preps	BIO-52056
	250 Preps	BIO-52057
ISOLATE II PCR and Gel Kit	10 Preps	BIO-52058
	50 Preps	BIO-52059
	250 Preps	BIO-52060
ISOLATE II Genomic DNA Kit	10 Preps	BIO-52065
	50 Preps	BIO-52066
	250 Preps	BIO-52067
ISOLATE II Plant DNA Kit	10 Preps	BIO-52068
	50 Preps	BIO-52069
	250 Preps	BIO-52070
ISOLATE II Fecal DNA Kit	50 Preps	BIO-52082

DNA Kits	Size	Cat. #
TRIsure™	100 mL	BIO-38032
	200 mL	BIO-38033
SureClean Plus	5 mL	BIO-37047
	25 mL	BIO-37048

DNA Kits	Size	Cat. #
Agarose, Molecular Grade	500 g	BIO-41025
MyTaq™ HS DNA Polymerase	250 Reactions	BIO -21111
MyTaq™ HS Mix	200 Reactions	BIO-25045
SensiFAST™ SYBR® No-ROX One-Step Kit	200 Reactions	BIO-98002
SensiFAST™ cDNA Synthesis Kit	50 Reactions	BIO-65053
SensiFAST™ Probe No-ROX Kit	200 Reactions	BIO-86002

Technical Support
For technical assistance or more information on these products, please contact us at mbi.tech@meridianlifescience.com or call us on +49 (0) 3371 60222 03

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