MilliporeSigma

Nucleic Acid Purification

Product Guide

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Our products for DNA and RNA sample preparation really top the charts. Every successful genomics experiment depends on high quality sample preparation. Our diverse portfolio of products is guaranteed to get your DNA or RNA isolated, purified, and ready for amplification. With a wide range of kits for plasmid DNA, genomic DNA, and RNA, you can count on us no matter how much source material you have.

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quick reference guides

DNA Purification Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Amt	Time Req'd	Elution Vol.	Expected Yield	Downstream Applications
Plasmid								
GenElute™ Plasmid Kits	*7*	PFM50, PFM250	GenElute™ Five-Minute Plasmid Miniprep Kit	400 µL	5 min	40 µL	Up to 5 µg	Restriction Digest, Sequencing, and PCR
	7	PLN70, PLN350	GenElute™ Plasmid Miniprep Kits	1.5 mL	<30 min	100 µL	Up to 20 µg	Restriction Digest, Cloning, Sequencing, and PCR
	8	NA0150, NA0160	GenElute™ HP Plasmid Miniprep Kit	1–5 mL	<30 min	100 µL	Up to 25 µg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection
	8	NA9604	GenElute™ HP 96 Well Plasmid Miniprep Kit	1.3 mL/well	45 min	100 µL	Up to 10 µg per well	Transfections, Sequencing, Restriction Digest, Cloning, and PCR
	8	NA0200	GenElute™ HP Plasmid Midiprep Kit	50 mL	30 min	1 mL	Up to 350 µg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection
	9	NA0300S, NA0300, NA0310	GenElute™ HP Plasmid Maxiprep Kit	150 mL	30 min	3–5 mL	Up to 1.2 mg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection
GenElute™ Endotoxin-free Plasmid Kits	*9*	PLED35	GenElute™ Endotoxin-free Plasmid Midiprep Kit	5–40 mL	<95 min	1 mL	Up to 250 µg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection of endotoxin-sensitive cell lines
	10	NA0400S, NA0400, NA0410	GenElute™ HP Endotoxin-free Plasmid Maxiprep Kit	150 mL	40 min	3–5 mL	Up to 1.2 mg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection of endotoxin-sensitive cell lines
	10	NA0600	GenElute™ HP Endotoxin-free Plasmid Megaprep Kit	200 mL–1 L	90 min	20 mL	Up to 5 mg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection of endotoxin-sensitive cell lines
	10	NA0800	GenElute™ HP Select Endotoxin-free Gigaprep Kit	Up to 2.5 L	2 hrs	50 mL	Up to 15 mg	Restriction Digest, Cloning, Sequencing, PCR, and Transfection of endotoxin-sensitive cell lines
PhasePrep™ BAC DNA Kit	*11*	NA0100	Isolation of Bacterial Artificial Chromosomes	5–500 mL	3 hrs	20 µg–1 mL	Up to 100 µg	Sequencing, PCR, Restriction Digest, and Cloning
Roche Plasmid Kits	*12*	03143414001	Genopure Plasmid Midi Kit	5–100 mL	60 min	2.5–5 mL	Up to 100 µg	Restriction digest, Cloning, Sequencing, PCR, Transfection, Southern Blots
	12	3143422001	Genopure Plasmid Maxi Kit	30–500 mL	75 min	7–15 mL	Up to 500 µg	Restriction digest, Cloning, Sequencing, PCR, Transfection, Southern Blots
	12	11754777001, 11754785001	High Pure Plasmid Isolation Kit	2 mL	30 min	100 µL	Up to 15 µg plasmid DNA	PCR, Sequencing, Cloning, In vitro transcription, Restriction Digest, Random primed labeling
Genomic								
GenElute™ Mammalian Genomic DNA Miniprep Kit	*13*	G1N70, G1N350	Purification of genomic DNA from a variety of mammalian sources	Varies depending on source material	20 min after lysis	200–400 µL	Varies depending on starting material	PCR, Restriction Digest, Cloning, and Southern Blots
GenElute™ 96 Well Tissue Genomic DNA Purification Kit	*13*	G1N9604	Rapid isolation of DNA from human and animal tissue, cultured cells and bacteria	<20 mg tissue or <10 µL cultured cells or bacteria	70 min/plate	100 µL	12–15 µg per well	PCR, Restriction Digest, Cloning, and Southern Blots
GenElute™ Plant Genomic DNA Miniprep Kit	*15*	G2N70, G2N350	Purification of genomic DNA from a variety of plant species	Up to 100 mg of plant tissue	<40 min	100–200 µL	Varies depending on plant species	PCR, Restriction Digest, Cloning, and Southern Blots
GenElute™ Blood Genomic DNA Kit	*16*	NA2010, NA2020	Purification of genomic DNA from fresh or aged whole blood	Up to 200 µL of blood	<40 min	400 µL	Up to 10 µg	PCR, Restriction Digest, Cloning, and Southern Blots
GenElute™ Bacterial Genomic DNA Kit	*17*	NA2100, NA2110, NA2120	Purification of genomic DNA from a variety of cultured bacteria	Up to 1.5 mL of culture	75 to 120 min	400 µL	Up to 20 µg	PCR, Restriction Digest, Cloning, and Southern Blots

DNA Purification Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Amt	Time Req'd	Elution Vol.	Expected Yield	Downstream Applications
Extract-N-Amp™								
Extract-N-Amp™ and REDExtract-N-Amp™ Tissue PCR Kit	*18*	XNAT, XNATR, XNAT2, XNAT2R	Rapid extraction & PCR amplification of genomic DNA from animal tissues, hair, and saliva	Varies depending on starting material	<15 min from extraction to amplification	N/A	N/A	Genotyping, Target Detection, Automated Sequencing, and Cloning
SYBR® Green Extract-N-Amp™ Tissue PCR Kit	*19*	XNATG, XNATRG	Rapid extraction, amplification & detection of genomic DNA from animal tissues, hair, and saliva	Varies depending on starting material	<15 min from extraction to amplification	N/A	N/A	Genotyping, Target Detection, Automated Sequencing, and Cloning
Extract-N-Amp™ and REDExtract-N-Amp™ Blood PCR Kit	*19*	XNAB2, XNAB2R, XNAB2RE, XNABS, XNAB, XNABE, XNABR, XNABRE	Rapid extraction & PCR amplification of genomic DNA from whole blood	10 µL of blood or blood card	8 min from extraction to amplification	N/A	N/A	Target Detection, Automated Sequencing, and Cloning
Extract-N-Amp™ and REDExtract-N-Amp™ Plant PCR Kit	*22*	XNAP, XNAP2, XNAR, XNAPR, XNAPS, XNAPE, XNAP2E, XNAP2RE	Rapid extraction & PCR amplification of genomic DNA from plant leaves	0.5–0.7 cm plant leaf disk	<15 min from extraction to amplification	N/A	N/A	Target Detection, Automated Sequencing, and Cloning
SYBR® Green Extract-N-Amp™ Plant PCR Kit	*22*	XNAPG	Rapid extraction, amplification & detection of genomic DNA from plant leaves	0.5–0.7 cm plant leaf disk	<15 min from extraction to amplification	N/A	N/A	Genotyping, Target Detection, Automated Sequencing, and Cloning
Extract-N-Amp™ and REDExtract-N-Amp™ Seed PCR Kit	*23*	XNAS2, XNASS, XNAS	Rapid extraction & PCR amplification of genomic DNA from seeds	1 seed	<15 min from extraction to amplification	N/A	N/A	Genotyping, Target Detection, Automated Sequencing, and Cloning

RNA Purification Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Material	Time Req'd	Typical Yield	Downstream Applications
Total RNA							
GenElute™ Mammalian Total RNA Miniprep Kit	*25*	RTN70, RTN350	Isolation of total RNA from mammalian cells and tissues	Up to 10^7 mammalian cells or 40 mg of tissue per prep	30 min	Up to 150 µg of total RNA	RT-PCR, Northern Blots, and Microarray Analysis
GenElute™ 96 Well Total RNA Purification Kit	*25*	RTN9604	Purification of total RNA from animal or human cell cultures and tissue	<10^7 cultured cells, <30 mg tissue or saliva	70 min/plate	50–200 ng/µL	RT-PCR, Northern Blots, and Microarray Analysis
Spectrum™ Plant Total RNA Kit	*25*	STRN50, STRN250	Isolation of total RNA from plant tissues	Up to 100 mg of ground plant tissue	30 min	20–60 µg	RT-PCR, Labeling, Microarray Analysis, and Northern Blots
GenElute™ Plasma/Serum RNA Purification Mini Kit	*26*	RNB500	Purification of circulating RNA and exosomal RNA from plasma and serum	50 µL–5 mL plasma or serum	15–20 min.	1–100 ng/mL	RT-PCR, Northern Blots, RNase protection and primer extension, Microarray Analysis, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR
GenElute™ Total RNA Purification Kit	*27*	RNB100	Purification of total RNA from a variety of biological sources	Varies based on starting material	Varies	Varies	RT-PCR, NGS, Cloning and amplification, PCR, Northern Blots, RNase protection and primer extension, Microarray Analysis, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR
Roche High Pure RNA Tissue Kit	*27*	12033674001	Purification of total RNA from a variety of tissue samples	1–25 mg mammalian tissue	30 min.	Up to 3 µg/mg tissue	RT-PCR, Northern Blots, RACE, Primer extension, Differential display, cDNA library construction, RNase protection assay, *in vitro* translation
TRI Reagent® RNA Isolation Reagent	*30*	T9424, T3809, T3934	Isolation of total RNA from a variety of starting materials	Up to 100 mg tissue, 10^7 cells, 10^2 cm plate area or 0.25 mL fluid and blood derivatives	90 min	5–15 µg per million cells, 1–10 µg/mg tissue	RT-PCR, Northern Blots, and Microarray Analysis
mRNA							
GenElute™ mRNA Miniprep Kit	*27*	MRN70	Isolation of mRNA from total RNA	5–500 µg total RNA	40 min	1–5% of starting total RNA	RT-PCR, Northern Blots, and Microarray Analysis
GenElute™ Direct mRNA Miniprep Kit	*28*	DMN70	Isolation of mRNA from mammalian cells or tissues	Up to 10^7 mammalian cells or 50 mg of tissue	60 min	Up to 5 µg	RT-PCR, Northern Blots, and Microarray Analysis

RNA Purification Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Material	Time Req'd	Typical Yield	Downstream Applications
microRNA							
mirPremier® microRNA Isolation Kit	*29*	SNC50	Purify and enrich miRNA and other small RNA from diverse biological materials	Up to 10^7 cultured cells or 40 mg mammalian tissue	30 min	Up to 20 µg	RT-PCR, Northern Blots, and Microarray analysis
Roche High Pure miRNA Isolation Kit	*29*	05080576001	Purification of small RNA or total RNA from animal cells, tissue or FFPE sections	Varies based on starting material	30 min.	Up to 9 µg/mg tissue, Up to 30 µg per 1^6 cells	Northern Blots, cDNA synthesis, Primer extension, Microarray Analysis
RNAzol® RT	*30*	R4533	Isolation of microRNA from a variety of starting materials	1 mL sufficient for 10^7 cells or 100 mg tissue	<1 hr	0.1 µg/µL of microRNA	RT-RCR, Northern Blots, and Microarray Analysis

Cell-free DNA Purification Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Amt	Time Req'd	Elution Vol.	Expected Yield	Downstream Applications
GenElute™ Plasma/ Serum Cell-Free DNA Purification Midi Kit	*32*	DNB600	Purification of cell-free circulating free DNA (cfcDNA) from plasma and serum	1–4 mL	45 min	25–100 µL	Varies	PCR, qPCR, methylation sensitive PCR, Southern Blots, Microarray Analysis and NGS.
GenElute™ UltraMag Cell-Free DNA Kit	*32*	CFMAG	Silica-coated magnetic beads provide rapid and efficient purification of circulating free DNA (cFDNA) from serum and plasma samples	0.2–<10 mL	40 min	12.5 µL/mL serum/plasma	1–100 ng/mL serum/plasma	NGS, PCR, qPCR, ddPCR, Bisulfite sequencing
GenElute™ Urine Cell-Free DNA Purification Mini Kit	*33*	DNB300	Purification of cell-free circulating DNA (cfcDNA) from urine.	250 µL–2 mL	15–20 min.	50–100 µL	Varies	PCR, qPCR, Southern Blots, Methylation-sensitive PCR, Restriction Digest, Microarray Analysis, NGS"

Post-reaction Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Amt	Time Req'd	Elution Vol.	Expected Yield	Downstream Applications
GenElute™ PCR Clean-Up Kit	*34*	NA1020	Purification of single or double stranded PCR (100 bp to 10 kb) amplification products	100 µL or 10 µg of DNA	<10 min	50 µL	Up to 95% recovery	Enzymatic Reactions, Automated Sequencing, Cloning, and Microarray Analysis
GenElute™ 96 Well PCR Clean-up Kit	*35*	PCR9604	Complete removal of primers and primer-dimers	<100 µL PCR reaction	45 min/plate	75–150 µL	75–95% recovery	Capillary Sequencing, Microarray Analysis, Ligation, and Restriction Digest
GenElute™ Gel Extraction Kit	*35*	NA1111	Rapid purification of linear and plasmid DNA fragments from standard or low-melting agarose gels	Up to 3.5 g gel slice	<30 min	50 µL	Up to 80% recovery	PCR, Restriction Digest, Sequencing, Cloning, and Labeling
GenElute™ Agarose Spin Columns	*36*	56500	Purification of DNA fragments (50 bp to 10 kb) from agarose gel slices	<200 mg gel slice	10 min	50–200 µL depending on size of gel slice	Up to 80% recovery	Ligation, Restriction Digest, Cloning, and PCR
GenElute™ Minus EtBr Spin Columns	*36*	56501	Extraction of DNA fragments (50 bp to 10 kb) from ethidium bromide (EtBr) stained agarose gels	<200 mg gel slice	10 min	50–200 µL depending on size of gel slice	Up to 70% recovery	Ligation, Restriction Digest, Cloning, and PCR
Montage Gel Extraction Kit	*35*	LSKGEL050	Purification of DNA fragments (100 bp–10 kb) from agarose gel slices.	<100 mg gel slice	10 min.	N/A	<80% recovery	PCR, Restriction Digest, Sequencing, Cloning, Labeling
Roche High Pure PCR Cleanup Micro Kit	*37*	4983955001, 4983912001	Isolation of DNA fragments (50 bp–5 kb) from amplification reactions.	<100 µL	10 min.	10–20 µL	<85% recovery	Restriction Digest, Alkaline phosphatase treatment, Kinase reactions, Nonradioactive labeling
Roche High Pure PCR Product Purification Kit	*37*	11732676001	Preparation of concentrated and purified DNA fragments (>100 bp).	<100 µL	10 min.	50–100 µL	>70% recovery	Labeling, Sequencing, Cloning, Restriction Digest, Alkaline phosphatase treatment, Kinase reactions
Roche Agarose Gel DNA Extraction Kit	*37*	11696505001	Isolation and concentration of DNA fragments (50 bp–5 kb) from amplification reactions.	<100 mg gel slice	45 min.	20–50 µL	<80% recovery	Ligation and transformation, Restriction Digest, Sequencing, PCR, Cloning

Sequencing Clean-up Quick Reference Guide

Our System	Page	Catalog No.	Product Description	Starting Amt	Time Req'd	Elution Vol.	Downstream Applications
Montage SEQ_{96} Sequencing Reaction Cleanup Kit	*38*	LSKS09604	High throughput purification of plasmid or bacterial artificial chromosome (BAC) DNA.	1 mL for Plasmid, 1.5 mL for BAC	30–50 min.	35–50 µL	PCR, Restriction Digest, Sequencing, Cloning, Labeling
SigmaSpin™ Post-reaction Clean-Up Columns	*38*	S5059	Removes unincorporated dyes, including BigDye® 3, excess salts, and other interfering components from sequencing reactions	10–20 µL sequencing reaction	<8 min	10–20 µL	Fluorescent Sequencing and Microarray Analysis
UltraClear™ Sequencing Reaction Clean-Up Kit	*38*	UC9601, UC9604	Removes unincorporated dyes, including BigDye® 3.1, dNTPs, excess salt, and other interfering components from sequencing reactions	<10 µL sequencing reaction	Flexible based on user interface	40 µL	Fluorescent Sequencing

Unique Samples

Our system	Page	Catalog No.	Product Description	Starting Material	Time Req'd	Elution Volume	Expected Yield	Downstream Applications
GenElute™ FFPE RNA Purification Kit	*39*	RNB400	Purification of Total RNA from FFPE tissue samples	20 µm sections or 25 mg of unsectioned FFPE tissue core	60 min.	20–50 µL	Up to 3 µg RNA	RT-PCR, Northern Blots, RNase protection, Primer extension, Microarray Analysis, NGS, Cloning, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR
Roche High Pure FFPE RNA Micro Kit	*40*	04823125001	Purification of RNA from FFPE tissue samples	1–10 µm FFPE tissue sample	60 min. without 3 hr incubation	20 µL	1.5–3.5 µg/5 µm section	RT-PCR, cDNA synthesis, Primer extension
GenElute™ FFPE DNA Purification Kit	*40*	DNB400	Purification of genomic DNA from FFPE tissue sample	20 µm sections or 25 mg of unsectioned core FFPE tissue sample	60 min.	20–50 µL	Up to 30 µg DNA	PCR, Mutation screening, Sequencing, Southern Blots, Microarray Analysis, SNP analysis
GenElute™ FFPE RNA/DNA Purification Plus Kit	*41*	RDP200	Purification of RNA and genomic DNA from FFPE tissue samples	20 µm sections or 10 mg of unsectioned core FFPE tissue sample	60 min.	20–50 µL for RNA and gDNA	Up to 5 µg RNA or Up to 30 µg DNA	RT-PCR, Northern Blots, RNase protection, Primer extension, Microarray Analysis, NGS, Cloning, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR. PCR, Sequencing, DNA Methylation Studies, Southern Blots, Microarray Analysis, SNP analysis
Roche High Pure RNA Paraffin Kit	*41*	03270289001	Purification of DNA and RNA from FFPE or fresh-frozen tissue samples	5–10 µm FFPE sections, 20–30 mg fresh-frozen tissue, 3×5 µm fresh-frozen tissue	2 hr without overnight incubation	50 µL	0.3–1.5 µg/5 µm FFPE section, 2–6 µg/20 mg fresh-frozen section	RT-PCR, Differential display RT-PCR, cDNA synthesis, Primer extension
GenElute™ Water RNA/DNA Purification Kit - 0.45 µm	*41*	RDP100	Purification of total RNA and genomic DNA from microorganisms found in water	10–100 mL water	45 min.	50 µL	Varies	RT-PCR, PCR, Northern Blots, Southern Blots, Sequencing, Microarray Analysis, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR
GenElute™ Soil DNA Isolation Kit	*42*	DNB100	Purification of DNA from microorganisms found in soil samples	250 mg soil	30 min.	100 µL	Varies	PCR, RT-PCR, Southern Blots
GenElute™ Stool DNA Isolation Kit	*42*	DNB200	Purification of total DNA from stool samples	200 mg fresh or frozen stool sample	30 min.	50 µL	Varies	PCR, Southern Blots, Sequencing, Microarray Analysis
GenElute™ RNA/DNA/Protein Purification Plus Kit	*43*	RDP300	Purification of total RNA, genomic DNA and protein from a variety of samples	cultured animal cells, small tissue samples, blood, bacteria, yeast, fungi or plants	30 min.	50 µL for RNA, 100 µL for DNA and proteins	Varies	RT-PCR, Northern Blots, RNase Protection, Primer Extension, Microarray Analysis, NGS, Cloning, RNA-Seq, Nanostring, Fluidigm, Droplet/Digital PCR. PCR, Sequencing, DNA Methylation Studies, Southern Blots, SNP analysis. SDS-PAGE Analysis, Western Blots, Mass Spectrometry

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Maintain nucleic acids and functional proteins with Stabilyser™ reagent, the ONLY reagent that protects the integrity of nucleic acids AND active protein in one uniform lysate mixture. Now, you can stabilize complete, uniform tissue homogenates providing sample-to-sample comparability.

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2018-17023 12/2018

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Millipore®

Preparation, Separation, Filtration & Monitoring Products

plasmid DNA purification

GenElute™ HP plasmid kits offer purification of high-quality plasmid DNA. We manufacture kits that are suitable for work with both small and large scale plasmid, as well as endotoxin-free plasmid. The GenElute™ HP kits use advances in silica bind and elute technology with the vacuum or spin format. The purified plasmid DNA is ready for a variety of downstream applications including restriction digest, sequencing, cloning, and transfection.

Standard

GenElute™ Five-Minute Plasmid Miniprep Kit

The GenElute Five-Minute Plasmid Miniprep Kit is intended for rapid preparation of plasmid DNA for use in capillary DNA sequencing, clone screening, restriction digestion, and PCR. For low copy plasmids, the kit can be used to prepare plasmid DNA for use in restriction digestion and PCR.

An overnight recombinant *E. coli* culture in LB (Luria-Bertani) broth is treated briefly (1-2 minutes) with a lysis reagent for rapid cell lysis and RNA degradation, without prior removal of culture medium. A binding solution is then mixed with the lysate, and DNA is captured on a silica-based binding column. Impurities are removed by a wash solution and bound plasmid DNA is then eluted in Tris buffer or water, ready for immediate use in various downstream applications. Typical yields of high copy plasmids are 2-6 mg from 400 mL of overnight culture in LB broth.

Features and Benefits

- No pelleting cells or clearing lysates
- Binding column works with any standard laboratory vacuum manifold
- Up to 5 µg of plasmid DNA or enough for 15 sequencing reactions
- DNA suitable for immediate capillary DNA sequencing

sufficient for 50 purifications

PFM50-1KT	1 kit

sufficient for 250 purifications

PFM250-1KT	1 kit

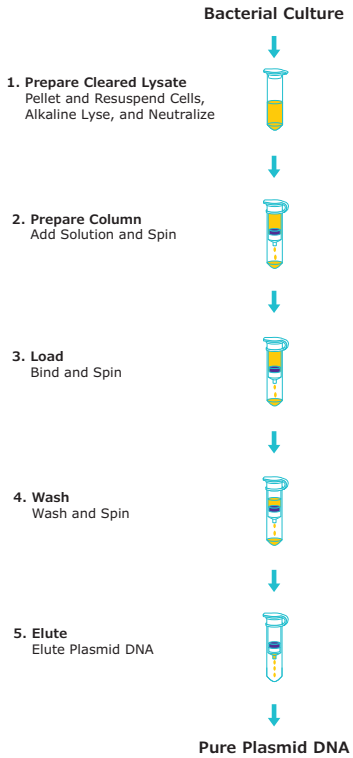
GenElute™ Plasmid Miniprep Kit

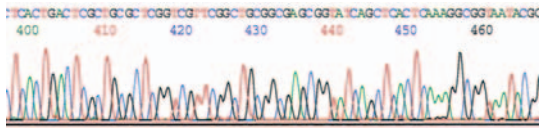
The GenElute Plasmid Miniprep Kit offers a simple, rapid, and cost effective method for isolating plasmid DNA from recombinant *E. coli* cultures. By combining silica-binding technology and the convenience of a spin column format, up to 15 µg of high copy plasmid DNA can be recovered from 1-5 mL of *E. coli* culture in less than 30 minutes. Note that actual yield and optimal volume of culture to use depend on the plasmid and the culture medium.

The DNA is ready for immediate use in applications such as restriction digestion, cloning, PCR, transformation, transcription, and sequencing.

Features and Benefits

- Purified plasmid DNA in less than 30 minutes
- Purify up to 15 µg of plasmid DNA
- No detectable genomic DNA or RNA contamination
- No phenol/chloroform extraction or alcohol precipitation required





Electropherogram revealing sequence from pUC-TMV using GenElute™ Plasmid DNA Purification Miniprep Kit.
Cycle Sequencing was performed using 500 ng of template, a T7 sequencing primer, and ABI BigDye® terminator chemistry. Sequencing reactions were resolved on an ABI Prism® 377 XL instrument with a 48 cm gel cassette containing 4.5% AutoPAGE™ Plus acrylamide at 2.4 kV, 48 °C for 7 hours.

sufficient for 70 purifications

PLN70-1KT	1 kit

sufficient for 350 purifications

PLN350-1KT	1 kit

GenElute™ HP Plasmid Miniprep Kit

The GenElute HP Plasmid Miniprep Kit offers an ultrafast and efficient solution for plasmid preparation from *E. coli* cultures. This kit combines silica-based membrane technology and the convenience of spin or vacuum format. An overnight recombinant *E. coli* culture is harvested with centrifugation and subjected to a modified alkaline-SDS lysis procedure followed by adsorption of the plasmid DNA onto silica in the presence of high salts. Contaminants are then removed by a vacuum or spin wash steps. Finally, the bound plasmid DNA is eluted in water or Tris-EDTA buffer.

The recovered plasmid DNA is ready for immediate use in applications such as restriction digest, cloning, PCR, transfection, and sequencing.

Features and Benefits

- Purified plasmid DNA in less than 30 minutes
- Up to 25 µg of high-copy plasmid DNA
- Flexibility of a vacuum or spin format
- No phenol/chloroform extraction or alcohol precipitation required

sufficient for 70 preparations

NA0150-1KT	1 kit

sufficient for 350 preparations

NA0160-1KT	1 kit

GenElute™ HP 96-Well Plasmid Miniprep Kit

The GenElute HP 96-Well Plasmid Miniprep Kit offers a simple, rapid, cost effective solution for high-throughput purification of plasmid DNA from recombinant *E. coli* cultures. By combining silica-binding technology and the convenience of a vacuum format, up to 10 µg of high copy plasmid DNA per well can be recovered from 1.3 mL of culture in less than 50 minutes. Actual yields and the optimum volume of culture depend on the plasmid and culture medium used.

The purified plasmid DNA is suitable for a wide variety of molecular biology applications, including restriction digestions and sequencing.

Features and Benefits

- Up to 10 µg of high-copy plasmid DNA per well
- Flexibility of both manual and automated formats
- Optimized for production of virus titers from MISSION shRNA plasmid vectors
- No phenol/chloroform extraction or alcohol precipitation required

sufficient for 4, 96-well plate purifications

NA9604-1KT	1 kit

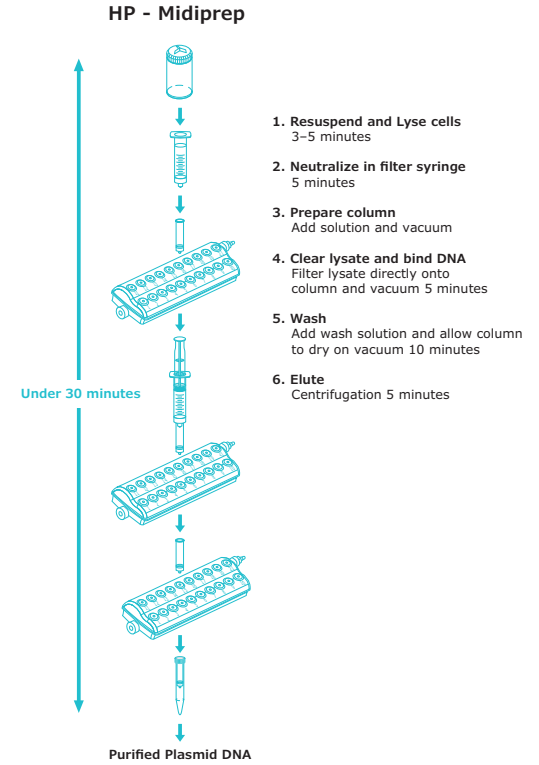
GenElute™ HP Plasmid Midiprep Kit

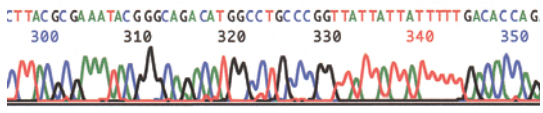
The GenElute HP Plasmid Midiprep Purification kits offer an ultrafast and efficient solution for large-scale plasmid preparation from *E. coli* cultures. These kits combine silica-based membrane technology and the convenience of spin or vacuum format. The kits also include a special filter cartridge, which replaces the centrifugation step following alkaline lysis. Following lysis the DNA is bound to the silica membrane and contaminants are removed with a simple wash step. The DNA is then eluted in water or TE buffer by centrifugation.

The purified plasmid DNA is suitable for a wide variety of molecular biology applications, including restriction digestions and sequencing.

Features and Benefits

- From harvested bacterial culture to pure plasmid DNA in 30 minutes or less
- Up to 350 µg of high-copy plasmid DNA
- Flexibility of a vacuum or spin format
- No phenol/chloroform extraction or alcohol precipitation required
- Contains fewer plastic components, reducing the amount of waste





Electropherogram revealing sequence from pCMV-SPORT-βgal purified from GenElute™ HP Plasmid Midiprep Kit.
Cycle Sequencing was performed using 500 ng template, a T7 sequencing primer and ABI BigDye® terminator chemistry. Sequencing reactions were resolved on an ABI Prism® 377 XL instrument with a 48 cm gel cassette containing 4.5% AutoPAGE™ Plus acrylamide at 2.4 kV, 48 °C for 7 hours.

sufficient for 25 purifications

NA0200-1KT	1 kit

GenElute™ HP Plasmid Maxiprep Kit

The GenElute HP Plasmid Maxiprep Kit offers a simple, rapid, and cost effective method for isolating plasmid DNA from recombinant *E. coli* cultures. The kit features a filter syringe for the rapid clearing of lysate and a silica binding column designed for either a vacuum or a spin format. Up to 1.2 mg of plasmid DNA can be isolated from a 150 mL overnight culture grown in Luria Broth (LB) medium. Note that the actual yield depends on the strain, the plasmid, and the culture medium used.

An overnight recombinant *E. coli* culture is harvested by centrifugation and subjected to a modified alkaline-SDS lysis procedure followed by adsorption of the DNA onto a silica membrane in the presence of high salts. Contaminants are removed by two wash steps. Finally, the bound DNA is eluted in Elution Solution (Tris-HCl) or water.

The recovered plasmid DNA is predominately in its supercoiled form. The DNA is ready for immediate use in downstream applications such as restriction digestion, ligation, sequencing, PCR, transformation, and transfection.

Features and Benefits

- From harvested bacterial culture to pure plasmid DNA in 30 minutes or less
- Up to 1.2 mg of high-copy plasmid DNA
- Flexibility of a vacuum or spin format
- Contains fewer plastic components than other high speed kits, reducing the amount of waste
- No phenol/chloroform extraction or alcohol precipitation required

sufficient for 4 purifications

NA0300S-1KT	1 kit

sufficient for 10 purifications

NA0300-1KT	1 kit

sufficient for 25 purifications

NA0310-1KT	1 kit

Endotoxin-Free

GenElute™ Endotoxin-free Plasmid Midiprep Kit

The GenElute Endotoxin-free Plasmid Kit offers a simple, rapid, cost effective method for purifying plasmid DNA with ≤0.1 EU/µg DNA for high efficiency transfection. Endotoxins (also known as lipopolysaccharides or LPS) are often co-purified with plasmid DNA and significantly reduce transfection efficiencies in endotoxin-sensitive cell lines.

Recombinant *E. coli* is harvested from an overnight culture by centrifugation and subjected to a modified alkaline-SDS lysis procedure to produce a cleared lysate. Endotoxins are removed from the cleared lysate with simple extraction-phase separation steps. Plasmid DNA is further purified by adsorption onto silica in the presence of high salts. After a simple spin-wash step, the bound plasmid DNA is eluted in endotoxin-free water. Up to 250 µg of endotoxin-free plasmid DNA may be prepared from 5 to 40 mL of culture.

The recovered plasmid DNA is predominately in its supercoiled form. The DNA is ready for immediate use in downstream applications such as transfection, restriction digestion, cloning, sequencing, and PCR amplification.

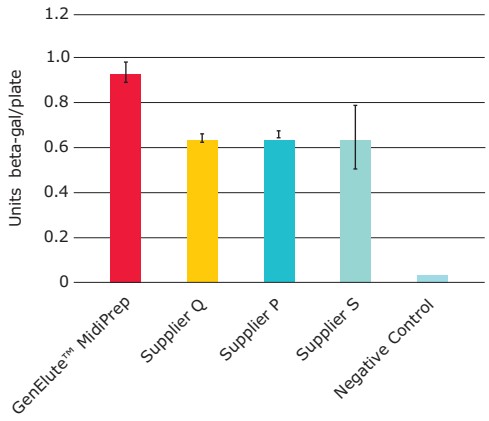
Features and Benefits

- High transfection efficiency and yield
- Purify up to 250 µg endotoxin-free plasmid DNA (≤0.1 EU/µg DNA)
- Fast and simple allowing up to 12 preps in less than 2 hours

GenElute™ Endotoxin-free Midiprep Kits

Endotoxin-free Preps	
Volume of Overnight Culture	5–40 mL
Yield of Endotoxin-free Plasmid	Up to 250 µg
Elution Volume	1 mL
Time	
Centrifuge + Incubation	<80 minutes
Hands on	<15 minutes
Total	<95 minutes

Transfection of cells with plasmid isolated with different endotoxin removal kits



Comparison of transfection efficiencies of plasmids prepared with different Endotoxin-free isolation methods.
The data shows the average of six replicates for each named isolation method. All transfections were in CHO-K1 cells. The OD measurements were taken at 420 nm and the units of β-gal/plate were found using our β-Galactosidase Reporter Gene Activity Detection Kit. The cells were grown to ~60-75% confluency and transfected using 3 µg of plasmid DNA/15 µg of Escort IV. β-Gal activity was determined ~60-70 hour post-transfection. Error bars are the standard deviation of the 6 replicate wells tested.

sufficient for 35 purifications

PLED35-1KT	1 kit

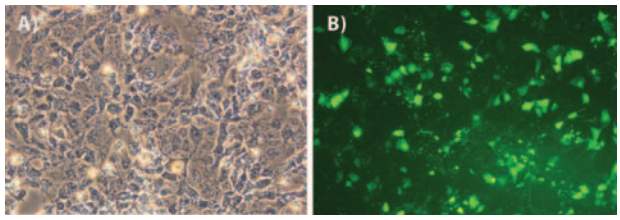
GenElute™ HP Endotoxin-Free Plasmid Maxiprep Kit

The GenElute HP Endotoxin-Free Plasmid Maxiprep Kit offers a simple and rapid method for isolating endotoxin-free plasmid DNA from recombinant *E. coli* cultures. The kit uses a vacuum format with a filter column for the rapid clearing of the bacterial lysate and a silica column for capturing plasmid DNA. A proprietary solution binds plasmid DNA to the binding column while preventing endotoxins from adsorbing. The technology allows for the user to consistently achieve levels of endotoxin that are less than 0.1 endotoxin units per µg of plasmid DNA.

High-quality, endotoxin-free DNA is ready for immediate use for the most demanding applications including transfection with endotoxin-sensitive cells.

Features and Benefits

- Up to 1.2 mg of high-copy plasmid DNA with endotoxin levels of ≤0.1 EU/µg
- Only 35 minutes from pelleted cells to purified plasmid
- Convenient vacuum format



Assessment of transfection efficiency using plasmid pCop-Green-C. Plasmid pCop-Green-C is a mammalian expression vector that encodes the copepod green fluorescent protein. HuH-7 cells were seeded onto glass cover slips and then grown to 60-70% confluency. The cells were then transfected with 3 µg of plasmid DNA using ESCORT™ II transfection reagent. Plasmid DNA was isolated from a GenElute™ HP Endotoxin-free Maxiprep. At 72 hours post transfection, the cells were observed under a fluorescence microscope. A) is a picture of the cells following transfection under bright field exposure. B) is the same area of cells under fluorescent exposure, which reveals a high transfection efficiency.
* pCop-Green-C is licensed from Evrogen, JSC.

High Yields and Low Endotoxin Levels in Less Time

Purification Kit	Plasmid Yield (mg)	Endotoxin Levels (EU/µg)	Time/Prep (minutes)
GenElute™ HP Endotoxin-free Maxiprep Kit	1.4	0.02	35
Endo-free Anion-Exchange-based Kit	0.7	0.04	165
Endo-free Silica-Magnetic-based Kit	1.3	0.17	150
2× Cesium Chloride-gradient	0.3	1.4	3 days

Comparison of plasmid yield, endotoxin levels and time/prep for the different purification systems for pCMV-SPORT-β-gal.

sufficient for 4 preparations

NA0400S-1KT	1 kit

sufficient for 10 preparations

NA0400-1KT	1 kit

sufficient for 25 preparations

NA0410-1KT	1 kit

GenElute™ HP Endotoxin-Free Plasmid Megaprep Kit

The GenElute HP Endotoxin-Free Plasmid Megaprep Kit offers a simple, rapid, and cost effective method for isolating endotoxin-free plasmid DNA from recombinant *E. coli* cultures. Up to 5 mg of high copy plasmid DNA with ≤ 0.1 endotoxin units/µg can be recovered from 200 mL - 1.0 L LB medium or 200 - 600 mL TB medium of *E. coli* culture in less than 1.5 hours. Note that the actual yield depends on the strain, the plasmid, and the culture medium used.

High-quality, endotoxin-free DNA is ready for immediate use in downstream applications such as restriction digest, ligation, sequencing, PCR, transformation, and transfection, including endotoxin-sensitive cells.

Features and Benefits

- Up to 5 mg of high-copy plasmid DNA with endotoxin levels of ≤0.1 EU/µg
- Only 90 minutes from pelleted cells to purified plasmid
- Vacuum format with no ethanol precipitation required

High Yields and Low Endotoxin Levels in Less Time

Purification Kit	Plasmid Yield (mg)	Endotoxin Levels (EU/µg)	Time/Prep (minutes)
GenElute™ HP Endotoxin-free Megaprep Kit	6	1–10	75
Supplier Q Endotoxin-Free Plasmid Mega Kit	2.5	1–45	210
Supplier B Plasmid Mega EF Kit	2	39–46	210
Supplier M High Purity Plasmid Megaprep System	1.7	13–38	90

Comparison of plasmid yield, endotoxin levels and time/prep for the different purification systems used for isolating high copy number plasmid pCMV-SPORT-β-gal/DH5α™ in LB.

1 kit sufficient for 5 preparations

NA0600-1KT	1 kit

GenElute™ HP Select Plasmid Gigaprep Kit

The GenElute HP Select Plasmid Gigaprep Kit offers a simple, rapid, and cost effective method for isolating endotoxin-free plasmid DNA from recombinant *E. coli* cultures. Up to 15 mg of high copy plasmid DNA with ≤0.1 endotoxin unit/µg plasmid DNA can be recovered from *E. coli* cultures in 1.2-2.5 L Luria Broth (LB) medium or 600 mL-1.2 L of Terrific Broth (TB) medium in less than 2 hours after harvesting the cells. Note that the actual yield depends on the strain, the plasmid, and the culture medium used.

An overnight recombinant *E. coli* culture is harvested by centrifugation and subjected to a modified alkaline-SDS lysis. The lysate is cleared by filtration followed by the addition of a binding solution optimized for endotoxin-free plasmid preparations. The plasmid DNA is then captured onto a silica membrane in the presence of high salts while endotoxins are prevented from adsorbing to the membrane. Contaminants are removed with three wash steps. Finally, the bound DNA is eluted in endotoxin-free water.

The DNA is ready for immediate use in applications such as restriction digest, cloning, sequencing, PCR, and transfection of endotoxin-sensitive cell lines.

Features and Benefits

- Up to 15 mg with endotoxin levels of ≤ 0.1 EU/µg
- Only 90 minutes from pelleted cells to purified plasmid
- Vacuum format with no ethanol precipitation
- Can purify low-, medium-, and high-copy plasmid DNA

sufficient for 5 preparations

NA0800-1KT	1 kit

PhasePrep™ BAC DNA Kit

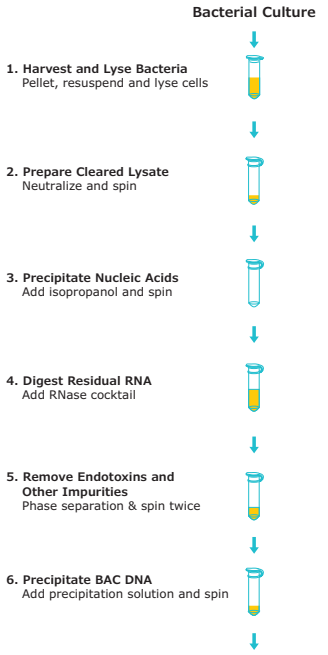
The PhasePrep BAC DNA Kit offers a scalable and cost-effective method for isolating large-molecular weight plasmids such as Bacterial Artificial Chromosomes (BAC) from recombinant *E. coli* cultures. The same kit can be used for preparations of four different sizes; sufficient reagents are provided for 300 micro, 180 mini, 30 midi, or 15 maxi preparations. Up to 2,12, 50, or 100 mg of BAC DNA can be recovered from 5, 40, 250, or 500 mL of overnight recombinant *E. coli* culture, respectively. The purified BAC DNA contains very low levels of endotoxin (≤10 EU/µg DNA).

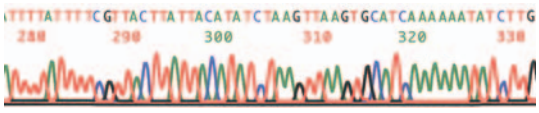
Recombinant *E. coli* culture is harvested by centrifugation and subjected to a modified alkaline-SDS lysis procedure. Nucleic acid is precipitated from the cleared lysate; residual RNA is removed by a short digestion at elevated temperature with an RNase cocktail. Endotoxins and other impurities are removed by simple temperature-mediated extraction and phase separation. Finally the BAC DNA is selectively precipitated from solution.

The recovered BAC DNA is predominantly in its super-coiled form, free of RNA contamination, and ready for immediate use in downstream applications, such as sequencing, restriction digestion, cloning, and PCR.

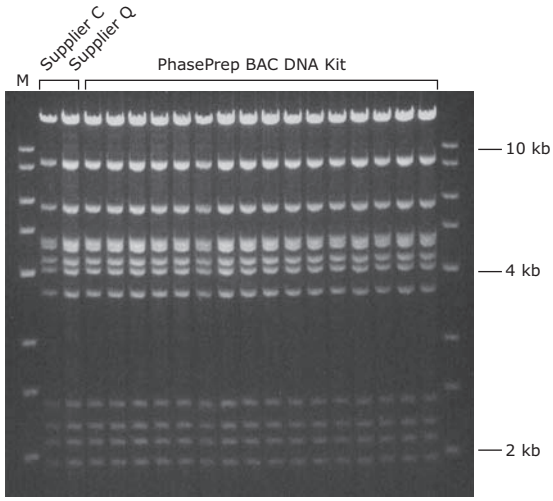
Features and Benefits

- Typical DNA yields of 2-100 µg from 5-500 mL of overnight cultures
- Allows possible micro to maxi preps with the same kit
- No long waits for drip columns





BAC DNA was purified with the PhasePrep™ BAC DNA Kit and sequenced with a custom primer using BigDye® Terminator Chemistry.
Sequencing reactions were resolved on an ABI 3700. Data provided by the Genome Sequencing Center at Washington University, St. Louis



Purified BAC DNA is suitable for restriction digestion.
Restriction digestion of BAC DNA isolated PhasePrep™ BAC DNA Kit and two other suppliers (C and Q). BAC DNA samples were purified from overnight cultures of *E. coli* HB101b transformed with a pbelloBAC11 clone. Approximately 1 µg of DNA from each sample was digested with 20 units of EcoR V at 37 °C for 4 hr. One half of each digestion (approximately 0.5 µg) was separated by overnight electrophoresis in 1% agarose gel. Lanes 4-19 were BAC DNA purified with our kit, lane 1 was BAC DNA purified with supplier C's kit, and lane 2 was BAC DNA purified with Supplier Q's kit. The molecular marker used at the first and last lanes was a 1 kb DNA Ladder (**Cat. No. D0428**).

Scalable method for isolating large-molecular weight plasmids

NA0100-1KT	1 kit

Roche Plasmid Purification Kits

Genopure Plasmid Midi Kit

The Genopure Plasmid Midi Kit prepares transfection-grade plasmid DNA in medium quantities (up to 100 µg plasmid) from bacterial cultures. Isolated plasmid is suitable for most molecular biology applications.

Features and Benefits

- Save time with ready-to-use reagents. Purify up to 20 samples (10 minutes hands-on-time/75 minutes overall).
- Purify all sizes and types of plasmid, even BAC DNA, since the crude lysate can be filtered to avoid plasmid shearing.
- Process multiple samples in parallel using high speed gravity-flow columns.
- Eliminate the use of hazardous organic compounds such as cesium chloride, phenol, chloroform, and ethidium bromide.
- Obtain higher purity plasmid DNA over plasmid prepared by 2 x cesium chloride gradient centrifugation.

Sample:
E. coli culture that contains a high-copy number plasmid: 5 to 30 mL bacterial culture
E. coli culture that contains a low-copy number plasmid: 10 to 100 mL bacterial culture
Plasmid Size: The isolation procedure is suitable for all sizes of plasmid. Note: Lysates of larger constructs (up to 100 kb) should be cleared by filtration rather than centrifugation to avoid shearing the plasmid.
Time Required: 60 minutes (including filtration of the lysate)
Typical Yield:
High-copy number plasmid: 3 to 5 µg/mL culture
Low-copy number plasmid: 0.2 to 1 µg/mL culture
Product Purity: Isolated plasmid DNA is free of other bacterial components, including RNA.

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Genopure Plasmid Maxi Kit

The Genopure Plasmid Maxi Kit prepares transfection-grade plasmid DNA in large quantities (up to 500 µg plasmid) from bacterial cultures. Isolated plasmid is suitable for most molecular biology applications.

Features and Benefits

- **Save time with ready-to-use reagents.** Purify up to 10 samples (10 minutes hands-on-time/75 minutes overall).
- **Purify all sizes and types of plasmid** even BAC DNA, since the crude lysate can be filtered to avoid plasmid shearing.
- **Process multiple samples in parallel** using high speed gravity-flow columns.
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide.
- **Obtain higher purity plasmid DNA** over plasmid prepared by 2 x cesium chloride gradient centrifugation.

Sample:
E. coli culture that contains a high-copy number plasmid: 30 to 150 mL bacterial culture
E. coli culture that contains a low-copy number plasmid: 100 to 500 mL bacterial culture
Plasmid Size: The isolation procedure is suitable for all sizes of plasmid. Note: Lysates of larger constructs (up to 100 kb) should be cleared by filtration rather than centrifugation to avoid shearing the plasmid.
Time Required: 75 minutes (including filtration of the lysate)
Typical Yield:
High-copy number plasmid: 3 to 5 µg/mL culture
Low-copy number plasmid: 0.2 to 1 µg/mL culture
Product Purity: Isolated plasmid DNA is free of other bacterial components, including RNA.

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Genopure Buffer Set

Doubling the volume of the Suspension, Lysis, and Neutralization Buffers during the Genopure plasmid preparation procedure will provide better yields of plasmid DNA from low-copy number plasmids. The buffers in this set may be used with either of the Genopure Plasmid Kits (Midi or Maxi).

Features and Benefits

The Genopure Buffer Set for Low-Copy Number Plasmids provides additional buffers to supplement those in the Genopure Plasmid Kits. RNase A is also included in the set because it eliminates bacterial RNA from the preparation, thereby improving the recovery of low copy number plasmids.

- Convenient, ready-to-use, function-tested, nuclease-free buffers
- Helps the Genopure Plasmid Midi and Maxi Kits enhance plasmid yield
- Ensures reproducible results.

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High Pure Plasmid Isolation Kit

The High Pure Plasmid Isolation Kit prepares up to 15 µg purified plasmid DNA from bacterial cultures, that can be used directly in most molecular biology applications.

Nucleic acids bind to the surface of the glass fiber fleece in the presence of a chaotropic salt (guanidine HCl). This allows the High Pure filter tube to specifically immobilize nucleic acids (both DNA and RNA) while they are freed of contaminants.

Capacity: The High Pure Spin Filter Tubes hold up to 700 µL sample volume.
Sample: 0.5 - 4.0 mL cultures of *E. coli* (harvested at a density of 1.5 - 5.0 A_{600} units/mL)

Features and Benefits

- **Quickly purify** up to 24 plasmid samples in <30 minutes.
- **Minimize DNA loss** with a kit that removes contaminants without precipitation or other handling steps that degrade DNA.
- **Improve reliability and reproducibility** in downstream applications with a kit that removes RNA and other impurities that cause plasmid DNA to behave unpredictably.
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide.

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Genomic DNA purification

Genomic DNA purification kits and reagents provide methods for purifying mammalian genomic DNA, plant genomic DNA and bacterial genomic DNA. These kits combine the advantages of a silica-based system with a microspin format eliminating the need for expensive resins and hazardous organic compounds. The purified genomic DNA can be used in downstream applications including PCR, restriction digest, sequencing, cloning and southern blots.

Standard

GenElute™ Mammalian Genomic DNA Miniprep Kits

The GenElute Mammalian Genomic DNA Purification Kit provides a simple and convenient method to isolate pure, high molecular weight DNA from a variety of mammalian sources. These kits use a silica-based membrane, specially selected for genomic DNA purification, in a convenient spin column format.

The starting materials are lysed in a chaotropic salt-containing solution to ensure the thorough denaturation of macromolecules. The addition of ethanol causes DNA to bind when the lysate is spun through a silica membrane in a microcentrifuge tube. After washing to remove the contaminants, the DNA is eluted in 200 µL of a Tris-EDTA solution. The expected yields of genomic DNA will vary depending on the amount and type of starting material used. DNA purified with the kit has an A_{260}/A_{280} ratio between 1.6 and 1.9 and can be up to 50 kb in length.

The purified genomic DNA is ready for immediate use in downstream applications such as restriction digest, PCR, southern blots, and sequencing reactions.

Features and Benefits

- Expected yield: 25 µg from 2 x 10^6 cultured cells; 30 µg from 25 mg of tissue
- Elution volume: 200 - 400 µl
- Time required: 20 min after lysis
- A_{260}/A_{280} ratio: 1.6 - 1.9
- Mechanical homogenization required: No

sufficient for 70 purifications

G1N70-1KT	1 kit

sufficient for 350 purifications

G1N350-1KT	1 kit

GenElute™ 96 Well Tissue Genomic DNA Purification Kit

GenElute 96 Well Tissue Genomic DNA Purification Kit allows for high throughput purification of pure genomic DNA from a variety of cultured cells and tissues. The kit contains the advantages of silica membrane technology and eliminates the need for expensive resins, alcohol precipitations, and hazardous compounds such as phenol and chloroform.

The starting materials are lysed in a solution containing SDS and Proteinase K. Once lysis is complete, chaotropic salts are added to further promote solubilization of macromolecules. The next step is to add ethanol which ensures that the appropriate binding conditions are created to bind the DNA to the silica membrane. Once the DNA is bound to the silica membrane several wash buffers are used to remove contaminants. The final step is to elute pure genomic DNA in the Tissue Elution Buffer included in the kit.

The purified genomic DNA is ready for use in downstream applications such as PCR, Southern blotting, or any kind of enzymatic reaction.

Features and Benefits

- Starting material: ≤20 mg tissue total (mouse, rat or whole sample) or ≤1 X 10^6 cultured cells or bacteria per well
- Average Expected yield: 10 - 20 µg/well (bacteria: 1.5 - 2.5 µg/well)
- Elution volume: 100 µl
- Time required: 70 min/plate
- Innovative wash plate minimizes risk of cross-contamination
- Processing possible under vacuum or centrifugation
- Suitable for manual and automated processing

sufficient for 4, 96-well plate purifications

G1N9604-1KT	1 kit

GenElute™ Plant Genomic DNA Miniprep Kit

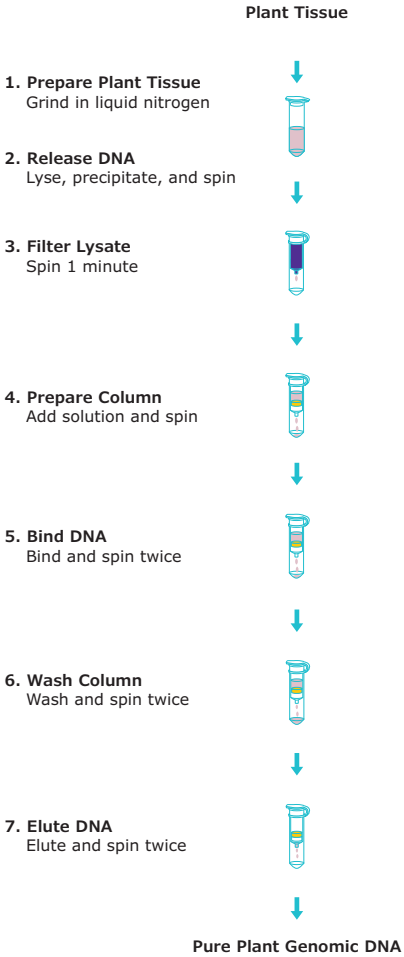
The GenElute Plant Genomic DNA Purification Kit provides a simple and convenient way to isolate pure genomic DNA from a variety of plant species. This kit combines the advantages of a silica-based system with a microspin format and eliminates the need for expensive resins, RNase treatment, and hazardous organic compounds such as phenol and chloroform.

Plant tissue is disrupted by grinding in liquid nitrogen, and DNA is released with detergent and chaotrope. Proteins, polysaccharides, and cell debris are eliminated with a 10 minute precipitation procedure followed by centrifugation through a filtration column, included in the kit. The genomic DNA is purified further by a silica bind-wash-elute procedure in microcentrifuge spin columns.

The purified genomic DNA is ready for immediate use in downstream applications such as PCR, restriction digestion, cloning and Southern blots.

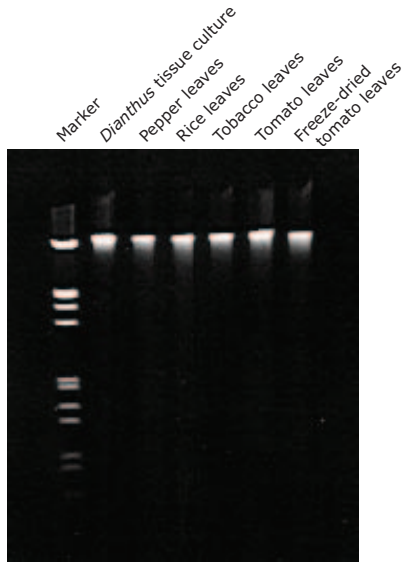
Features and Benefits

- Starting material: Up to 100 mg of plant tissue
- Expected yield: Up to 20 µg
- Elution volume: 100 - 200 µl
- Time required: < 40 min
- RNase treatment required: No

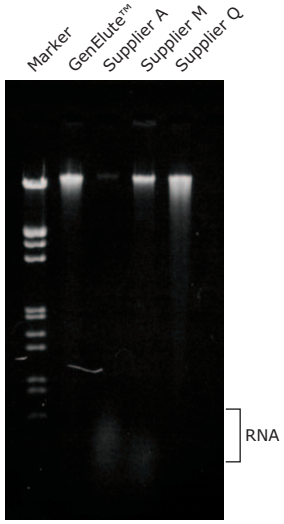


Typical Yields of Genomic DNA Isolated from Various Plant Species per 100 mg of Starting Leaf Tissue

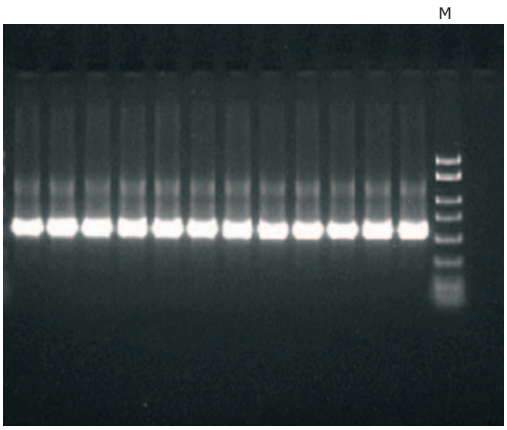
Material	Typical Yield
Corn	7.5 µg
Dianthus tissue culture	3.3 µg
Pepper	3.1 µg
Rice	5.9 µg
Soybean	5.7 µg
Tobacco	5.2 µg
Tomato	6.2 µg
Tomato (20 mg freeze dried leaf tissue)	5.7 µg
Wheat	11.5 µg



Genomic DNA from various plant species isolated with GenElute™ Plant Genomic DNA Miniprep Kit.
Purified genomic DNA (0.4 µg/lane) was analyzed on a 0.8% agarose gel. Marker is lambda *Hind* III digest.



Genomic DNA isolated from 100 mg fresh tomato leaves using various kits.
Purified genomic DNA (0.4 µg/lane) was analyzed on a 0.8% agarose gel. Our product, membrane-based; Supplier A, resin-based; Supplier M, solution based; Supplier Q, membrane-based. Marker is lambda *Hind* III digest.
Note: RNA contamination is present in DNA isolated using the kits from both Supplier A and M.



PCR amplification of a 500 bp product isolated from genomic DNA.
Genomic DNA from soybean leaves was purified using the GenElute™ Plant Genomic DNA Miniprep Kit. A 5 µL aliquot of eluate was used as template in a 20 µL total PCR reaction for 30 cycles. A 5 µL aliquot of each PCR reaction was resolved on a 2% precast agarose gel (**Cat. No. P5722**). The PCR marker (M) used (**Cat. No. P9577**) ranged from 50 bp to 2 kb.

sufficient for 70 purifications

G2N70-1KT	1 kit

sufficient for 350 purifications

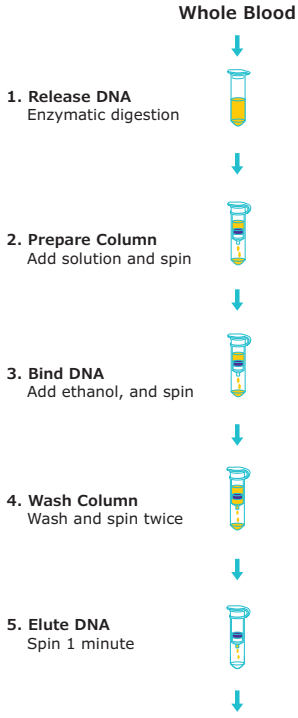
G2N350-1KT	1 kit

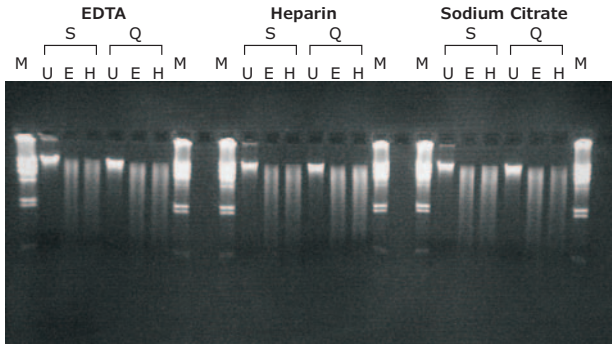
GenElute™ Blood Genomic DNA Kit

The GenElute Blood Genomic DNA kit provides a simple and convenient way to isolate pure genomic DNA from fresh or aged (older than 24 hours) whole blood. The kit combines the advantages of silica binding with a microspin format, and eliminates the need for expensive resins, alcohol precipitation, and hazardous organic compounds such as phenol and chloroform.

Features and Benefits

- Typical yields 4-10 µg from 200 µL of whole blood
- Pure genomic DNA with a A_{260}/A_{280} ratio between 1.6 and 1.9
- Isolate DNA up to 50 kb in length

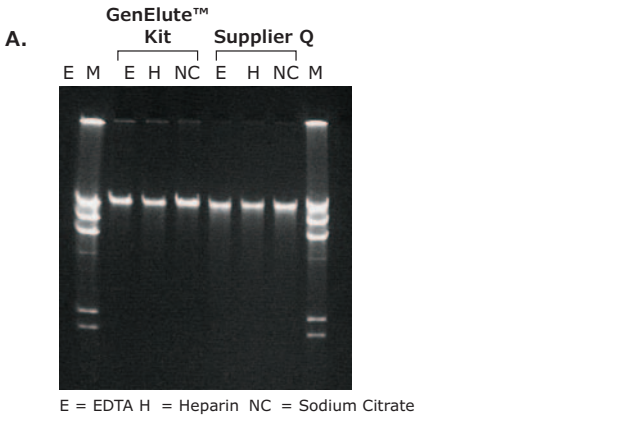




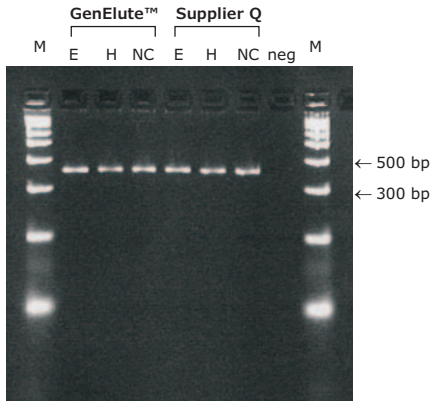
U = Undigested E = *EcoR* I H = *Hind* III

Genomic DNA purified by GenElute™ Blood Genomic DNA kits is suitable for restriction enzyme digestions.
Restriction Enzymes, *Eco*R I and *Hind* III were used to digest genomic DNA isolated with GenElute™ Blood Genomic DNA kit. Whole blood was collected in 3 different anticoagulants: EDTA, heparin, and sodium citrate. A 100 ng aliquot of genomic DNA from each anticoagulant was initially digested with *Eco*R I (5 units per 1 µL digested at 37 °C for 1.5 hours) and *Hind* III (10 units per 1 µL digested at 37 °C for 1.5 hours) followed by electrophoresis (50 ng/lane) on a 0.8% agarose gel. Ladder (M) used was Lambda *Hind* III (**Cat. No. D9780**).

GenElute™ Blood Genomic DNA Kit *(continued)*



Whole Blood collected in three different anticoagulants was isolated with the GenElute™ Blood Genomic DNA kit and Supplier Q to obtain genomic DNA.
A. Purified genomic DNA from whole blood collected in vacutainer tubes, each containing a different anticoagulant (EDTA, heparin or sodium citrate). Samples were isolated with either the GenElute™ Blood Genomic DNA kit or Supplier Q following both protocols in detail. The genomic DNA (100 ng/lane) was analyzed on a 0.8% agarose gel to show overall comparability with Supplier Q. The whole blood (200 µL per sample) used was obtained from a human donor. Marker (M) used was Lambda *Hind* III (**Cat. No. D9780**).
B. Yields of genomic DNA compared with Supplier Q from 3 different antico-agulants. The amount of DNA was determined measuring absorbance at (A_{260}/A_{280}).



PCR amplification of a 388 bp product isolated from Genomic DNA.
Whole blood collected in 3 different anticoagulants was purified using the GenElute™ Blood Genomic DNA Kit or a comparable kit from Supplier Q. A 5 µL aliquot of each eluate was used as template in a 20 µL PCR reaction for 35 cycles. A 5 µL aliquot of each PCR reaction was resolved on a 2% agarose gel. The PCR marker (M) (**Cat. No. P9577**) used ranged from 50 bp to 2 kb.

sufficient for 70 purifications

NA2010-1KT	1 kit

sufficient for 350 purifications

NA2020-1KT	1 kit

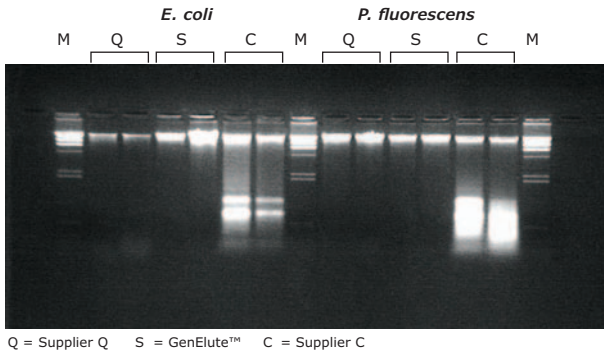
GenElute™ Bacterial Genomic DNA Kits

The GenElute Bacterial Genomic DNA kit provides a simple and convenient way to isolate pure genomic DNA from gram-negative bacteria. For most gram-positive bacteria, the kit must be used in conjunction with the optional lysozyme (L4919) to effectively lyse the thick peptidoglycan cell walls. A Gram-Positive Lysis Solution is provided as a diluent for preparing the lysozyme stock solutions.

The kit combines the advantages of a silica-based system with a microspin format and eliminates the need for expensive resins, alcohol precipitation, and hazardous organic compounds such as phenol and chloroform.

Features and Benefits

- Typical DNA yields of 15 µg - 20 µg
- Protocols provided for Gram + and Gram - bacteria
- High quality genomic DNA in less than 2 hours
- Purified DNA has an A_{260}/A_{280} ratio between 1.6 and 1.9

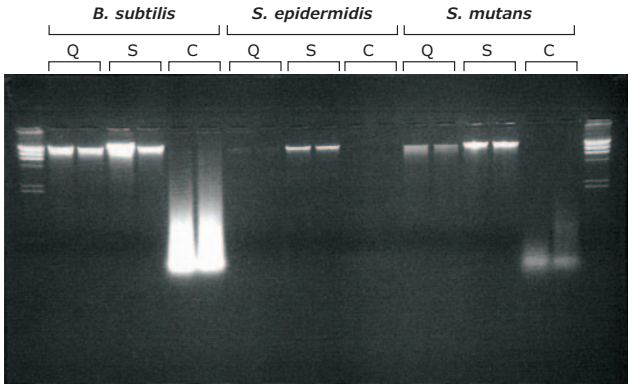


Comparison of Gram– bacteria genomic DNA isolation kits.
Agarose gel analysis of genomic DNA isolated from the indicated Gram– bacteria prepared using the GenElute™ Bacterial Genomic DNA Kit versus kits from other suppliers. Equal proportions of DNA were resolved on a 1%, 1X TBE agarose gel. The lambda *Hind* III ladder (**Cat. No. D9780**) was used as a size standard (M).

Typical DNA Yields with the GenElute™ Bacterial Genomic DNA Kit

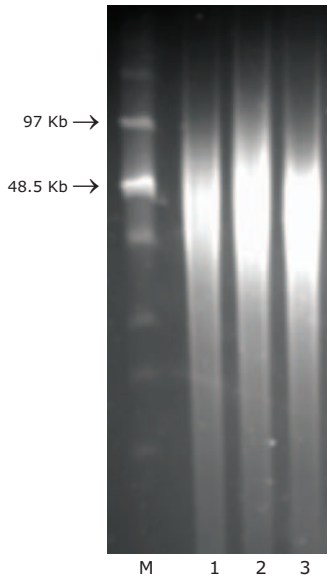
Source/Media	Catalog No.	Amt of Overnight Culture	Overnight Culture[a]	Typical DNA Yield[b]
Escherichia coli, ATCC# 11775 Terrific broth	T9179	0.8 mL	12.5	20 µg
Escherichia coli, ATCC# 11775 LB broth	L7658	1.5 mL	5	20 µg
Escherichia coli, DH10B LB broth	L7658	1.0 mL	5	15 µg
Pseudomonas fluorescens, ATCC# 13525 Terrific broth	T9179	0.8 mL	16	25 µg
Pseudomonas fluorescens, ATCC# 13525 Nutrient broth	N7519	1.5 mL	2	20 µg
Bacillus subtilis, ATCC# 6051 Todd Hewitt broth	T1438	1.5 mL	6	25 µg
Streptococcus mutans, ATCC# 35668 Todd Hewitt broth	T1438	1.5 mL	1.3	15 µg[c]
Staphylococcus epidermidis, ATCC# 14990 Nutrient broth	N7519	1.5 mL	2	8 µg[d]

[a] OD_{600} per mL
[b] Based on performing two 200 µL elutions (with RNase Treatment).
[c] Lysozyme Solution was supplemented with 250 units/mL of mutanolysin (**Catalog No. M9901**).
[d] Lysozyme Solution was supplemented with 200 units/mL of lysostaphin (**Catalog No. L7386**).



Q = Supplier Q S = GenElute™ C = Supplier C

Comparison of Gram+ bacteria genomic DNA isolation kits.
Agarose gel analysis of genomic DNA isolated from the indicated Gram+ bacteria prepared using the GenElute™ Bacterial Genomic DNA Kit versus kits from other suppliers. Equal proportions of eluted product were resolved on a 1%, 1X TBE agarose gel. The lambda *Hind* III ladder (**Cat. No. D9780**) was used as a size standard (M).



PFGE of Bacterial gDNA isolated with GenElute™ Bacterial gDNA Kit
Purified genomic DNA was isolated from various bacterial species using the GenElute™ Bacterial Genomic DNA kit. A 1 µg aliquot of DNA from each respective bacterial sample was resolved on a 1% agarose gel in 0.5X TBE at 150 volts for 16 hours using a BioRad CHEF DRII system. The initial pulse time was 2 seconds, the final pulse time was 13 seconds, the start ratio was 1.0, pump speed was set at 70, and PFGE was carried out at 4 °C. M represents the 0.1–200 kb Pulse marker (**Cat. No. D2291**).
Lanes
1. *E. coli*
2. *P. fluorescens*
3. *B. subtilis*

sufficient for 70 purifications

NA2110-1KT	1 kit

sufficient for 350 purifications

NA2120-1KT	1 kit

Extract-N-Amp

Extract-N-Amp™ Tissue PCR Kit

The Extract-N-Amp Tissue PCR Kits provide all the reagents necessary to rapidly extract DNA from a wide variety of cells and tissues and amplify targets of interest by PCR. A novel extraction method eliminates the need for long enzymatic digestions or homogenization. The kit also includes a specially formulated hot start PCR ReadyMix™ for amplification directly from the extract.

The kit contains validated protocols to extract and amplify genomic DNA from mouse-tails, hair, animal tissue, saliva, and buccal swabs. In a typical procedure, genomic DNA is extracted from a sample that has been incubated in the Tissue Preparation Solution and Extraction Solution for 10 minutes at room temperature. The sample is heated to 95 °C for 3 minutes and then mixed with a third solution to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and Extract-N-Amp PCR ReadyMix, included in the kit.

Features and Benefits

- Perfect for quick genomic DNA isolation for genotyping
- Single-step extraction of genomic DNA for PCR in 15 minutes
- PCR ReadyMix is specially formulated for amplification directly from extract
- Hot Start antibody for highly specific PCR amplification of genomic DNA
- Extract stable at 4 °C for at least 6 months

sufficient for 100 extractions, sufficient for 100 amplifications

XNAT2-1KT	1 kit

sufficient for 1000 extractions, sufficient for 1000 amplifications

XNAT2R-1KT	1 kit

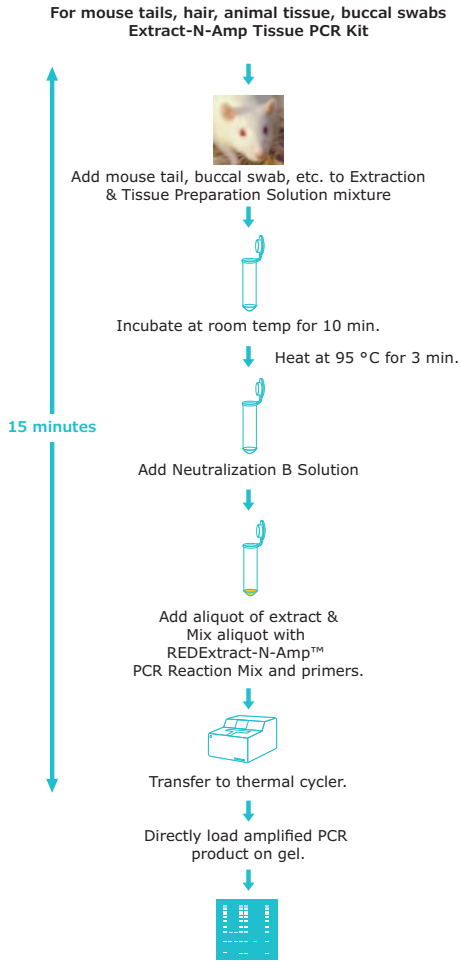
REDExtract-N-Amp™ Tissue PCR Kit

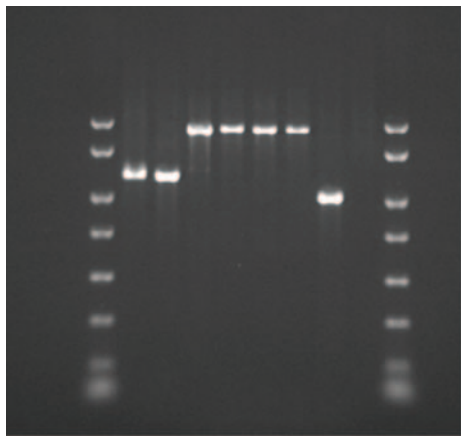
The Extract-N-Amp Tissue PCR Kits provide all the reagents necessary to rapidly extract DNA from a wide variety of cells and tissues and amplify targets of interest by PCR. A novel extraction method eliminates the need for long enzymatic digestions or homogenization. The kit also includes a specially formulated hot start PCR ReadyMix™ for amplification directly from the extract. The REDExtract-N-Amp PCR ReadyMix contains an inert dye that acts as a tracking dye and allows for convenient loading of PCR reactions onto agarose gels for analysis.

The kit contains validated protocols to extract and amplify genomic DNA from mouse-tails, hair, animal tissue, saliva, and buccal swabs. In a typical procedure, genomic DNA is extracted from a sample that has been incubated in the Tissue Preparation Solution and Extraction Solution for 10 minutes at room temperature. The sample is heated to 95 °C for 3 minutes and then mixed with a third solution to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and REDExtract-N-Amp PCR ReadyMix, included in the kit.

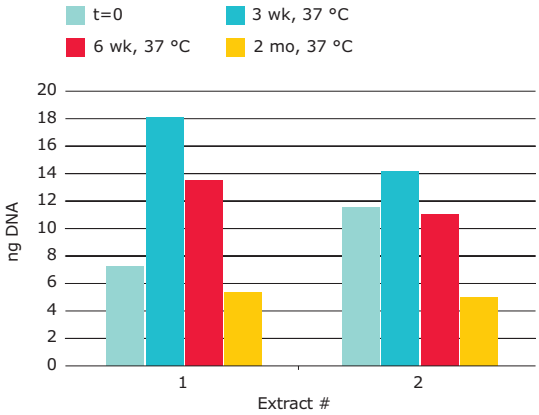
Features and Benefits

- Perfect for quick genomic DNA isolation for genotyping
- Single-step extraction of genomic DNA for PCR in 15 minutes
- PCR ReadyMix, specially formulated for amplification directly from extract
- Hot Start antibody for highly specific PCR amplification of genomic DNA
- Extract stable at 4 °C for at least 6 months





PCR analysis of genomic DNA extracted from various samples using the Extract-N-Amp™ Tissue PCR Kit.
The Extract-N-Amp Tissue PCR kit was used to extract and amplify genomic DNA from various sources. Genomic DNA was extracted from the samples using the appropriate protocol for each sample type as described in the Extract-N-Amp Tissue Technical Bulletin. In all cases, the extraction procedure was completed in less then 15 minutes. The extracted DNA was then amplified using the specially formulated hot start PCR mix, provided in the kit. The products generated are 1181 bp for the Interleukin 1 Beta gene in mouse and 1820 bp for the Carnitine palmitoyltransferase II in human. Markers are both PCR Marker (**Cat. No. P9577**).



Stability of DNA in mouse-tail extracts.
Mouse-tail samples were extracted according to the procedure in the Technical Bulletin for the Extract-N-Amp™ Tissue PCR Kit. The remaining mouse-tail tissue was removed from the samples for storage. 4 µL aliquots were analyzed immediately by quantitative PCR with SYBR® Green detection on an ABI Prism 7700. DNA standards for quantitative PCR were purified DNA prepared from mouse tails using the GenElute Mammalian Genomic DNA kit (**Cat. No. G1N70**) and stored as single use aliquots at –20 °C. The mouse-tail extracts were stored at 37 °C (accelerated storage). Quantitative PCR was repeated after 3 weeks, 5 weeks and 2 months from extracts at 37 °C. Results for storage at 37 °C are shown. These results suggest that extracts will be stable for at least 6 months at the recommended storage temperature of 4 °C.

10 reactions sufficient for 10 extractions
10 reactions sufficient for 10 amplifications
100 reactions sufficient for 100 amplifications
100 reactions sufficient for 100 extractions
1000 reactions sufficient for 1000 amplifications
1000 reactions sufficient for 1000 extractions

XNAT-10RXN	10 reactions
XNAT-100RXN	100 reactions
XNAT-1000RXN	1000 reactions

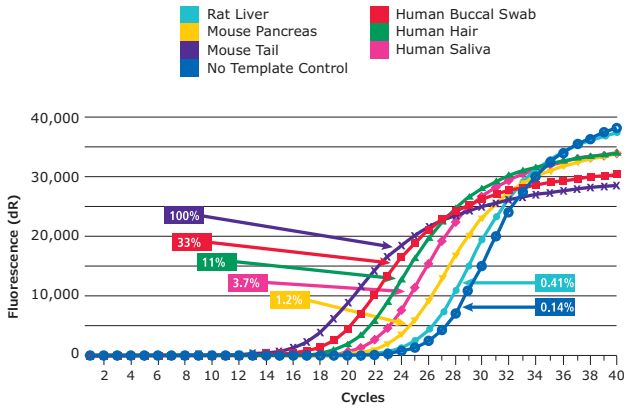
sufficient for 1000 extractions, sufficient for 1000 amplifications

XNATR-1KT	1 kit

SYBR® Green Extract-N-Amp™ Tissue PCR Kit

The SYBR Green Extract-N-Amp Tissue PCR Kit contains all the reagents needed for rapid extraction, amplification and detection of genomic DNA from mouse tails and other animal tissues, buccal swabs, hair shafts, and saliva.

DNA is rapidly extracted from a tissue by incubating the sample with a mixture of the Extraction Solution and the Tissue Preparation Solution at room temperature for 10 minutes. After a 3-minute heat denaturing step, an equal volume of Neutralization Solution B is added to the extract to neutralize inhibitory substances and the extract is ready for real-time PCR in any plate-based real-time thermal cycling system. An aliquot of the neutralized extract is then combined with the Extract-N-Amp SYBR Green PCR ReadyMix™ and user-provided PCR primers.



DNA extraction and amplification from various sources
Quantitative PCR was performed on DNA extracted from various starting materials using the SYBR® Green Extract-N-Amp™ Tissue PCR Kit as outlined in the technical bulletin. As depicted above, the Extract-N-Amp system can be used to quantify DNA from a wide range of sources.

sufficient for 100 extractions, sufficient for 100 amplifications

XNATG-1KT	1 kit

sufficient for 1000 extractions, sufficient for 1000 amplifications

XNATRG-1KT	1 kit

Extract-N-Amp™ Blood PCR Kit

The Extract-N-Amp Blood PCR Kits contain all of the reagents necessary to rapidly extract host genomic DNA from whole blood and amplify targets of interest by PCR. This novel extraction system eliminates the need for any type of purification, organic extraction, centrifugation, heating, filtration or alcohol precipitation. The kit also includes a PCR ReadyMix™, that uses an antibody based hot start and is specially formulated for amplification directly from the extract.

Genomic DNA is extracted from 10 µL of whole blood by simply adding the Extraction Solution and incubating for 5 minutes at room temperature. The Neutralization Solution is added to the extract to counteract inhibitory substances prior to PCR. A portion of the DNA extract is then added to the specially formulated PCR Mix.

Features and Benefits

- Efficient 8 minute prep allows greater speed and throughput
- No need for organic extraction, centrifugation or alcohol precipitation
- Hot start antibody for highly specific PCR amplification of genomic DNA
- Can be used with whole blood or blood cards
- Extract stable at 4 °C for at least 6 months

sufficient for 100 extractions, sufficient for 100 amplifications

XNAB2-1KT	1 kit

sufficient for 1000 extractions, sufficient for 1000 amplifications

XNAB2R-1KT	1 kit

sufficient for 1000 extractions, sufficient for 5000 amplifications

XNAB2RE-1KT	1 kit

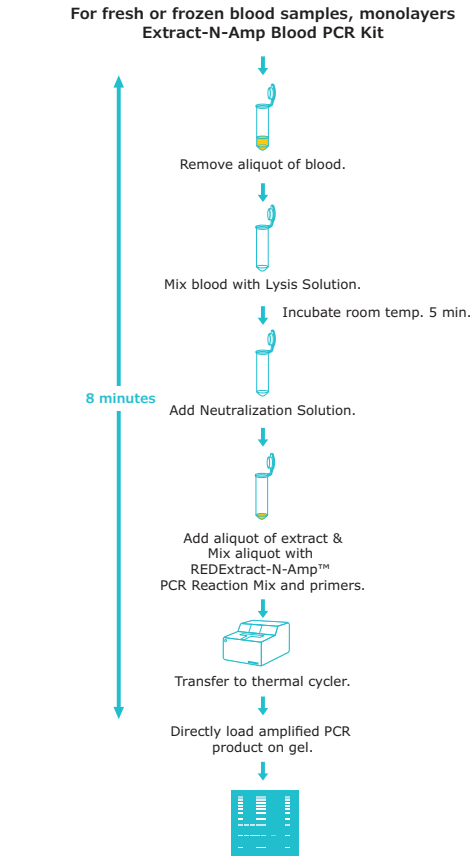
REDExtract-N-Amp™ Blood PCR Kit

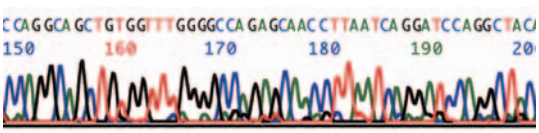
The REDExtract-N-Amp Blood PCR Kits contain all of the reagents necessary to rapidly extract host genomic DNA from whole blood and amplify targets of interest by PCR. This novel extraction system eliminates the need for any type of purification, organic extraction, centrifugation, heating, filtration, or alcohol precipitation. The kit also includes a PCR ReadyMix™, that uses an antibody based hot start and is specially formulated for amplification directly from the extract. The REDExtract-N-Amp Blood PCR Kit contains a tracking dye that allows for convenient direct loading of PCR reactions onto agarose gels for analysis.

Genomic DNA is extracted from 10 µL of whole blood by simply adding the Extraction Solution and incubating for 5 minutes at room temperature. The Neutralization Solution is added to the extract to counteract inhibitory substances prior to PCR. A portion of the DNA extract is then added to the specially formulated PCR Mix.

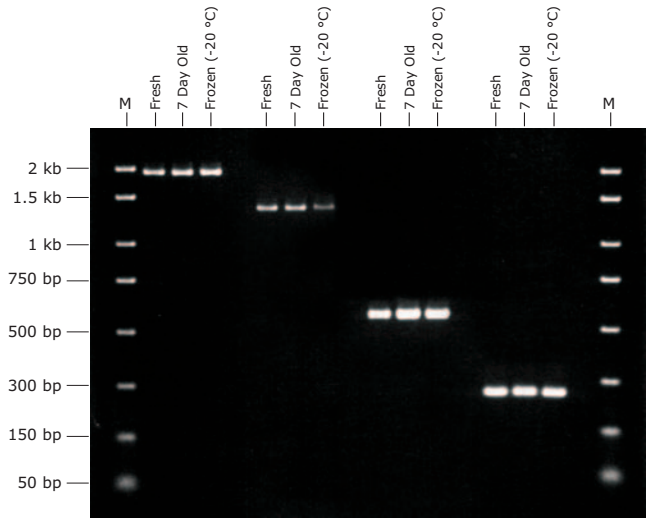
Features and Benefits

- Efficient 8 minute prep allows greater speed and throughput
- No need for organic extraction, centrifugation or alcohol precipitation
- Hot start antibody for highly specific PCR amplification of genomic DNA
- Can be used with whole blood or blood cards
- Extract stable at 4 °C for at least 6 months

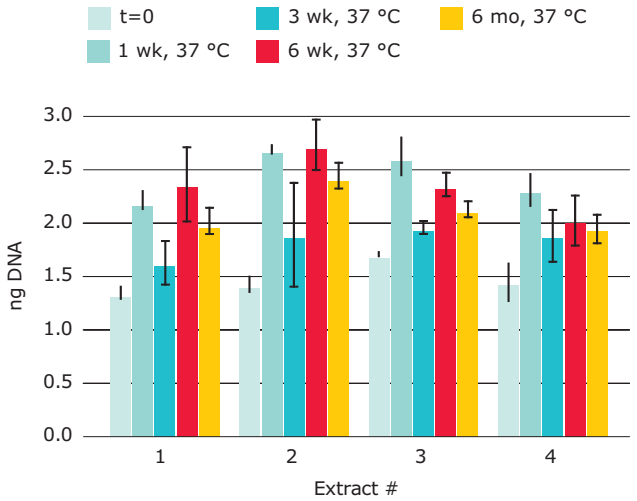




Direct sequence from PCR products generated using the Extract-N-Amp™ Blood Kit.
A 547 bp product for human surfactant protein B was generated using the Extract-N-Amp Blood PCR kit. The product was sequenced directly using BigDye® terminator chemistry. Sequencing reactions were resolved on an ABI 3100. **Note**: Some PCR products require further clean-up prior to sequencing. The GenElute™ PCR Clean-Up Kit (**Cat. No. NA1020**) is recommended.



PCR analysis of genomic DNA isolated from blood using the Extract-N-Amp™ Blood PCR Kit.
Extract-N-Amp™ Blood PCR Kit used to isolate genomic DNA from fresh, 7 day old, and frozen blood. DNA was extracted and neutralized from 10 µL of whole blood in 5 minutes at room temperature using the REDExtract-N-Amp™ Blood PCR kit. The PCR products were then amplified using the specially formulated Hot Start PCR mix included in the kit. PCR products generated are 1.8 kb for carnitine palmitoyltransferase II, 1.3 kb for a mitochondrial DNA control region, 547 bp for human surfactant protein B, and 320 bp for the 5′ untranslated region of human major histocompatibility complex class II.



Stability of Extract-N-Amp™ Blood Extracts.
Blood was drawn from 2 human volunteers into vacutainer tubes containing EDTA. Extractions were performed in duplicate providing 4 samples total. Half the extracts were stored at 4 °C (recommended storage conditions) and the other half at 37 °C (accelerated storage). Samples were removed at various time intervals for testing. Stability was determined by monitoring yield from quantitative PCR using an ABI 7700 instrument. The DNA standards used for the quantitative PCR were generated from the same blood draw as the test samples, purified using the GenElute Blood Genomic DNA Kit (**Cat. No. NA2000**) and stored as single aliquots at -20 °C. The PCR products were generated using primers for a 547 bp product from human surfactant protein B (SPB) [Lin, Z. and Floros, J., *BioTechniques*, **29 (3)**, 460 (2000)]. The results clearly show no loss of amplification of the SPB PCR product even after storage at 37 °C for 6 months. Similar results were obtained with storage at 4 °C.

sufficient for 10 extractions, sufficient for 10 amplifications

XNABS-1KT	1 kit

sufficient for 100 extractions, sufficient for 100 amplifications

XNAB-1KT	1 kit

sufficient for 100 extractions, sufficient for 500 amplifications

XNABE-1KT	1 kit

sufficient for 1000 extractions, sufficient for 1000 amplifications

XNABR-1KT	1 kit

sufficient for 1000 extractions, sufficient for 5000 amplifications

XNABRE-1KT	1 kit

Extract-N-Amp™ Plant PCR Kit

The Extract-N-Amp Plant PCR Kits contain all the reagents necessary to rapidly extract genomic DNA from plant leaves and amplify targets of interest by PCR. A novel Extraction Solution eliminates the need for conventional freezing of plant tissues with liquid nitrogen, mechanical disruption, organic extraction, column purification, or precipitation of DNA. The kit also includes a PCR ReadyMix™, especially formulated for amplification directly from extract.

Genomic DNA is extracted from 0.5 to 0.7 cm plant leaf disks that have been cut with a standard paper punch and simply incubated in Extraction Solution at 95 °C for 10 minutes. An equal volume of Dilution Solution is added to the extract to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and the Extract-N-Amp PCR ReadyMix, included in the kit.

Features and Benefits

- Single-step extraction of plant genomic DNA for PCR in less than 15 minutes
- A PCR ReadyMix™, specially formulated for amplification directly from extract
- Hot Start antibody for highly specific PCR amplification of genomic DNA
- Extract stable at 4 °C for at least 6 months

sufficient for 100 extractions, sufficient for 100 amplifications

XNAP2-1KT	1 kit

sufficient for 100 extractions, sufficient for 500 amplifications

XNAP2E-1KT	1 kit

sufficient for 1000 extractions, sufficient for 1000 amplifications

XNAR-1KT	1 kit

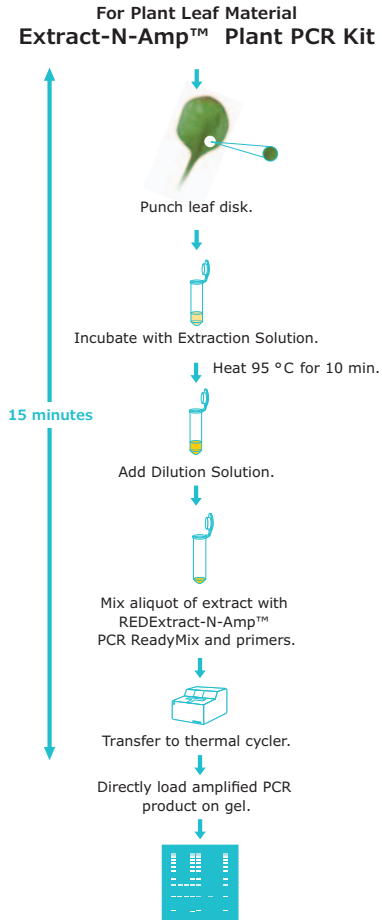
REDExtract-N-Amp™ Plant PCR Kit

The REDExtract-N-Amp Plant PCR Kits contain all the reagents necessary to rapidly extract genomic DNA from plant leaves and amplify targets of interest by PCR. A novel Extraction Solution eliminates the need for conventional freezing of plant tissues with liquid nitrogen, mechanical disruption, organic extraction, column purification, or precipitation of DNA. The kit also includes a PCR ReadyMix™, especially formulated for amplification directly from extract. The REDExtract-N-Amp PCR ReadyMix contains a dye that acts as a tracking dye and allows for convenient direct loading of PCR reactions onto agarose gels for analysis.

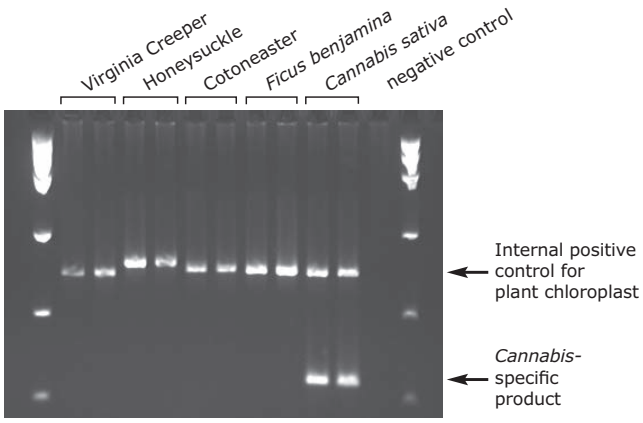
Genomic DNA is extracted from 0.5 to 0.7 cm plant leaf disks that have been cut with a standard paper punch and simply incubated in Extraction Solution at 95 °C for 10 minutes. An equal volume of Dilution Solution is added to the extract to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and the REDExtract-N-Amp ReadyMix, included in the kit.

Features and Benefits

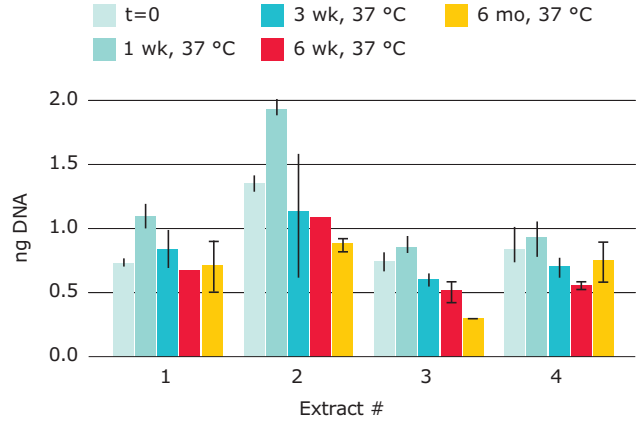
- Genomic DNA for PCR in less than 15 minutes
- A PCR ReadyMix™, specially formulated for amplification directly from extract
- Hot Start antibody for highly specific PCR amplification of genomic DNA
- Extract stable at 4 °C for at least 6 months



REDExtract-N-Amp™ Plant PCR Kit *(continued)*



PCR analysis of genomic DNA isolated from plant using the Extract-N-Amp™ Plant PCR Kit.
The Extract-N-Amp™ Plant PCR Kit was used to extract and amplify genomic DNA from 0.5 cm leaf disks from various plant sources. The products were generated from a 30-cycle duplex reaction containing primers specific to plant chloroplast (upper band) and primers specific to a *Cannabis sativa* gene (lower band). MW ladder is 100, 200, 400, and 800 bp. Data provided by Andy Hopwood, Forensic Science Service, Birmingham, England.



Stability of Extract-N-Amp™ Plant extracts.
Eight disks were punched from a corn leaf, and DNA was extracted with the Extract-N-Amp™ Plant PCR Kit. Following extraction, two 4-µL aliquots from each sample were analyzed immediately by quantitative PCR with SYBR® Green detection on an ABI PRISM® 7700. DNA standards for quantitative PCR were purified DNA prepared from corn leaf tissue with the GenElute™ Plant Genomic DNA Miniprep Kit (**Cat. No. G2N70**). Half of the leaf extracts were stored at 4 °C (recommended storage conditions) and the other half at 37 °C (accelerated storage conditions). Quantitative PCR was repeated after 1, 3, and 6 months from extract at 4 °C, and after 1 week, 3 weeks, 6 weeks, and 6 months from extracts at 37 °C. Results for storage at 37 °C are shown. Results indicate that extract will be stable 6 months and probably several years at 4 °C. (data not shown)

sufficient for 10 extractions, sufficient for 10 amplifications

XNAPS-1KT	1 kit

sufficient for 100 extractions, sufficient for 100 amplifications

XNAP-1KT	1 kit

sufficient for 100 extractions, sufficient for 500 amplifications

XNAPE-1KT	1 kit

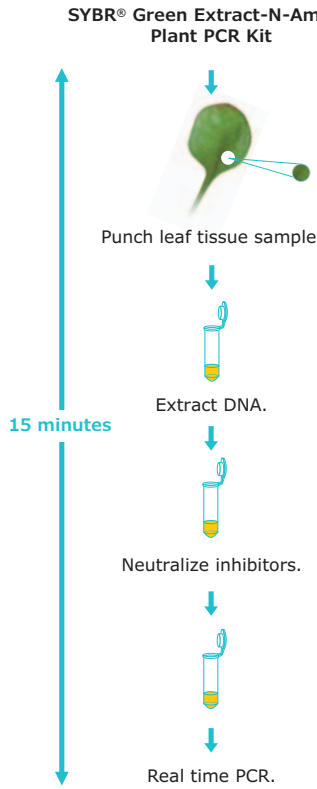
sufficient for 1000 extractions, sufficient for 1000 amplifications

XNAPR-1KT	1 kit

SYBR® Green Extract-N-Amp™ Plant PCR Kit

The SYBR Green Extract-N-Amp Plant PCR Kit contains all the reagents needed for rapid extraction of genomic DNA from plant leaf tissue coupled with amplification and real-time detection. The need for freezing plant tissue in liquid nitrogen or mechanical disruption and complete genomic DNA purification has been eliminated. The kits contain all necessary reagents for both extraction and amplification.

Two solutions combine to release genomic DNA from leaf tissue and neutralize substances inhibitory to PCR. The genomic DNA released into solution serves as a template for the SYBR Green Extract-N-Amp PCR ReadyMix. This ReadyMix, which contains SYBR Green fluorescent dye, Taq, JumpStart antibody, dNTPs and $MgCl_2$, is specially formulated to amplify target sequences in the cellular lysate.



sufficient for 100 preparations

XNAPG-1KT	1 kit

Extract-N-Amp™ Seed PCR Kit

The Extract-N-Amp Seed PCR Kit provides all reagents necessary to rapidly extract DNA from a wide variety of plant seeds and amplify targets of interest by PCR. A novel extraction method eliminates the need for long enzymatic digestions. The kit also includes a specially formulated hot start PCR reaction mix for amplification directly from the extract.

The kit comes with validated protocols to extract and amplify genomic DNA from corn, wheat, sunflower, cotton, soybean, sorghum, canola, and *Arabidopsis* seeds. Additional protocols are available. In a typical procedure, genomic DNA is extracted from a sample that has been ground and incubated in the Seed Preparation Solution and Extraction Solution for 10 minutes at room temperature. The sample is heated to 95 °C for

3 minutes and then mixed with a third solution to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and the Extract-N-Amp PCR ReadyMix, included in the kit.

Features and Benefits

- Perfect for quick genotyping results
- Rapid extraction of genomic DNA for PCR in 15 minutes
- No long enzymatic digestions
- Hot Start antibody for highly specific PCR amplification of genomic DNA

sufficient for 100 extractions, sufficient for 100 amplifications

XNAS2-1KT	1 kit

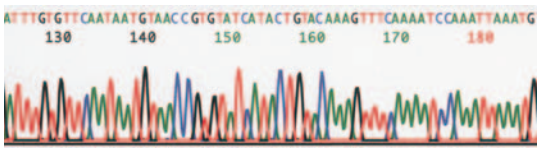
REDExtract-N-Amp™ Seed PCR Kit

The REDExtract-N-Amp Seed PCR Kits provide all the reagents necessary to rapidly extract DNA from a wide variety of plant seeds and amplify targets of interest by PCR. A novel extraction method eliminates the need for long enzymatic digestions. The kit also includes a specially formulated hot start PCR reaction mix for amplification directly from the extract. The REDExtract-N-Amp PCR ReadyMix contains an inert dye that acts as a tracking dye and allows for convenient loading of PCR reactions onto agarose gels for analysis.

The kit comes with validated protocols to extract and amplify genomic DNA from corn, wheat, sunflower, cotton, soybean, sorghum, canola, and *Arabidopsis* seeds. Additional protocols are available. In a typical procedure, genomic DNA is extracted from a sample that has been ground and incubated in the Seed Preparation Solution and Extraction Solution for 10 minutes at room temperature. The sample is heated to 95 °C for 3 minutes and then mixed with a third solution to neutralize inhibitory substances prior to PCR. A portion of the DNA extract is then added to a PCR reaction containing primers and the REDExtract-N-Amp PCR ReadyMix, included in the kit.

Features and Benefits

- Perfect for quick genotyping results
- Rapid extraction of genomic DNA for PCR in 15 minutes
- No long enzymatic digestions
- Hot Start antibody for highly specific PCR amplification of genomic DNA



DNA extraction from wheat and subsequent PCR were performed using our Extract-N-Amp Seed PCR kit.
The PCR product of interest was purified with the GenElute™ PCR Clean-Up Kit (**Cat. No. NA1020**). The chromatogram shows a portion of the sequence determination for the 964 bp acetyl-coenzyme A carboxylase wheat PCR product. The sequence was obtained using the ABI BigDye® Terminator Chemistry and the same primers as for the original PCR.

sufficient for 10 extractions, sufficient for 10 amplifications

XNASS-1KT	1 kit

sufficient for 100 extractions, sufficient for 100 amplifications

XNAS-1KT	1 kit

Extract-N-Amp™ PCR ReadyMix™

PCR ReadyMix is intended for use with the Extract-N-Amp Plant PCR kit and Extract-N-Amp Tissue PCR Kit. All Extract-N-Amp kits include a PCR ReadyMix sufficient for one PCR reaction per extraction. However, if additional PCR reactions are required, supplemental PCR ReadyMix may be needed.

Amplifications to support Extract-N-Amp Plant and Extract-N-Amp Tissue

E3004-1.2ML	1.2 mL
E3004-12ML	12 mL
E3004-125ML	125 mL

REDExtract-N-Amp™ PCR ReadyMix™

PCR ReadyMix is intended for use with the Extract-N-Amp Plant PCR kit and Extract-N-Amp Tissue PCR Kit. All Extract-N-Amp kits include a PCR ReadyMix sufficient for one PCR reaction per extraction. However, where additional PCR reactions are required, supplemental PCR ReadyMix may be needed. The REDExtract-N-Amp PCR ReadyMix contains a inert tracking dye that allows for convenient direct loading of PCR reactions onto agarose gels for analysis.

Amplifications to support Extract-N-Amp Plant and Extract-N-Amp Tissue

R4775-1.2ML	1.2 mL
R4775-12ML	12 mL
R4775-125ML	125 mL

SYBR® Green Extract-N-Amp™ PCR ReadyMix™

The SYBR Green Extract-N-Amp PCR ReadyMix is the specially formulated PCR enzyme blend contained in the SYBR Green Extract-N-Amp Plant PCR kit and SYBR Green Extract-N-Amp Tissue PCR Kit. It is intended to supplement these kits for researchers who perform more than one amplification per extracted sample.

Amplifications to support Extract-N-Amp Plant and Extract-N-Amp Tissue

S4320-1.2ML	1.2 mL
S4320-12ML	12 mL
S4320-125ML	125 mL

Extract-N-Amp™ PCR ReadyMix™ for Blood

PCR ReadyMix™ is intended for use with the Extract-N-Amp™ Blood PCR Kits. All Extract-N-Amp Kits include a volume of PCR ReadyMix sufficient for at least one PCR reaction per extraction. However, where additional amplifications are required, supplemental PCR ReadyMix may be needed.

12 mL sufficient for 1000 amplifications

P8115-12ML	12 mL

REDExtract-N-Amp™ PCR ReadyMix™ for Blood

PCR ReadyMix is intended for use with the Extract-N-Amp Blood PCR Kits. All Extract-N-Amp Kit include a volume of PCR ReadyMix sufficient for at least one PCR reaction per extraction. However, where additional amplifications are required, supplemental PCR ReadyMix may be needed. The REDExtract-N-Amp PCR ReadyMix contains a inert tracking dye that allows for convenient direct loading of PCR reactions onto agarose gels for analysis.

12 mL sufficient for 1000 amplifications

P8240-12ML	12 mL

Extract-N-Amp™ PCR Diluent

The Extract-N-Amp PCR Diluent is intended for use with all of the Extract-N-Amp, REDExtract-N-Amp™ and SYBR® Green Extract-N-Amp PCR Kits, except the Extract-N-Amp and REDExtract-N-Amp Blood PCR Kits. It is specifically formulated to dilute extracted samples prior to PCR and is intended to supplement the kit reagents. Use of this reagent prevents usage of kits regeants where many dilutions are required.

E8155-100ML	100 mL
E8155-500ML	500 mL

RNA Purification

RNA purification kits and reagents are simple and cost effective tools for purifying RNA from a variety of sample types. We offer total RNA and mRNA purification kits from mammalian cells and tissues, as well as reagents, which can be used to eliminate DNA from RNA preparations. In addition, we have reagent-based purification methods that include TRI Reagent® and RNAzol® RT, which are quick, convenient and easily scalable.

Total RNA

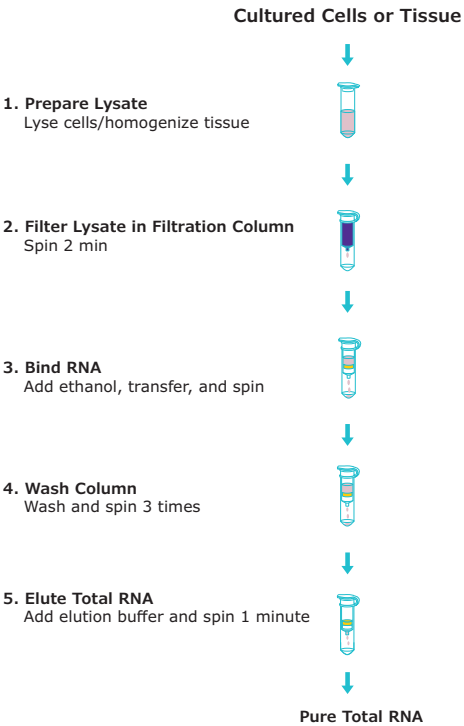
GenElute™ Mammalian Total RNA Miniprep Kit

The GenElute Mammalian Total RNA Miniprep Kit combines silica membrane technology with a convenient spin column format for a rapid bind, wash, and elute method to prepare high quality total RNA.

The purified RNA is ready for reverse transcription and PCR, labeling and microarray analysis, and other common applications. Note that RNA shorter than 200 nucleotides in length, such as tRNA, 5S rRNA, and 5.8S rRNA, is not recovered efficiently under the conditions used with this kit.

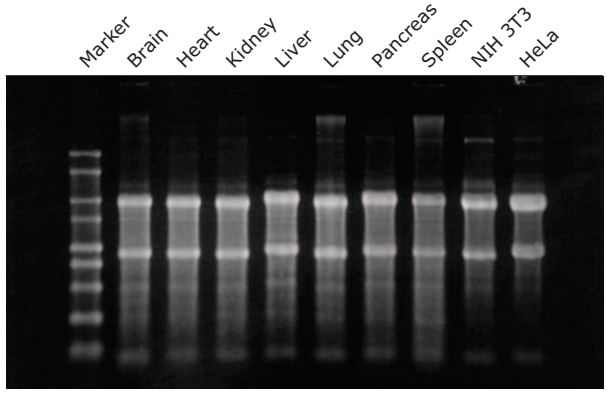
Features and Benefits

- Yields up to 150 µg of pure, concentrated total RNA per prep
- Purifies total RNA from up to 10^7 cells or 40 mg of tissue per prep
- Recover RNA from as few as 100 cells

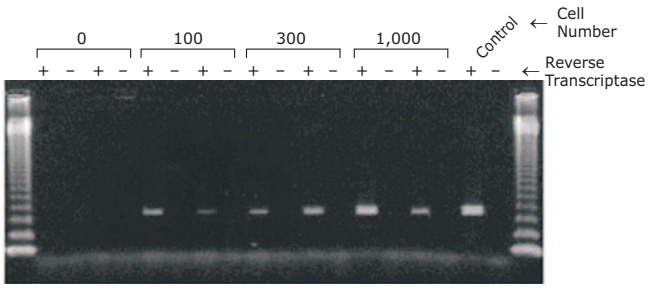


Average Yields from Bioanalyzer

	Average Yield (ng/mL)	Average RIN
HeLa Cells: 7,000,000		
GenElute™	904.5	9.9
Supplier Q	904.5	9.9
Supplier A	888	9.9
Supplier P	178.5	10
Mouse Liver Tissue: ~30 mg		
GenElute™	1200	8.3
Supplier Q	427.5	8.8
Supplier A	537	7.9
Supplier P	810	8
Whole Blood: 1.5 mL		
GenElute™	31.5	9.7
Supplier Q	33	9.7
Supplier P	4	8.1



High Quality RNA from various tissues and cells.
Formaldehyde-agarose gel and Northern blot of total RNA purified with GenElute™ Mammalian Total RNA Purification Kit. 2 µg of each RNA analyzed on a 1.2% agarose gel containing 0.6 M formaldehyde.



RT-PCR detection with RNA from ≥100 cells.
HeLa cells were diluted to give 0, 100, 300, or 1,000 cells per tube, and RNA was prepared with the GenElute™ Mammalian Total RNA Isolation Kit. Duplicate 10 µL samples (20%) of each preparation were treated with Amplification Grade DNase I (**Cat. No. AMPD1**). One of each pair was reverse transcribed with eAMV™ Reverse Transcriptase (**Cat. No. A4464**; + lanes). The other was incubated under the same conditions, but without the reverse transcriptase (– lanes). PCR was performed with 2 µL (10%) from each reaction, G3PDH primers, and Taq DNA Polymerase (**Cat. No. D1806**). One-fifth of each PCR product was fractionated on a 1.5% agarose gel, and photographed after staining for 30 minutes with SYBR® Green I (**Cat. No. S9430**). RT-PCR products are clearly visible for all reactions with reverse transcriptase added (+ lanes), except those with no cells (0). The control lanes contain 1 ng of total RNA prepared form the same cell line. No PCR products are visible for reactions without reverse transcriptase added (– lanes), demonstrating that RT-PCR products with reverse transcriptase are from RNA and not from residual, contaminating DNA.

sufficient for 70 purifications

RTN70-1KT	1 kit

sufficient for 350 purifications

RTN350-1KT	1 kit

GenElute™ 96 Well Total RNA Purification Kit

Our GenElute 96 Well Total RNA Purification Kit provides a simple and convenient way to isolate total RNA from cells or tissue. The cells or tissue are lysed in a solution containing large amounts of chaotropic salt which immediately inactivates RNases that are present in almost all biological materials. The addition of a Wash Buffer provides the necessary binding conditions for the RNA to be adsorbed to the silica membrane. The contaminating DNA which may be bound to the silica membrane is removed by directly applying RNase-free DNase. The remaining salts, proteins, and other cellular debris are removed by additional washing steps. The final step is to elute the purified RNA in the RNAase-free water that is supplied in the kit.

The purified total RNA is ready for use in any enzymatic downstream application.

Features and Benefits

- Unique plate design offers low risk of cross-contamination
- RNA can be used for any kind of downstream enzymatic reaction
- Processing possible under with a vacuum or centrifuge
- Suitable for manual and automated processing

sufficient for 4, 96-well plate purifications

RTN9604-1KT	1 kit

Filter Plate

The Filter Plate can be used with the GenElute 96 Well Total RNA Purification Kit to remove cell debris and prevent the RNA Binding Plate from clogging. The Filter Plate is used to filter the lysate before applying the lysate to the RNA Binding Plate (GenElute 96 Well Total RNA Purification Kit).

Removes cell debris prior to using the GenElute 96 Well Total RNA Kit

VM03-4X1EA	4 × 1 ea

Spectrum™ Plant Total RNA Kit

The Spectrum Plant Total RNA Kit utilizes a lysis and binding chemistry and a convenient column-based 'bind-wash-and-elute' format to purify up to 100 µg of total RNA from 100 mg of tissue in about 30 minutes. Typical yields range from 20–60 µg.

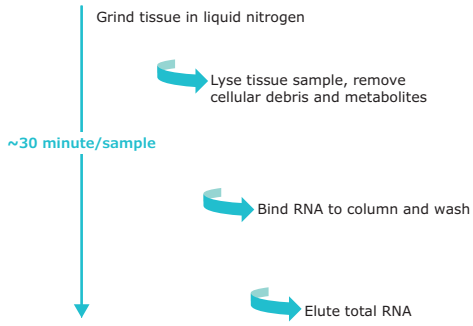
After grinding tissue to a fine powder in liquid nitrogen, cells are lysed and cellular debris is physically and chemically separated from endogenous RNA. RNA is then bound to a column supported silica substrate and several wash steps remove remaining contaminants.

Total RNA is eluted from the column and used in typical applications, such as Northern Blots, and RT- and qRT-PCR.

Features and Benefits

- Yields up to 60 µg of pure concentrated RNA per prep
- Efficient protocol allows for RNA purification in 30 min or less
- Specially designed for research with difficult plant tissues

Protocol Summary



Spectrum Plant Total RNA Kit: Average Yields of Validated Sample Types

Plant Species	Tissue Type	Average Experimental Yield* from 50–100 mg of Tissue
Norway Spruce	needle	43 µg
Pine	needle	37 µg
Red Maple	leaf	65 µg
Grape	leaf	71 µg
Cotton	leaf	42 µg
Tomato	leaf	61 µg
	stressed leaf (drought)	17 µg
Soybean	leaf	65 µg
Potato	tuber	19 µg
Arabidopsis	leaf	27 µg
	flower	46 µg
Corn	leaf	55 µg
	root	7 µg
	seed	60 µg
Rice	leaf	68 µg

*Yields can vary depending on the age, health, and stress level of the plant.

sufficient for 50 purifications

STRN50-1KT	1 kit

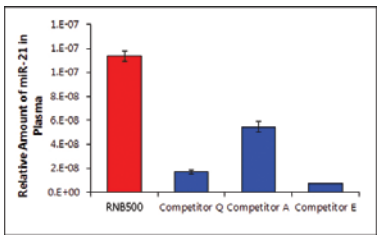
sufficient for 250 purifications

STRN250-1KT	1 kit

GenElute™ Plasma/Serum RNA Purification Mini Kit

GenElute™ Plasma/Serum RNA Purification Mini Kit provides a fast, reliable, reproducible and simple procedure for isolating circulating RNA and exosomal RNA from small plasma/serum inputs ranging from 10 µL to 25 µL, with various kit formats addressing different plasma/serum input volumes. Purification is based on spin column chromatography that uses our proprietary resin separation matrix. The kit is designed to isolate all sizes of circulating RNA, including microRNA, as well as all sizes of exosomal RNA. GenElute™ Plasma/Serum RNA Purification Mini Kit provides a clear advantage over other available kits in that they do not require phenol/chloroform or any protease treatments. RNA can be isolated from either fresh or frozen samples using these kits. Moreover, the kits allow the user to elute into a flexible elution volume ranging from 10 µL to 100 µL. Typical yields of free-circulating and exosomal RNA vary depending on the input sample, as the amount of RNA present in plasma and serum will depend upon the health status of the individual.

- Isolate all sizes of circulating and exosomal RNA, including microRNA
- Versatile plasma/serum input ranging from 50 µL to 200 µL
- No phenol extractions
- No carrier RNA
- Concentrate circulating RNA and Exosomal RNA into a flexible elution volume ranging from 10 µL to 25 µL
- Purify high-quality RNA in 15-20 minutes



GenElute™ Plasma/Serum RNA Purification Mini Kit, Cat. No. RNB500
Effective and consistent detection of miRNA from plasma. The GenElute™ Plasma/Serum RNA Purification Mini Kit can effectively isolate miRNA from plasma. Circulating miRNA was isolated from 200 µL plasma using the GenElute™ Plasma/Serum RNA Purification Mini Kit, competitor Q's kit, competitor A's kit, and competitor E's kit. Circulating miRNA was isolated from 600 µL using competitor A's kit. Stem loop RT-qPCR using primers specific to miR-21 was performed. In brief, 1 microliter of the 15 µL purified RNA using the GenElute™ Plasma/Serum RNA Purification Mini Kit, competitor Q's kit and 3.3 microliters of the 50 µL purified RNA using competitor E's kit and competitor A's kit was then subjected to a 20 µL reverse transcription using miR-21 stem-loop reverse primer. Three microliters of the reverse transcription was used in a 20 µL real-time PCR reaction with primers to detect the human miR-21. Our GenElute™ Plasma/Serum RNA Purification Mini Kit is the only product that showed the most consistent and the highest recovery of the miR-21 transcripts as compared to the other isolation methods. The recovery of the miRNA from 200 µL plasma was higher than that recovered from RNA purified from 600 µL using competitor A's kit.

RNB500-50RXN

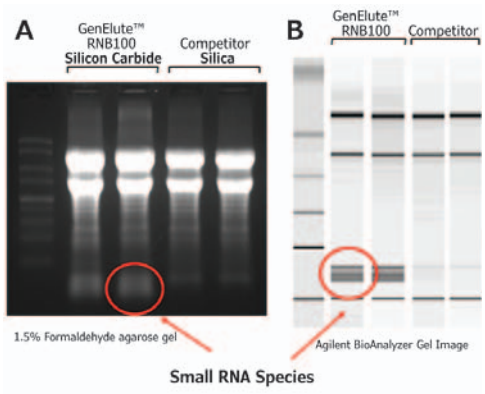
GenElute™ Total RNA Purification Kit

GenElute™ Total RNA Purification Kit provides a rapid method for the isolation and purification of total RNA from cultured animal cells, tissue samples, blood, plasma, serum, bacteria, yeast, fungi, plants and viruses. The kit purifies all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA). The RNA is preferentially purified from other cellular components such as proteins, without the use of phenol or chloroform. The purified RNA is of the highest integrity, and can be used in a number of downstream applications including real time PCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, and expression array assays.

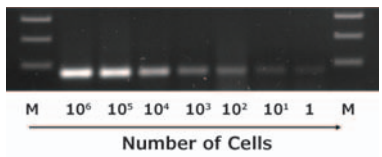
- Isolate true total RNA including siRNA and microRNA
- Rapidly remove contaminating genomic DNA without the use of enzymes
- No phenol or chloroform extractions
- Purify high-quality RNA in 20 minutes
- Extract RNA from as little as a single cell
- Isolate from a wide variety of specimens

Features and Benefits

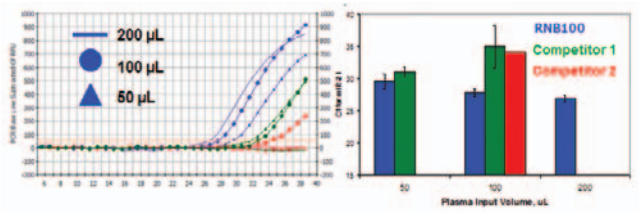
- **No phenol: chloroform extractions** - Total RNA is isolated without the use of harmful chemicals such as phenol or chloroform
- **Isolate total RNA from very small samples** - Total RNA has been isolated and detected from as little as a single animal cell
- **Extremely efficient isolation of low abundance microRNA** - Norgen's Total RNA Purification Kit has been shown to be extremely efficient at recovering low abundance microRNA from plasma samples
- **Isolate a diversity of RNA species** - All RNA species can be isolated, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA)
- **Fast and easy processing** - Rapid spin-column format allows for the processing of 10 samples in 20 minutes
- **Isolate total RNA from a broad input source** - Total RNA has been isolated from cultured animal cells, small tissue samples, LCM samples, bacteria, yeast, fungi, plants, viruses and various bodily fluid including blood, plasma, serum, saliva, nasal or throat swabs
- **No need for carrier RNA** - Isolate all sizes of RNA without the use of carrier RNA
- **Multiple kit sizes available** - This kit is available in both 50 prep and 100 prep sizes



GenElute™ Universal Total RNA Purification Kit, Cat. No. RNB100
High Quality of Isolated RNA with Complete Size Range. Unlike most competitors' kits, the GenElute™ Universal Total RNA Purification Kit allows for the isolation of all sizes of RNA, from the very large RNA down to the microRNA without the use of phenol. Total RNA was isolated from 1 × 10^9 *E. coli* cells using GenElute™ Universal Total RNA Purification Kit and a competitor's kit. Five microliters and 1 µL of the 50 µL isolated RNA was analyzed on an agarose gel (Panel A) and the Agilent® 2100 BioAnalyzer RNA Nano 6000 chip (Panel B), respectively. Note the presence of small RNA species (red circle) in the samples isolated via our kit and the absence of these RNA species in the competitor RNA preparation.



GenElute™ Universal Total RNA Purification Kit, Cat. No. RNB100
Great Isolation Sensitivity. The GenElute™ Universal Total RNA Purification Kit allows sensitive RNA extraction from as little as a single cell. Total RNA was extracted from a decreasing number of 293 HEK cells from 1 million cells down to a single cell. Five microliters of the 50 µL isolated RNA was then subjected to a 20 µL reverse transcription using oligo dT primer. Three microliter of the reverse transcription was used in a 20 µL PCR reaction with primers to detect the human beta-actin transcripts. PCR products of beta-actin were detected from as little as a single cell. M is the marker lane.



GenElute™ Universal Total RNA Purification Kit, Cat. No. RNB100
Effective and Consistent Detection of miRNA from Plasma. The GenElute™ Universal Total RNA Purification Kit can effectively isolate miRNA from plasma. Total RNA was isolated from 50, 100 or 200 µL of rat plasma in triplicates using the GenElute™ Universal Total RNA Purification Kit (blue), a competitor's silica-based kit (green) and a phenol-based RNA extraction method (red). Stem loop RT-qPCR using primers specific to miR-21 was performed. In brief, two microliters of the 50 µL isolated RNA was then subjected to a 20 µL reverse transcription using miR-21 stem-loop reverse primer or oligo dT primer. Three microliters of the reverse transcription was used in a 20 µL real-time PCR reaction with primers to detect the human miR-21. The GenElute™ Universal Total RNA Purification Kit is the only product that showed (1) consistent detection of miR-21 transcripts across all input volumes, and (2) Ct values correlated to input volume (decrease Ct with increase input).

RNB100-50RXN
RNB100-100RXN

High Pure RNA Tissue Kit

The High Pure RNA Tissue Kit rapidly isolates total RNA from mammalian tissues such as mouse liver, spleen, lung, and heart. The isolated RNA can be used in many downstream applications.

Capacity: The High Pure Spin Filter Tubes hold up to 700 µL sample volume.
Sample Material: Solid tissue (e.g., mouse liver, spleen, lung, heart): 1 - 25 mg.

Note: Sample size depends on the method used to prepare the tissue; larger samples (>10 mg) should be processed via rotor-stator homogenization.

Features and Benefits

- **Prepare RNA samples** in approximately 30 minutes.
- **Obtain concentrated RNA** that is suitable for downstream applications.
- **Minimize RNA loss** with a kit that removes contaminants without precipitation or other handling steps that degrade RNA.
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide.

12033674001

mRNA

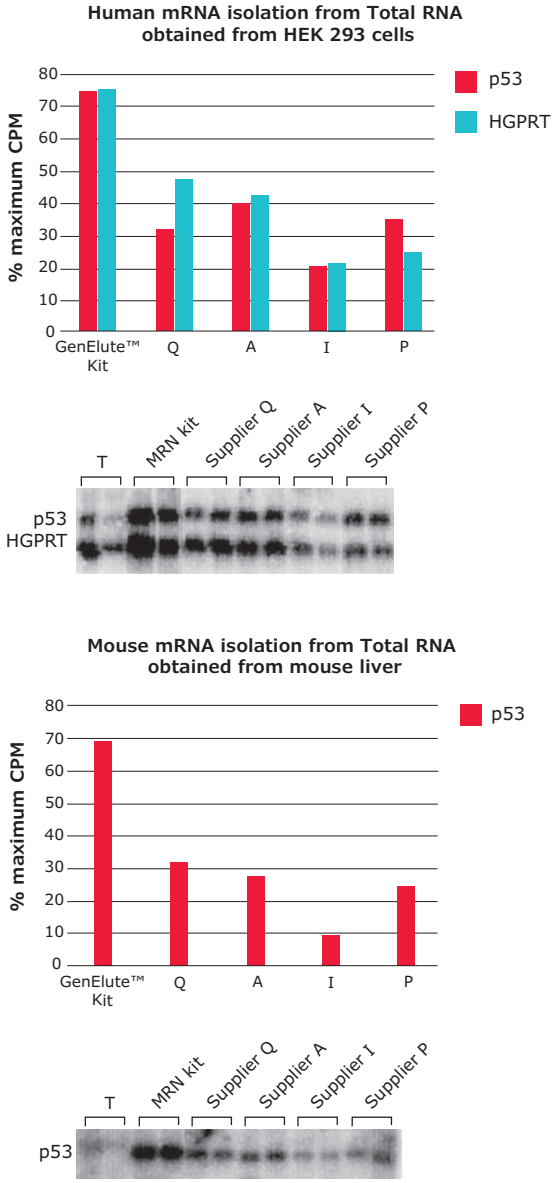
GenElute™ mRNA Miniprep Kit

The GenElute mRNA Miniprep Kit provides a simple and convenient way to purify polyadenylated mRNA from previously isolated total RNA. Oligo(dT) polystyrene beads bind the poly(A)+ mRNA during a 10 minute incubation. After washing in a microspin filter to remove contaminants, the poly(A)+ mRNA is eluted in 100 mL of buffer. Purification of mRNA from total RNA, can be performed in less than 40 minutes.

The purified mRNA is ready for Northern analysis, reverse transcription and PCR, labeling for arrays, and other common applications.

Features and Benefits

- mRNA captured on oligo(dT) polystyrene beads in 10 minutes
- Oligo(dT) polystyrene beads require fewer wash steps
- Poly (A)+ mRNA isolated from previously purified total RNA in 40 minutes



Northern blot comparison of mRNA prepared from Total RNA with GenElute™ mRNA (MRN) & competitor kits.
Total RNA was prepared from HEK 293 cells by a silica-binding method and from mouse liver with TRI Reagent®. Duplicate mRNA samples were prepared from 100 µg of total RNA with our GenElute™ mRNA Miniprep Kit or with several commercially available mRNA miniprep kits. Twenty percent of each preparation was evaluated by Northern blot as above. In lanes marked T, 5 & 2 µg of the original total RNA from cells or 10 & 5 µg of total RNA from liver were analyzed for comparison.

sufficient for 70 purifications

MRN70-1KT	1 kit

GenElute™ Direct mRNA Miniprep Kits

The GenElute Direct Kit mRNA kit provides convenient procedures for isolating polyadenylated mRNA from previously prepared total RNA or directly from mammalian cells and tissues.

Procedures such as cDNA synthesis, expression profiling and others require separation of mRNA from the vastly more abundant rRNA and tRNA. The GenElute mRNA kits provide convenient procedures for isolating polyadenylated mRNA from previously prepared total RNA or directly from mammalian cells and tissues.

For direct mRNA preparation, cells or tissues are disrupted with SDS/proteinase K digestion to release RNA and eliminate RNases. The kit uses oligo (dT) covalently linked to 1 µm polystyrene beads to capture polyadenylated mRNA by hybridization. The polystyrene beads remain suspended during hybridization, eliminating the need for mixing or rocking, as is common for cellulose or magnetic particles. Polystyrene was also chosen because oligo(dT) polystyrene beads yield cleaner mRNA with fewer stringent washing steps than does the more commonly used oligo(dT) cellulose (2 or 3 wash steps versus 10 or more). With the GenElute kits, mRNA-bead complexes are washed on a microcentrifuge spin filter, and eluted into 10 mM Tris-HCL, pH 7.5.

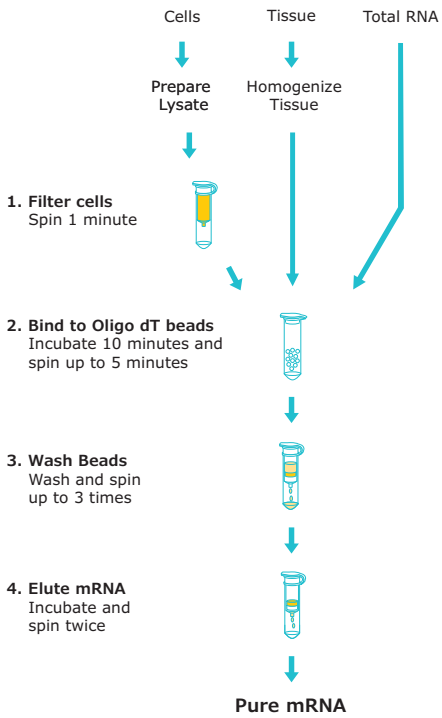
Up to 10^7 mammalian cells or 40 mg tissue are lysed and homogenized, either with the filtration columns provided or with a mechanical homogenizer. RNase is eliminated during a 10 minute proteinase K digestion. Sodium chloride is added, and polyadenylated RNA is captured on oligo(dT) polystyrene beads during a 10 minute incubation. For further enrichment, RNA may be released from the beads into fresh lysis solution and recaptured with the original beads. After 3 washes in a spin column, purified mRNA is eluted in 100 µL of 10 mM Tris-HCl, pH 7.4.

The purified mRNA is ready for Northern analysis, reverse transcription and PCR, labeling for arrays, and other common applications.

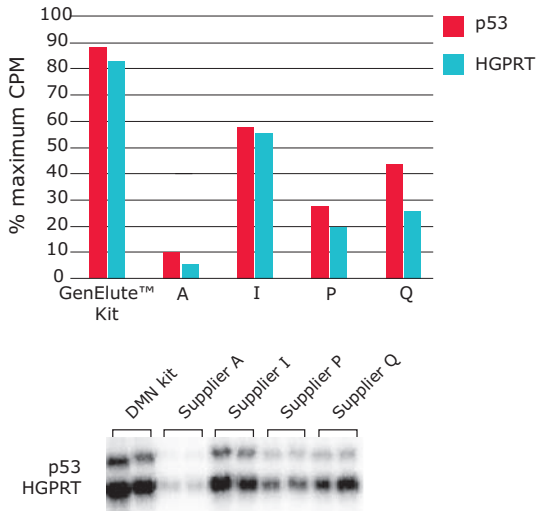
Features and Benefits

- Poly $(A)^+$ mRNA isolated from total RNA in 40 minutes or 60 minutes directly from cells and tissues
- Oligo(dT) polystyrene beads require fewer wash steps
- mRNA captured on oligo(dT) polystyrene beads in 10 minutes, with no mixing or rocking

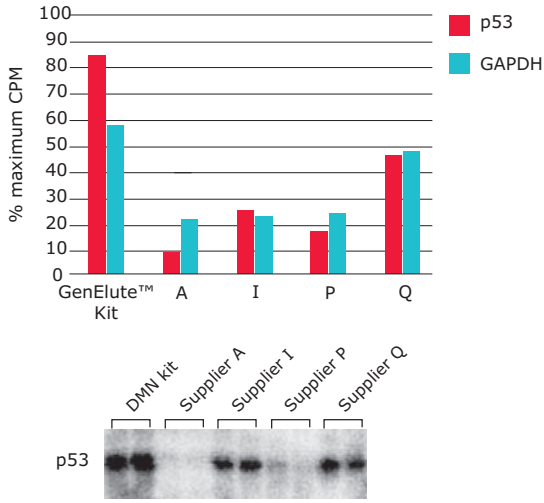
GenElute™ mRNA Miniprep Kits



Human mRNA isolation direct from HEK 293 cells



Mouse mRNA isolation direct from mouse liver



Northern blot comparison of mRNA prepared directly from cells and tissues with GenElute Direct mRNA (DMN) & competitor kits.
Duplicate mRNA samples were prepared from 5 x 10^6 HEK 293 cells or 25-35 mg mouse liver with the GenElute™ Direct mRNA Miniprep Kit or with several commercially available direct mRNA miniprep kits. A portion of each mRNA preparation equal to the amount from 1 × 10^6 cells or 10 mg liver was evaluated by Northern blot hybridization with ^{32}P-labeled RNA probes for p53 or glyceraldehyde 3-phosphate dehydrogenase (GAPDH) mRNA. Hybridization was detected and quantitated by scanning the blots with a PerkinElmer Instant Imager. Hybridization signals from each lane on the Northern blot, expressed as percent of the maximum signal for that probe, are plotted in the accompanying graphs.

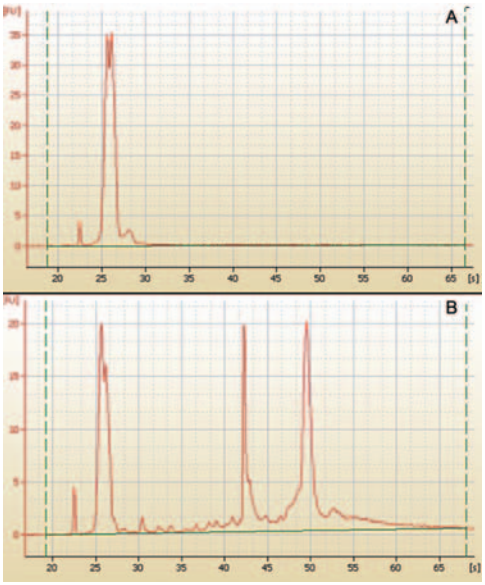
sufficient for 70 purifications

DMN70-1KT	1 kit

microRNA

mirPremier® microRNA Isolation Kit

Our mirPremier microRNA Isolation Kit provides a rapid and efficient method for purifying and enriching miRNAs and other small RNAs from diverse biological sources, including mammalian cell cultures, animal tissues, plant tissues, and microbial cultures, without using hazardous organic extractions. microRNAs (miRNAs) are a class of small RNA molecules, about 21 nucleotides (nt) in length, that regulate gene expression in a variety of manners, including translational repression, mRNA cleavage and deadenylation. In addition, the kit also can be used for isolating total RNA if messenger RNA or other large RNAs are of interest.



miRNA quality comparison between the mirPremier microRNA Isolation Kit (A) and the competition (B).
Each sample was purified from 40 mg mouse liver tissue and analyzed with 1% of the total recovery by Agilent Bioanalyzer using an RNA Nano Kit. The two peaks on the right (B) are contaminating rRNA.

1 sufficient for 50 preparations

SNC50-1KT	1 kit

High Pure miRNA Isolation Kit

The High Pure miRNA Isolation kit rapidly purifies RNA that is suitable for direct use in many downstream applications.

The High Pure miRNA Isolation Kit purifies and enriches small RNAs, such as microRNA (miRNA) from animal cells and tissue samples (including formalin-fixed, paraffin-embedded sections) or plant material. It can also be used to purify total RNA or to prepare samples enriched for small RNAs (<100 nucleotides).

Features and Benefits

- **Isolate DNA-free miRNA ideal for qualitative and quantitative reverse transcription.** ideal for qualitative and quantitative reverse transcription.
- **Obtain excellent performance** and linearity in RT-PCR.
- **Generate stable, highly pure miRNAs** using a simple, efficient protocol.
- **Purify miRNA without using hazardous organic solvents.** Avoid phenol/chloroform steps required by other suppliers' miRNA purification kits.
- **Choose one flexible kit for all your miRNA purifications.** Use the same kit to purify small RNAs from a variety of sample types.

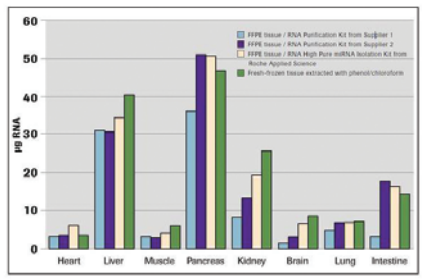


Figure 1: Comparison of miRNA yields from different tissues using the High Pure miRNA Isolation Kit versus kits from other suppliers.

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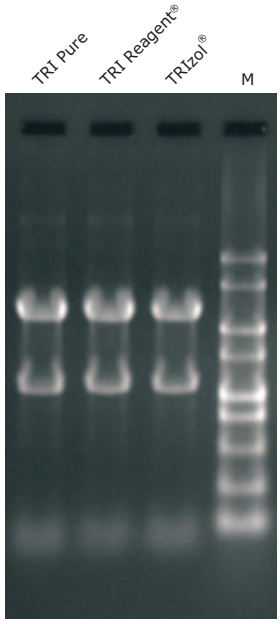
RNA Reagents

TRI Reagent®

TRI Reagent is an improved version of the single-step total RNA isolation reagent developed by Chomczynski.[1] The RNA isolation method based on this reagent is widely used and proven for RNA applications[2]. It is ideal for quick, economical, and efficient isolation of total RNA or the simultaneous isolation of RNA, DNA, and proteins from samples of human, animal, plant, yeast, bacterial, and viral origin.

Features and Benefits

- Easily scalable RNA isolation
- Works with many sources: human, plant, yeast, bacterial, or viral
- Better yields than traditional guanidine thiocyanate/cesium chloride methods



Total RNA was prepared from HeLa cells using TRI Reagent® from us and other various suppliers.
Total RNA from HeLa cells was prepared using TRI Reagent®, TRI Pure and TRIzol. A 2 µL aliquot out of 200 µL total RNA was analyzed on a 1% agarose gel. RNA Marker (M) used ranged from 0.2 bp–10 kb (**Cat. No. R7020**).

TRI Reagent® Formulations

Product Name	Sample Type	Sample Volume	TRI Reagent® Vol. (mL)
TRI Reagent®	Tissues, cultured adherent cells, cell pellets	up to 100 mg tissue, 10^7cells, or 10^2 cm plate area	1
TRI Reagent® BD	Whole blood, plasma, serum	0.25 mL blood derivatives	0.75
TRI Reagent® LS	Cell suspension, CSF, amniotic fluid	0.25 mL fluid samples	0.75

Typical Total RNA Yield

Material	Yield
	µg RNA/mg Tissue
Liver	6–10
Spleen	6–10
Kidney	3–4
Skeletal Muscle	1–1.5
Brain	1–1.5
Placenta	1–4
	µg RNA/10^6 Cells
Epithelial	8–15
Fibroblast	5–7

Lit. cited: 1. Chomcznski, P., and Mackey, K., Modification of the Tri Reagent procedure for isolation of RNA from polysaccharide- and proteoglycan-rich sources. *Biotechniques* **19**, 924 (1995)
2. Chomczynski, P., et al., Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. *Anal. Biochem.* **162**, 156-159 (1987)

For processing tissues, cells cultured in monolayer or cell pellets

T9424-25ML	25 mL
T9424-100ML	100 mL
T9424-200ML	200 mL

BD, For processing whole blood, plasma, or serum.

T3809-25ML	25 mL
T3809-100ML	100 mL
T3809-200ML	200 mL

LS, For processing fluid samples such as cell suspensions, CSF, and amniotic fluid.

T3934-100ML	100 mL
T3934-200ML	200 mL

RNAzol® RT

RNAzol RT is a highly effective reagent for the single-step isolation of total and small RNA from human, animal, plant, bacterial and viral origin samples. The RNA isolation method based on this reagent is performed at room temperature, without the use of chloroform for phase separation, and allows for use in RT-PCR without requiring DNase treatment.

Features and Benefits

- Isolates micro RNA and total RNA isolation of pure and undegraded RNA from biological samples
- High yields and increased quality of isolated RNA[1,2]
- Completed at room temperature in less than an hour starting with fresh tissue or cells

Lit. cited: 1. Chomczynski, P., A reagent for the single-step simultaneous isolation of RNA, DNA and proteins from cell and tissue samples. *Biotechniques* **15**, 532-534, 536-537 (1993)
2. Chomczynski, P., et al., Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. *Anal. Biochem.* **162**, 156-159 (1987)

For processing total and small RNA from human, animal, plant, bacterial, and viral samples

1 mL sufficient for 10^7 cells

1 mL sufficient for 100 mg tissue (or)

R4533-50ML	50 mL
R4533-100ML	100 mL
R4533-200ML	200 mL

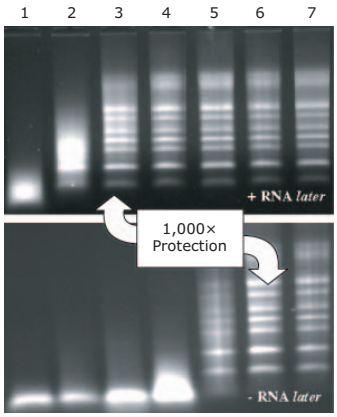
RNA*later*®

RNA*later* is an aqueous, non-toxic tissue storage reagent that rapidly permeates tissue to stabilize and protect cellular RNA *in situ* in unfrozen specimens. Tissue pieces are harvested and immediately submerged in RNA*later* for storage without jeopardizing the quality or quantity of RNA. RNA*later* eliminates the need to immediately process tissue specimens or to freeze samples in liquid nitrogen for later processing. RNA*later* preserves RNA in tissues for up to 1 day at 37 °C, 1 week at 25 °C, and 1 month at 4 °C. Tissues can also be stored at -20 °C long-term.

RNA*later* can be used with various downstream applications including mRNA and total RNA isolation, histology and immunocytochemistry and is compatible with our isolation kits.

Features and Benefits

- No compromise in RNA quality following mRNA or total RNA isolation
- Rapidly permeates tissues to stabilize and protect cellular RNA
- Aqueous non-toxic solution allows downstream tissue processing
- Stabilizes samples at room temperature



Superior Protection Against RNAse Degradation
A 5 mL aliquot of RNAse A (**Cat. No. R6513**; serially diluted to final concentrations of 4.5×10^{-5} – 4.5×10^{-11} units/µL) was added to 5 mg RNA (**Cat. No. R7020**) in 15 µL containing either 10 µL of RNA*later* (top panel) or TE buffer (bottom panel). Reactions were incubated at 37 °C for 20 minutes, purified using the GenElute™ Total RNA kit (**Cat. No. RTN10**) and analyzed on a 1% agarose gel.

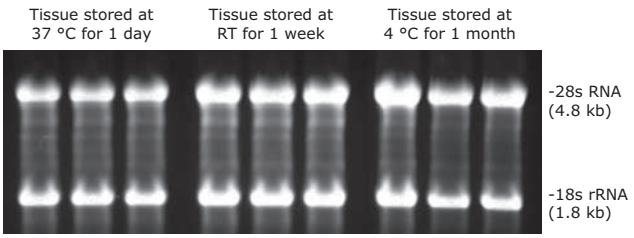


Photo courtesy of Ambion.

Stabilizes Samples at Room Temperature for Up to One Week
Quality of RNA isolated from tissue stored in RNA*later* solution. Fresh mouse tissues were dissected and stored in RNA*later* at 37 °C for 1 day, room temperature for 1 week, or 4 °C for 1 month. RNA was isolated using TRI Reagent (**Cat. No. T9424**) and analyzed using denaturing agarose gel electrophoresis.

Stabilize and protect RNA with immediate RNase inactivation

R0901-100ML	100 mL
R0901-500ML	500 mL

Stabilyser™ Reagent

Prevents degradation of proteins and nucleic acid during tissue lysis and storage. Stabilize functional proteins and RNA.

The stability of protein and antibody structure and function is dependent on a variety of factors such as temperature, freeze/thaw cycles, proteases and pH. For some proteins and antibodies, function can be lost completely with a single freeze/thaw cycle and proteases can significantly degrade proteins and antibodies within hours even when kept at 4 °C. Stabilyser™ Reagent minimizes the risk to improve protein assay quality and accuracy.

Stabilyser™ Reagent is a proprietary formulation of detergents and solutes optimized for efficient extraction, stabilization and storage of protein, DNA, and RNA from tissue samples. The unique composition of Stabilyser™ enables isolation of functionally active proteins, while maintaining integrity of nucleic acids. Stabilization of proteins and RNA is achieved even after 24 hours at room temperature. Stabilyser™ reagent is compatible with Western blotting protocols, functional protein activity assays, and nucleic acid applications like qPCR.

Use in conjunction with a homognenizer for simultaneous tissue lysis and stabilization of protein and nucleic acids in tissue samples.

Features and Benefits

- Gentle, non-denaturing lysis buffer does not interfere with downstream applications
- Convenient ready-to-use reagent
- Stabilizes RNA and protein for analysis at a later date

PNS1010-50ML	
PNS1010-250ML	

RNaseZAP™

A cleaning agent for removing RNase from glassware, plastic surfaces, countertops, and pipettors. It is also effective at eliminating RNase contamination from microcentrifuge tubes without inhibiting subsequent enzymatic reactions.

Cleaning agent for removing RNase

R2020-250ML	250 mL
R2020-6X250ML	6 × 250 mL

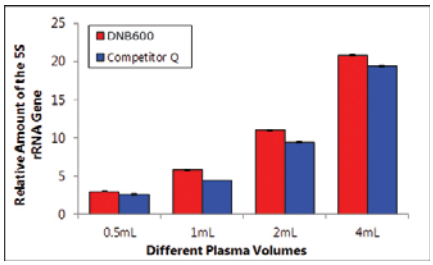
cell-free DNA purification

Cell-free DNA purification kits provide reliable and simple procedures for efficient purification of cell-free DNA from various amounts of plasma/serum ranging from 0.2 mL to greater than 10 mL. Purified cell-free DNA can be used in a variety of downstream applications including PCR, qPCR, next generation sequencing (NGS), bisulfite sequencing and other applications.

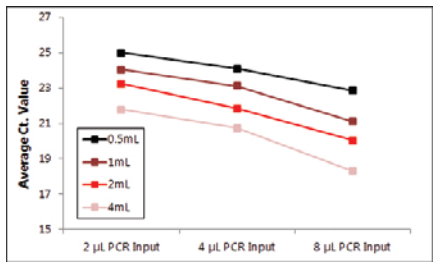
GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit

GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit provides a fast, reliable and simple procedures for isolating cell-free circulating DNA (cfc-DNA) from various amounts of plasma/serum ranging from 1 mL up to 4 mL. Purification is based on spin column chromatography that uses our proprietary resin separation matrix. The kits are designed to isolate all sizes of cfc-DNA from either fresh or frozen plasma/serum samples. Moreover, these kits allow the user to elute the purified cfc-DNA into a flexible elution volume ranging from 25 µL to 50 µL. The purified plasma/serum cfc-DNA is eluted in an Elution Buffer that is compatible with all downstream applications including PCR, qPCR, methylation-sensitive PCR and Southern Blot analysis, microarrays and NGS.

- Isolate all sizes of circulating DNA from plasma and serum samples
- Isolate viral and bacterial DNA
- Versatile plasma and serum input volumes (1 mL – 4 mL)
- Concentrate circulating DNA into a flexible elution volume ranging from (50 µL – 100 µL)
- Isolate inhibitor-free cell-free circulating DNA
- Purify high-quality DNA in 40-45 minutes
- Compatible with Streck Cell-Free DNA BCT Tubes



GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit, Cat. No. DNB600
Purification of cell-free circulating DNA from different plasma volumes. Our GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit was used to purify circulating DNA from 0.5 mL, 1 mL, 2 mL and 4 mL plasma prepared from blood collected on citrate as an anticoagulant in comparison to Competitor Q's kits. Two microlitres of the purified DNA was then used as the template in qPCR reactions to assess the relative amount of the purified housekeeping 5S rRNA gene. The relative amount of the 5S rRNA gene increases linearly with increasing the sample input volume. Our kit showed the most consistent and the highest recovery of the housekeeping 5S rRNA gene as compared to the other isolation method.



GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit, Cat. No. DNB600
Determination of the amount of inhibition present in plasma cell-free circulating DNA samples when detecting the human 5S gene. DNA was isolated from 0.5 mL, 1 mL, 2 mL and 4 mL plasma using our GenElute™ Plasma/Serum Cell-Free Circulating DNA Purification Midi Kit. Increasing volumes of the elution (2, 4 and 8 µL) were used in a 20 µL qPCR reaction to observe any decrease in Ct value. An increase in Ct values with increasing amount of template would be a clear indication of PCR inhibitors present in the sample. An increase in elution volume used as a template in the qPCR did not affect the Ct value generated from qPCR and infact the Ct values tend to decrease with increasing the PCR input volume indicating that DNA purified from plasma using our kit is free of the common inhibitors usually present in plasma.

DNB600-20RXN	

GenElute™ UltraMag Cell-Free DNA Kit

GenElute™ UltraMag Cell-Free DNA Kit provides rapid and efficient purification of circulating free DNA, also known as cfDNA. The kit uses silica-coated magnetic beads to purify cell free DNA from serum and plasma samples of less than 1 mL to over 10 mL. The kit was developed to provide efficient recovery cell-free DNA fragments in the range of 100 bp to 500 bp. The recovered DNA is suitable for a wide range of down-stream applications including next-generation sequencing, qPCR and bisulfite sequencing. The GenElute™ UltraMag Cell-Free DNA KIt is flexible for both manual and automated formats.

Sufficient for 100 mL of serum/plasma sample

CFMAG-100ML	1 kit

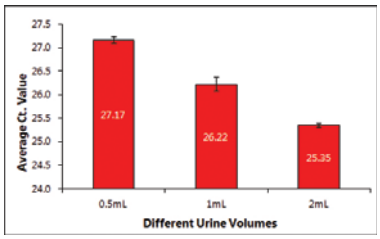
Sufficient for 250 mL of serum/plasma sample

CFMAG-250ML	1 kit

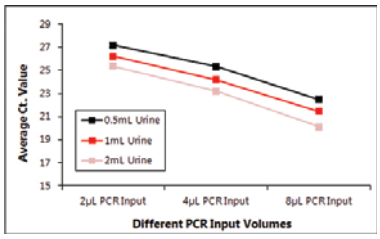
GenElute™ Urine Cell-Free DNA Purification Mini Kit

GenElute™ Urine Cell-Free DNA Purification Mini Kit provides a fast, reliable and simple procedures for isolating cell-free circulating DNA (cfc-DNA) from various amounts of urine ranging from 250 µL up to 2 mL. Purification is based on spin column chromatography that uses our proprietary resin separation matrix. The kits are designed to isolate all sizes of cfc-DNA from either fresh or frozen urine samples. Moreover, these kits allow the user to elute the purified cfc-DNA into a flexible elution volume ranging from 25 µL to 50 µL. The purified urine cfc-DNA is eluted in an elution buffer that is compatible with all downstream applications including PCR, qPCR, methyl-ation-sensitive PCR and Southern Blot analysis, and NGS.

- Isolate all sizes of circulating DNA from fresh, preserved or frozen urine samples
- Isolate viral DNA
- Versatile urine input volumes (250 µL – 2 mL)
- Concentrate circulating DNA into a flexible elution volume ranging from (50 µL – 100 µL)
- Isolate inhibitor-free cell-free circulating DNA
- Purify high-quality DNA in 15-20 minutes



GenElute™ Urine Cell-Free DNA Purification Mini Kit, Cat. No. DNB300
Purification of cell-free circulating DNA from different urine volumes. The GenElute™ Urine Cell-Free DNA Purification Mini Kit was used to purify circulating DNA from 500 µL, 1 mL and 3 mL fresh urine. Two microlitres of the purified DNA was then used as the template in qPCR reactions to assess the relative amount of the purified the housekeeping 5S rRNA gene. The relative amount of the 5S rRNA gene is linearly increasing with increasing the sample input volume. Our kit showed the most consistent and the highest recovery of the housekeeping 5S rRNA gene as compared to the other isolation method.



GenElute™ Urine Cell-Free DNA Purification Mini Kit, Cat. No. DNB300
Determination of the amount of inhibition present in urine cell-free circulating DNA samples when detecting the human 5S gene. DNA was isolated from 500 µL, 1 mL and 2 mL urine using the GenElute™ Urine Cell-Free DNA Purification Mini Kit. Increasing volumes of the elution (2, 4 and 8 µL) were used in a 20 µL qPCR reaction to observe any decrease in Ct. value. An increase in Ct. values with increasing amount of template would be a clear indication of PCR inhibitors present in the sample. An increase in elution volume used as a template in the qPCR did not affect the Ct. value generated from qPCR and in fact the Ct. values tend to decrease with increasing the PCR input volume indicating that DNA purified from urine using our kit is free of the common inhibitors usually present in urine.

DNB300-50RXN

post-reaction purification

Post-reaction purification products allow researchers the ability to quickly and reliably purify amplicons from PCR reactions. GenElute™ kits combine silica-binding technology with the convenience of a spin or vacuum column format, eliminating the need for expensive resins and hazardous organic compounds. Both technologies allow for maximum sample recovery while removing impurities which may inhibit downstream applications.

GenElute™ PCR Clean-Up Kit

The GenElute PCR Clean-Up Kit is designed for rapid purification of single-stranded or double-stranded PCR amplification products (100 bp to 10 kb) from other components in the reaction, such as excess primers, nucleotides, DNA polymerase, oil and salts. This kit combines the advantages of silica binding with a convenient spin column format, eliminating the need for expensive resins or toxic organic compounds such as phenol and chloroform.

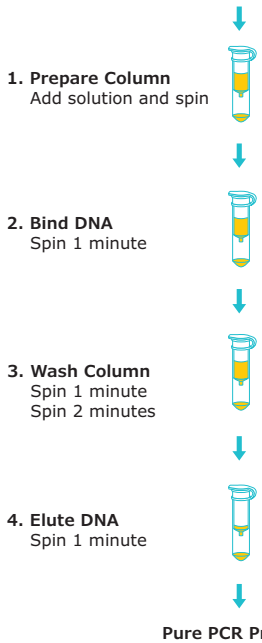
DNA is bound on a silica membrane within the spin column. The bound DNA is washed and the clean, concentrated DNA is eluted in the buffer of choice. Each column can purify up to 100 µL or 10 µg of PCR amplified DNA and recover up to 95% of PCR products between 100 bp and 10 kb. More than 99% of the primers and most primer-dimers (<40 bp) are removed.

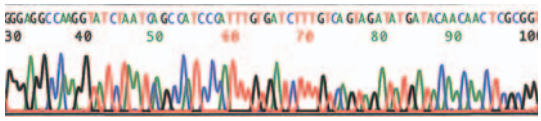
Purified DNA can be used in enzymatic reactions, conventional or automated sequencing, cloning and microarray analysis.

Features and Benefits

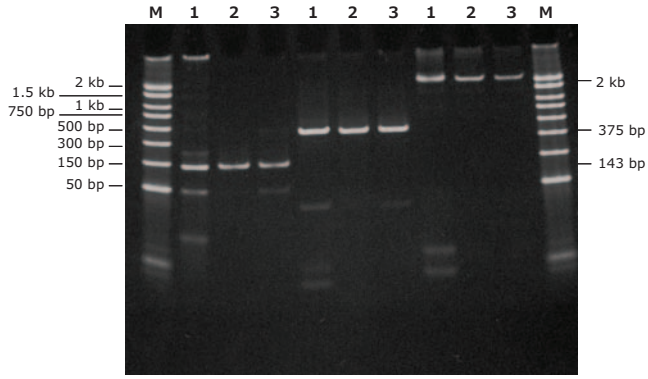
- Recovers up to 95% of PCR products between 100 bp and 10 kb
- Purifies up to 100 µL or 10 µg of PCR amplified DNA in 8 minutes
- Removes over 99% of primers and other components

PCR Reaction Components





Sequence was resolved on an ABI 3100 from a purified, 645 bp corn leaf PCR product.
The PCR product was purified with the GenElute™ PCR Clean-Up Kit. The DNA extraction and PCR were performed using the Extract-N-Amp™ Plant PCR Kit. The sequence was obtained by using ABI BigDye® terminator chemistry and the same primers as the original PCR.



Comparison of PCR product recovery and primer removal.
Three separate PCR products were purified with the GenElute™ PCR Clean-Up Kit and a comparable kit from Supplier Q. Products were 143 bp from corn leaf, 375 bp from pBR322, 2 kb from human blood. Samples were analyzed on a 20% TBE acrylamide gel and visualized by staining with SYBR® Green II
Lanes
1. Unpurified Reaction
2. GenElute™ PCR Clean-Up Kit
3. Supplier Q

sufficient for 70 purifications

NA1020-1KT	1 kit

GenElute™ 96 Well PCR Clean-Up Kit

GenElute 96 Well PCR Clean-Up Kit allows for high throughput purification of PCR products. The kit provides the necessary reagents for purification of highly pure PCR products. The DNA recovery is 75-90% for fragments of 100 bp to 10 kb and removes primers, primer-dimers, nucleotides, salts and polymerase.

Once the PCR reaction is complete, the reaction volume is adjusted and Binding Solution is added. The samples are transferred to the Binding Plate where the PCR reaction is captured on the silica membrane. The bound PCR product is washed several times to remove primers, primer-dimers, salts, nucleotides, and polymerases. Finally the purified PCR product is eluted and ready for immediate use in downstream applications.

The purified PCR product is ready for a variety of downstream applications including sequencing, restriction digest, ligation, and microarray analysis.

Features and Benefits

- Complete removal of primers and primer-dimers
- Innovative wash plate minimizes risk of cross-contamination
- Suitable for processing under vacuum and centrifugation
- Time-saving parallel clean-up of PCR products

sufficient for 4, 96-well plate purifications

PCR9604-1KT	1 kit

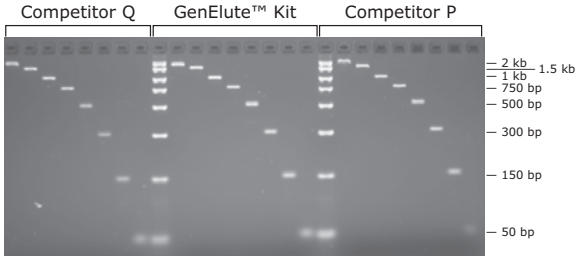
GenElute™ Gel Extraction Kit

The GenElute Gel Extraction Kit combines silica-binding technology with the convenience of a spin or vacuum column format. DNA fragments of interest are extracted from slices of an agarose gel and are bound to a silica membrane. Contaminants are removed by a simple spin or vacuum wash. The bound DNA is then eluted.

The purified DNA is suitable for a variety of downstream applications, such as automated DNA sequencing, PCR, restriction digestion, cloning, and labeling.

Features and Benefits

- Bind up to 10 µg of DNA
- Recoveries up to 80%
- Up to 3.5 g can be processed per column
- Compatible with both standard and low-melting agarose in TAE or TBE buffer



Recovery of 50 bp to 2 kb DNA fragments.
6 µL of the PCR markers (**Cat. No. P9577**) was electrophoresed on a 1× TBE, 1% agarose gel (**Cat. No. A9414**) and each fragment was excised and purified with either competitor Q's, our GenElute™ Gel Extraction Kit, or competitor P's gel extraction kit per manufacturer's recommendations. The gel purified samples were resolved on a 1% agarose gel and the percent recovery was determined via densitometry using a BIO-RAD Flour-S Imager.

sufficient for 70 purifications

NA1111-1KT	1 kit

Montage Gel Extraction Kit

Recover 100 to 10,000 bp DNA from agarose gel slices in a single 10-minute spin. The kit consists of a pre-assembled filter device with an agarose gel nebulizer, a microcentrifuge vial, and modified TAE gel extraction buffer (dry).

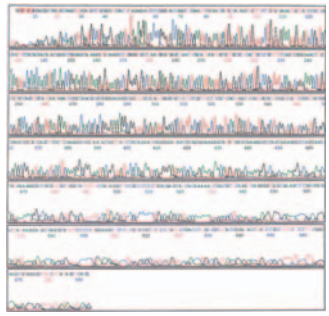
The device utilizes gel compression to extract DNA from the agarose. Centrifugal force collapses the gel structure, drives the agarose through a small orifice in the gel nebulizer and the resultant gel slurry is sprayed into the sample filter cup.

Prepared DNA requires no further purification for most applications, including cloning and radioisotopic or fluorescent DNA sequencing. Since agarose gel electrophoresis has high resolving power, the small and large non-specific amplification products that frequently interfere with cloning and sequencing after PCR are completely removed from the product.

Performance: Typical DNA Recoveries from Agarose Gels up to 80%.

Features and Benefits

- Minimal hands-on time
- 10-minute spin
- Fully functional DNA



Automated fluorescent sequencing results for a pUC18 gel fragment purified with Montage Gel Extraction Device. An ABI PRISM® Dye Terminator Sequencing Ready Reaction Kit with AmpliTaq DNA Polymerase (Applied Biosystems) was used to generate sequencing results. Sequencing results courtesy of Jeff McConnell, Director of Genomic Services, Cleveland Genomics, Cleveland, Ohio.

sufficient for 50 purifications

LSKGEL050	1 kit

GenElute™ Agarose Spin Columns

GenElute Agarose Spin Columns allow for the purification of linear DNA from agarose gels. The typical recovery is 40 to 45% for 100 bp to 10 kb DNA fragments. The recovery decreases as the fragment size increases.

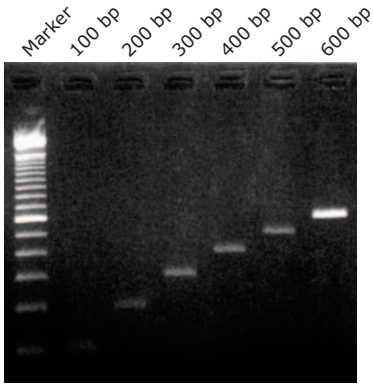
The DNA band is excised from an agarose gel and loaded into the spin column. Embedded within the base of the column are a series of membranes and filters that hold agarose and impurities back while allowing DNA to selectively pass through the column into a collection tube during a 10 minute centrifugation. GenElute Agarose Spin Columns eliminate the need for silica-based resins, DEAE or toxic organic solvents such as phenol and chloroform. There is no melting, electroelution or enzymatic digestion of the agarose gel.

The purified DNA can be used in most downstream molecular biology applications including ligation, PCR, restriction digest, cloning, labeling and hybridization.

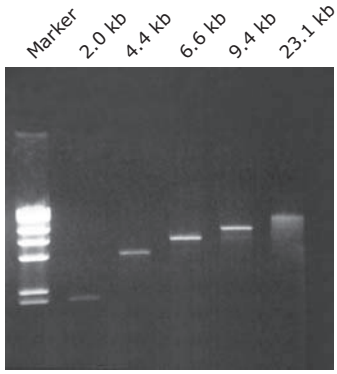
GenElute™ Agarose Spin Columns *(continued)*

Features and Benefits

- Typical recovery of 40 to 45% for DNA fragments from 100 bp to 10 kb
- No melting or digestion of agarose required
- One-step, 10 minute protocol



Recovery of 100-600 bp DNA fragments purified using GenElute™ Agarose Spin Columns.
1 µg of 100 bp DNA ladder underwent electrophoresis on a 2.0% agarose gel. 100, 200, 300, 400, 500, and 600 bp fragments were excised from the gel, and purified using GenElute™ Agarose Spin Columns as above. Samples were loaded and analyzed on a 2.0% agarose gel.



Recovery of 2 to 23 kb DNA fragments purified using GenElute™ Agarose Spin Columns.
Lambda *Hind* III markers were pre-heated at 65 °C and underwent electrophoresis on a 2.0% agarose gel. The 2.0, 4.4, 6.6, 9.4, and 23 kb fragments were excised and purified using GenElute™ Agarose Spin Columns. Samples were loaded and analyzed on a 2.0% agarose gel.

sufficient for 70 purifications

56500-70EA	70 ea

GenElute™ Minus EtBr Spin Column

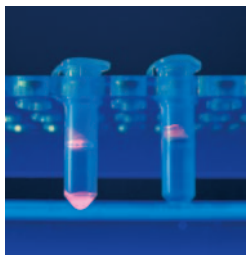
GenElute Minus EtBr Spin Columns are based on the GenElute Agarose Spin Column (56500) and include the incorporation of an additional membrane for the selective removal of ethidium bromide. Up to 95% of the ethidium bromide is removed from DNA with a simple 10 minute procedure. The GenElute Minus EtBr Spin Columns can recover DNA fragments from 100 bp to 10 kb with typical recoveries of 30 to 35%.

The DNA band is excised from an agarose gel and loaded onto the spin column. The membranes, embedded within the column, retain agarose and ethidium bromide while allowing DNA to selectively pass through the column into a centrifuge tube.

The purified DNA can be used in most downstream molecular biology applications including ligation, PCR, restriction digest, cloning, labeling and hybridization.

Features and Benefits

- Removes up to 95% of EtBr from DNA
- One-step, 10 minute protocol
- No melting or digestion of agarose required



Electrophoresis was performed on DNA in agarose gels containing ethidium bromide (0.5 µg/mL).
Bands were excised, applied to both the Minus EtBr and Agarose Spin Columns and centrifuged. The final eluate from each column was compared under a UV light box. The filter within the GenElute™ Minus EtBr Spin Column retained ethidium bromide.
Left Tube: GenElute™ Agarose Spin Column
Right Tube: GenElute™ Minus EtBr Spin Column

sufficient for 70 purifications

56501-70EA	70 ea

High Pure PCR Cleanup Micro Kit

The High Pure PCR Cleanup Micro Kit is used to isolate PCR products from amplification and other reactions, and can be used in many molecular biology applications.

The kit can also be used to:

- Purify cDNA
- Concentrate dilute nucleic acid solutions
- Recover DNA from agarose gel slices

Use one kit for a variety of applications.
The fast and simple High Pure protocols use a tabletop centrifuge to bind, wash, and elute the reaction product down to 10 µL (micro format) in as little as 10 minutes. The procedure conveniently eliminates a concentration step, and is ideal for downstream applications such as labeling, sequencing, cloning, ligation, or amplification using PCR. The purified DNA can also be used for Southern blotting and *in vitro* transcription.

Capacity of High Pure Micro Filter Tubes: The High Pure Micro Filter Tubes hold up to 500 µL sample volume.

The High Pure PCR Cleanup Micro Kit efficiently purifies products from PCR and other reactions. The kit eliminates primers, mineral oil, salts, unincorporated nucleotides, and thermostable DNA polymerases, which may inhibit subsequent enzymatic reactions such as labeling, sequencing, or cloning of PCR products.

Features and Benefits

- **Conserve resources and save time** by using a single kit with a simple, rapid protocol.
- **Obtain purified product in a small elution volume** (≤10 µL) for demanding downstream applications.
- **Generate contaminant-free DNA** for direct use in cloning, ligation, restriction digests, and other reactions.
- **Selectively isolate specific DNA fragment sizes** by using the kit's Binding Enhancer to adjust purification stringency.
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide.

A 341 bp PCR fragment of the tPA gene was amplified according to a standard block cycler protocol. The resulting reaction mixes were pooled and purified with the High Pure PCR Cleanup Micro Kit. Different amounts of Binding Enhancer were used in the purification procedure. Portions of the PCR product (250 ng each, lanes 2 – 5) and the PCR product mix (16 µL each, lanes 6 – 7) were analyzed on a 1% agarose gel. The yield from each purification is shown in Table 1.

Starting Material	Yield/Recovery	Time Required	Number of Reactions
Nucleic acids from PCR, modifying, labeling, restriction digestion reactions, and agarose gel slices	85% recovery up to 20 µg DNA	10 minutes	50 or 200

Typical DNA Recovery

04983955001
04983912001

High Pure PCR Product Purification Kit

The High Pure PCR Product Purification Kit is designed for the preparation of concentrated, purified DNA, and can be used directly for most molecular biology applications.

The kit eliminates primers, mineral oil, salts, unincorporated nucleotides, and thermostable DNA polymerases, which may inhibit subsequent enzymatic reactions. It can also be applied to concentrate dilute nucleic-acid solutions. Use one kit for a variety of applications.

The fast and simple High Pure protocols use a tabletop centrifuge to bind, wash, and elute the reaction product down to 10 µl (micro format) in as little as 10 minutes. The procedure conveniently eliminates a concentration step, and is ideal for downstream applications such as labeling, sequencing, cloning, ligation, or amplification using PCR.

Capacity: The High Pure SpinFilter Tubes hold up to 700 µl sample volume.
Volume: 100 µl
Typical samples include:

- Products from amplification or cDNA synthesis reactions
- Enzymatically treated DNA
- DNA from agarose slices
- Dilute nucleic acid solutions
- RNA from transcription reactions

Features and Benefits

- **Quickly purifies multiple PCR products** in <10 minutes, and purify DNA from agarose gel slices in <20 minutes.
- **Efficiently recover DNA fragments** >100 bp in length, and concentrate dilute nucleic acid solutions.
- **Minimize DNA loss** with a kit that removes contaminants without precipitation or other handling steps that degrade DNA.
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide

11732668001
11732676001

Agarose Gel DNA Extraction Kit

The Agarose DNA Extraction Kit efficiently isolates both small and large DNA fragments from standard or low melting point agarose. Recovered DNA fragments are suitable for:

- Ligation and transformation
- Enzymatic restriction
- Random primed or nick translation labeling methods
- Sequencing
- PCR/long PCR
- Cloning
- Concentrate dilute nucleic acid solutions

By combining agarose gel electrophoresis and extraction, you can easily concentrate dilute, aqueous DNA solutions. After processing with the kit, the DNA can be recovered in a volume of 20 to 50 µL. Isolated DNA fragments are free of inhibitors that could affect common downstream procedures. For example, recovered DNA can be efficiently ligated into cloning vectors or labeled to high specific activity. Restriction digests proceed without inhibition.

Features and Benefits

- **Quick and simple.** Extract high yields of DNA in only 45 minutes, with few hands-on steps.
- **Combine with different agaroses and buffer systems.** Low melting point agarose is not required.
- **Purify efficiently.** Highly specific binding of DNA allows easy removal of impurities
- **Isolate large DNA fragments without shearing.** Silica particles are uniform in size and have smooth surfaces, ensuring recovery of intact DNA fragments up to 100 kb.
- **Isolate oligonucleotides ≥20 bp.** Narrow size distribution of the silica particles and absence of fines ensure high binding capacity of the matrix.
- **Avoid enzymatic inhibition.** No fine particles are observed in the suspension. The recovered product will not inhibit subsequent enzymatic reactions.

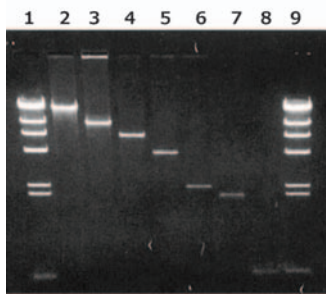


Figure 1: Recovery of DNA fragments from agarose gels with the Agarose DNA Extraction Kit. DNA fragments

11696505001

sequencing clean-up

Montage SEQ$_{96}$ Sequencing Reaction Cleanup Kit

The Montage Plasmid MiniprepHTS Kit provides all of the reagents and materials necessary to purify plasmid or bacterial artificial chromosome (BAC) DNA using a simple protocol that eliminates lengthy bind/elute methods and centrifugation. Employing unique separation technology, we have developed a line of easy-to-use DNA miniprep kits that yield DNA suitable for the most sensitive downstream applications. In addition, this technology has significantly reduced the time required for processing samples. Following bacterial lysis, three short filtration steps are all that is required to prepare 96 clean DNA samples from each plate. The DNA is retained by our proprietary size-exclusion membrane while proteins and contaminants are filtered through to waste.

sufficient for 96 reactions

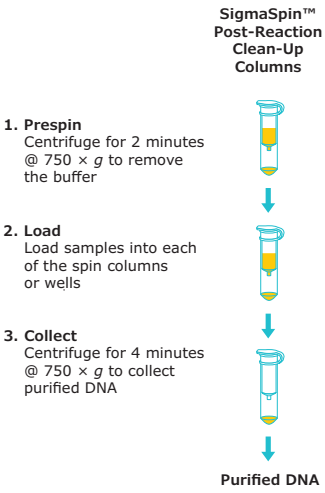
LSKS09601	1 kit

sufficient for 4 × 96 reactions

LSKS09604	1 kit

SigmaSpin™ Sequencing Reaction Clean-Up

Ideal for removing dye-terminator nucleotides and primers from sequencing reactions and radiolabeled nucleotides, primers, and fluorescent dyes from nucleic acid probe labeling reactions.



post-reaction clean-up columns

S5059-70EA	70 ea

UltraClear™ Sequencing Reaction Clean-Up Kit

The UltraClear Sequencing Reaction Clean-Up Plates offer a rapid and simple method for the clean-up of DNA sequencing reactions in a 96-well format. The plates use ultrafiltration membranes to separate low molecular weight contaminants, such as unincorporated dye terminators, dNTPs, and residual salts from the sequencing reaction products.

Following thermocycling, the sequencing reactions are diluted with Sequencing Solution. This mixture is then filtered through the UltraClear plate by centrifugation. The sequencing reaction products are retained on the surface of the ultrafiltration membrane while the lower molecular weight contaminants pass through the membrane and are collected as waste. The purified sequencing products are then resuspended in Sequencing Solution and are ready for injection onto capillary-based DNA analyzers.

Features and Benefits

- Effective clean-up of ABI BigDye® chemistries
- Simple centrifugation-based procedure
- Convenient 96-well format

Optimized Protocol Accommodates a Variety of Spin Forces and Times

Spin Force	Time (minutes)	Average PHRED 20	SD
1,000 × *g*	30	887	11
1,500 × *g*	20	870	15
2,500 × *g*	15	880	16
3,500 × *g*	10	859	39

Average PHRED q>20 scores for each spin force/time configuration tested. N=8 for each configuration.

sufficient for 1, 96-well plate purifications

UC9601-1KT	1 kit

sufficient for 4, 96-well plate purifications

UC9604-1KT	1 kit

unique samples

FFPE RNA

GenElute™ FFPE RNA Purification Kit

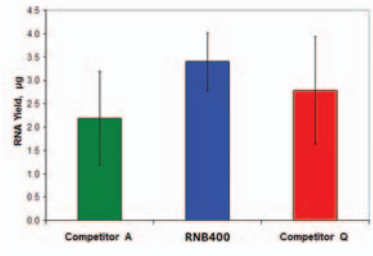
GenElute™ FFPE RNA Purification Kit provides a rapid method for the isolation and purification of total RNA (including microRNA) from formalin-fixed paraffin-embedded (FFPE) tissue samples. Using formalin to fix tissues leads to crosslinking of the RNA and proteins, and the process of embedding the tissue samples can also lead to fragmentation of the RNA over time.

GenElute™ FFPE RNA Purification Kit provides conditions that allow for the partial reversing of the formalin modifications, resulting in a high quality and yield of RNA. The kit is able to purify all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA), depending on the age of the FFPE tissue as the degree of fragmentation of the RNA will increase over time. The RNA is preferentially purified from other cellular components without the use of phenol or chloroform. The purified RNA is of the highest integrity, and can be used in a number of downstream applications including qRT-PCR, reverse transcription PCR, primer extension, expression array assays, and micro-array analyses.

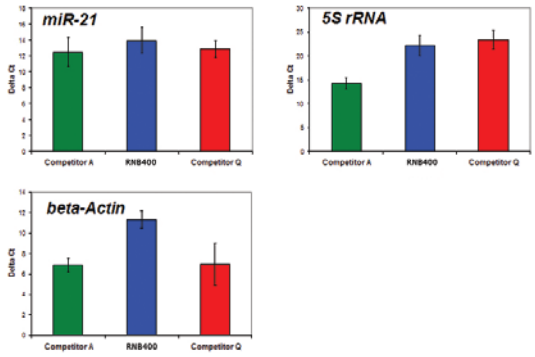
- Extract total RNA (including microRNA) from FFPE samples
- No phenol extraction step
- Includes DNase for optional on-column DNA removal
- Isolated RNA is of the highest quality and integrity

Features and Benefits

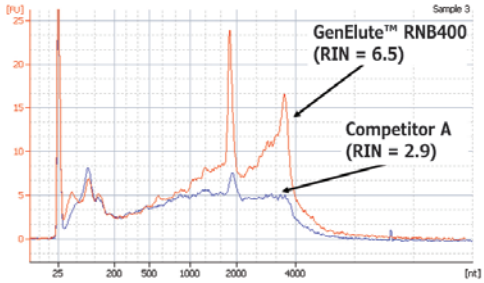
- **High quality and integrity of the isolated RNA** - The purified total RNA is of the highest quality and integrity, and can be used in any sensitive downstream applications.
- **Isolate a diversity of RNA species** - All RNA species can be isolated, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA).
- **High yields** - Norgen's FFPE RNA Purification Kit allows for the purification of high yields of total RNA.
- **No phenol:chloroform extractions** - Total RNA is isolated from FFPE tissue samples without the use of harmful chemicals such as phenol or chloroform.
- **Rapid procedure** - Isolate total RNA from FFPE tissue sections using a rapid spin column format in as little as 1 hour



GenElute™ FFPE RNA Purification Kit, Cat. No. RNB400
Higher Yield of FFPE RNA Isolated by the GenElute™ FFPE RNA Purification Kit. The GenElute™ FFPE RNA Purification Kit isolates FFPE RNA that exceeds the yield of competitors. Total RNA was isolated from one slice of hamster FFPE kidney section (20 micron thickness) using the GenElute™ FFPE RNA Purification Kit and two leading competitor's kits. Eighteen isolations were performed for each product. The graph demonstrates the mean yield of RNA according to spectrophotometry for 18 sample replicates. Vertical bars represent the standard deviation. Our kit consistently purified total RNA with a higher yield than for those obtained using the market competitor's kits.



GenElute™ FFPE RNA Purification Kit, Cat. No. RNB400
Excellent Performance in Downstream Application such as RT-qPCR. The GenElute™ FFPE RNA Purification Kit effectively recovers all sizes of RNA, from large mRNA to small RNA including microRNA, that perform effectively in sensitive applications such as RT-qPCR. Total RNA was isolated from equal amounts of an FFPE tissue sample using the GenElute™ FFPE RNA Purification Kit and two market competitors. The graph demonstrates the mean ΔCt value for 18 sample replicates. Vertical bars represent the standard deviation. Our kit consistently isolates RNA of a higher yield and quality than that obtained by the two leading market competitors as indicated by the larger ΔCt values. Not only were the large RNA species detected including rRNA and mRNA, but small RNA species (microRNA) were also detected from the sample, indicating the diversity of RNA species isolated.



GenElute™ FFPE RNA Purification Kit, Cat. No. RNB400
High Quality and Yield of Total RNA. The GenElute™ FFPE RNA Purification Kit isolates FFPE RNA that exceeds both yield and quality of competitors. Total RNA was isolated from one slice of hamster FFPE kidney section (20 micron thickness) using the GenElute™ FFPE RNA Purification Kit and a leading competitor's kit. One microliter of the 50 µL purified RNA was then resolved on an Agilent 2100 BioAnalzyer using an RNA Nano 6000 chip. As it can be seen, our kit not only isolated higher yields of total RNA, but the RNA was also of a higher quality as evidenced by the higher RIN values obtained with our RNA.

RNB400-50RXN

High Pure FFPE RNA Micro Kit

The High Pure FFPE RNA Micro Kit isolates total RNA from formalin-fixed, paraffin-embedded (FFPE) tissue samples for direct use in:

- Qualitative RT-PCR
- Relative quantification of mRNA with real-time PCR systems such as the LightCycler® 480 System
- Differential display RT-PCR
- cDNA synthesis
- Primer extension

Features and Benefits

- **Streamline and simplify RNA isolation** (even small RNA fragments) from FFPE tissue.
- **Obtain a highly concentrated, ready-to-use eluate** and excellent recovery of RNA (>80%).
- **Isolate DNA-free RNA** for use in qualitative and quantitative RT-PCR.
- **Minimize RNA loss** with a kit that removes contaminants without precipitation or other handling steps that degrade RNA.
- **Generate high-quality template** RNA that shows excellent performance and linearity in RT-PCR.

Size Distribution: The typical size of RNA isolated from formalin-fixed tissue ranges from 150 to 1500 bases. However, section thickness, tissue type, age of sample, and the fixation protocol used can affect the yield and quality of the isolated RNA.
Capacity: The High Pure Micro Filter Tubes hold up to 500 µl sample volume.
Sample Material: 1 - 10 µm sections from formalin-fixed, paraffin-embedded (FFPE) tissue (e.g., from colon, breast, liver, kidney, spleen of mammalian species).
Typical RNA Recovery

Starting Material and Quantity: 1 - 10 µm FFPE sections, colon, breast, liver, kidney, spleen of mammalian species
Yield/Recovery: 1.5 - 3.5 µg/5 µm section
Time Required: 60 minutes without 3 hour incubation
Number of Reactions: 50/1-10 µm sections

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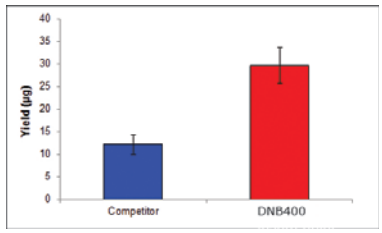
FFPE DNA/RNA

GenElute™ FFPE DNA Purification Kit

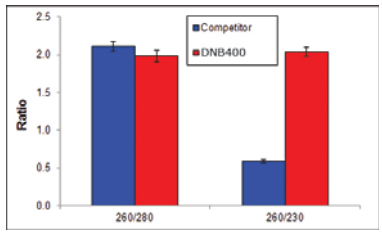
GenElute™ FFPE DNA Purification Kit provides a rapid method for the isolation and purification of genomic DNA from formalin-fixed paraffin-embedded (FFPE) tissue samples. Using formalin to fix tissues leads to crosslinking of the nucleic acids and proteins, and the process of embedding the tissue samples can also lead to fragmentation of the nucleic acids over time.

GenElute™ FFPE DNA Purification Kit provides conditions that allow for the partial reversing of the formalin modifications, resulting in a high quality and yield of nucleic acids. The DNA is purified from other cellular components without the use of phenol or chloroform. The purified genomic DNA is of the highest integrity, and can be used in a number of downstream applications including qPCR, mutation screening, microarray analyses, sequencing, Southern blotting and SNP analysis.

- Fast and easy processing using rapid spin-column format
- High yields of gDNA
- No phenol or chloroform extractions



GenElute™ FFPE DNA Purification Kit, Cat. No. DNB400
Comparison of Total DNA Yield Isolated by the GenElute™ FFPE DNA Purification Kit and a Leading Competitor FFPE DNA Purification Kit. DNA was isolated from 10 mg of FFPE kidney blocks. DNA concentrations were measured using the NanoVue spectrophotometer (GE Healthcare). Our kit was found to have a much higher DNA yield, compared to the competitor kit.



GenElute™ FFPE DNA Purification Kit, Cat. No. DNB400
Comparison of DNA Quality Isolated by the GenElute™ FFPE DNA Purification Kit and a Leading Competitor FFPE DNA Purification Kit. DNA was isolated from 10 mg of FFPE kidney blocks. Quality was assessed using A_{260}:A_{280} and A_{260}:A_{230} ratios generated from the NanoVue spectrophotometer (GE Healthcare). While the GenElute™ FFPE DNA Purification Kit and the competitor kit were found to have similar A260:A280 ratios, our kit was found to have a much higher A_{260}:A_{230} ratio, indicating higher quality DNA.

DNB400-50RXN

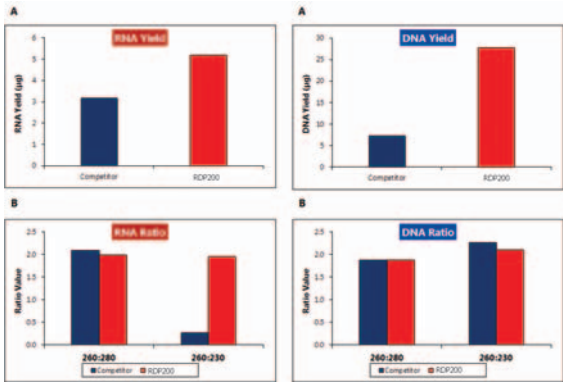
GenElute™ FFPE RNA/DNA Purification Plus Kit

GenElute™ FFPE RNA/DNA Purification Plus Kit provides a rapid method for the sequential isolation and purification of total RNA (including microRNA) and genomic DNA from formalin-fixed paraffin-embedded (FFPE) tissue samples. Using formalin to fix tissues leads to crosslinking of the nucleic acids and proteins, and the process of embedding the tissue samples can also lead to fragmentation of the nucleic acids over time. GenElute™ FFPE RNA/DNA Purification Plus Kit provides conditions that allow for the partial reversing of the formalin modifications, resulting in a high quality and yield of nucleic acids. The kit is able to purify all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA), depending on the age of the FFPE tissue as the degree of fragmentation of the RNA will increase over time. The RNA is purified from other cellular components without the use of phenol or chloroform. The purified RNA is of the highest integrity, and can be used in a number of downstream applications including real time PCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, and expression array assays. The purified genomic DNA is also of the highest quality, and can be used in PCR reactions, sequencing, Southern blotting and SNP analysis.

- Fast and easy processing using rapid spin-column format
- High yields and Quality of Nucleic Acids
- Separate fractionation of RNA and DNA
- Isolate total RNA, from large rRNA down to microRNA (miRNA)
- No phenol or chloroform extractions

Features and Benefits

- **Complete column purification** - Separate fractionation of RNA and DNA
- **Reduce variability** - RNA and DNA are isolated from a single sample with no splitting of the lysate, thus reducing inconsistent results and variability
- **Isolate a diversity of RNA species** - All sizes of RNA are isolated, from large mRNA down to microRNA
- **Isolate high quality RNA and DNA** - The purified RNA and DNA are of the highest quality and can be used in a number of downstream applications



GenElute™ FFPE RNA/DNA Purification Plus Kit, Cat. No. RDP200
Superior Recovery of High Quality RNA and DNA from FFPE Spleen Tissues. The GenElute™ FFPE RNA/DNA Purification Plus Kit isolates FFPE RNA and DNA that exceeds the yield of competitors. Total RNA and DNA was isolated from equal amount of hamster FFPE Spleen sections (20 micron thickness) using the GenElute™ FFPE RNA/DNA Purification Plus Kit and a leading competitor's kits. Triplicate isolations were performed for each product. The top graphs demonstrate the mean yield of RNA (Panel A) and DNA (Panel B) according to NanoDrop measurement. The bottom graphs showed the mean 260:280 ratio and 260:230 ratio of RNA (Panel C) and DNA (Panel D) according to NanoDrop measurement. Our kit consistently purified total RNA and DNA with a higher yield and higher quality than for those obtained using the market competitor's kits.

RDP200-50RXN

High Pure RNA Paraffin Kit

Formalin-fixed, paraffin-embedded tissue sections are homogenized by overnight Proteinase K digestion and purified as described. RNA yield is determined by measuring the optical density at 260 nm. The RNA eluate is used in one-step RT-PCR with specific primers for the β2M-gene. In the following LightCycler® PCR, using the LightCycler® RNA Amplification Kit SYBR Green I and specific primers for β2M, the expected amplification signal is obtained at a cp-value less then 24. Absence of contaminating genomic DNA is examined by a LightCycler® PCR without a reverse transcriptase step; no amplification product is obtained.

The High Pure RNA Paraffin Kit isolates total RNA from paraffin embedded, fresh-frozen tissue. The quality of RNA obtained is suitable for relative quantification of mRNA with RT-PCR, especially on the LightCycler® Carousel-Based System. Additional applications include:

- RT-PCR
- Differential display RT-PCR
- cDNA synthesis
- Primer extension

Features and Benefits

- **Isolate RNA suitable for RT-PCR** from archived paraffin tissue (up to 15 years old).
- **Obtain a concentrated product** that is ready-to-use (no RNA precipitation required).
- **Quickly prepare total RNA** from tissue sections in approximately 2 hours (after an overnight digestion).
- **Obtain highly pure RNA** for use in relative mRNA quantification procedures (e.g., with the LightCycler® System).
- **Eliminate the use of hazardous organic compounds** such as cesium chloride, phenol, chloroform, and ethidium bromide.

Capacity: The High Pure Spin Filter Tubes hold up to 800 µL sample volume.

Sample Material:

- 5 - 10 µm sections from formalin-fixed, paraffin-embedded tissue (e.g., colon, breast, liver, kidney, spleen of mammalian species, including human-research samples).
- 20 – 30 mg fresh-frozen solid tissue.
- 3 × 5 µm tissue sections from fresh-frozen tissue.

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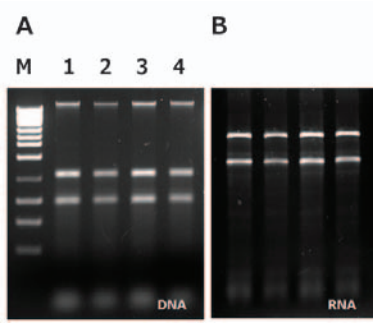
Water DNA/RNA

GenElute™ Water RNA/DNA Purification Kit - 0.45 µm

GenElute™ Water RNA/DNA Purification Kit - 0.45 µm provides a convenient and rapid method for the detection of microorganisms from environmental water samples. The kit allows for the rapid isolation and purification of total RNA and DNA simultaneously from the microorganisms found in small and large samples of water. The total RNA and DNA (including genomic DNA) are isolated from all the microorganisms found in the water, including bacteria, fungi and algae without the use of any inhibitory organic substances. The water sample is first passed through a 0.45 µm filter, and the microorganisms present in the water are captured. Both the RNA and DNA are then column purified in under 45 minutes using a single column. The purified RNA and DNA are highly concentrated, and can be used directly in a number of downstream applications including real time PCR, reverse transcription PCR, Northern blotting, Southern blotting and sequencing reactions.

- Isolate total DNA and RNA from all microorganisms found in water, including bacteria, fungi and algae
- RNA and DNA are both column purified simultaneously using the same column
- Elution contains concentrated DNA and RNA without the need for further precipitation
- Complete RNA (including microRNA) without phenol
- Isolated RNA and DNA are of high quality and integrity for all downstream applications



GenElute™ Water RNA/DNA Purification Kit - 0.45 µm, Cat. No. RDP100
High Yield and Purity of RNA and DNA. Total RNA and DNA were simultaneously isolated from 50 mL of water sample containing 10^7 cfu/mL *E. coli* using the GenElute™ Water RNA/DNA Purification Kit and subsequently run on gels for visual analysis. Panel A shows 10 µL aliquots (no RNase treatment) of the 50 µL elutions run on a 1% TAE agarose gel. Genomic DNA and 16S and 23S rRNA bands were visable. Panel B shows 5 µL aliquots (on-column DNase was applied) of the elution run on a 1.5% formaldehyde agarose gel. 16S and 23S rDNA was seen without DNA contamination. From observing the gels it can be seen that the kit allows for the isolation and purification of high yields of concentrated and high quality RNA and DNA.

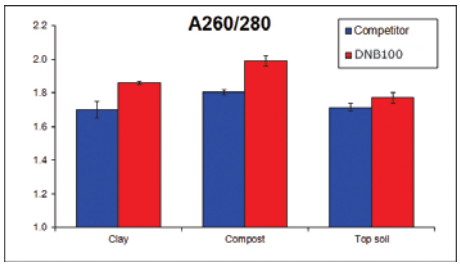
RDP100-25RXN

Soil DNA

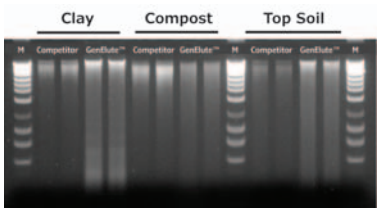
GenElute™ Soil DNA Isolation Kit

GenElute™ Soil DNA Isolation Kit provides a convenient and rapid method for the detection of microorganisms from soil samples. All types of soil samples can be processed with this kit, including common soil samples and difficult soil samples with high humic acid content such as compost and manure. The kit removes all traces of humic acid using the provided OSR (Organic Substance Removal) Solution. A simple and rapid spin column procedure is then used to further purify the DNA. Total genomic DNA can be isolated and purified from all the various microorganisms found in soil, such as bacteria, fungi and algae. The purified DNA is of the highest quality and is fully compatible with downstream PCR applications, as all humic acid substances and PCR inhibitors are removed during the isolation.

- Isolate total DNA from all microorganisms found in soil, including bacteria, fungi and algae
- Process all types of soil, including common soil samples and difficult samples with high humic acid
- Remove all humic acids using the provided Humic Acid Removal Columns and the OSR Solution
- Isolated DNA is free of inhibitors such as humic acid - ready for PCR applications
- Easy-to-use beads for extraction - fast without any time consuming sample grinding



GenElute™ Soil DNA Isolation Kit, Cat. No. DNB100
High Purity of DNA Samples Isolated from Clay. DNA was isolated from 250 mg samples of clay using the GenElute™ Soil DNA Isolation Kit and a competitor's kit (MO). DNA purity was determined using NanoDrop for the DNA isolated using our kit (260/280 = Blue sky) and the competitor's kit (MO) (260/280 = Brown).



GenElute™ Soil DNA Isolation Kit, Cat. No. DNB100
High Yields of Genomic DNA was isolated from 250 mg of clay, compost and top soil using the GenElute™ Soil DNA Isolation Kit and a competitor's kit (MO). Following isolation, 10 µL from each 100 µL elution was loaded on 1% TAE agarose gel. Lane M: Our HighRanger 1kb DNA Ladder.

DNB100-50RXN

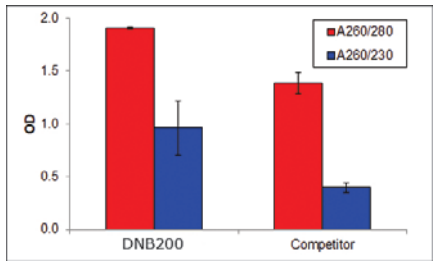
Stool DNA

GenElute™ Stool DNA Isolation Kit

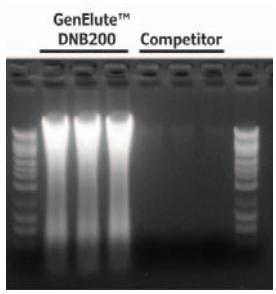
GenElute™ Stool DNA Isolation Kit provides a convenient and rapid method to isolate total DNA from fresh or frozen stool samples. The kit can also be used to isolate DNA from preserved stool samples. The universal protocol conveniently allows for the isolation of total genomic DNA from all the various microorganisms and host cells found in the stool sample simultaneously. The kit removes all traces of humic acid using the provided Bead Tubes and a combination of chemical and physical homogenization and lysis. A simple and rapid spin column procedure is then used to further purify the DNA. The purified DNA is of the highest quality and is fully compatible with downstream PCR applications, as all humic acid substances and PCR inhibitors are removed during the isolation.

- Simultaneous isolation of both host DNA and microbial DNA (universal protocol)
- Eliminates PCR inhibitors including humic acid
- High quality DNA for sensitive downstream applications

All solutions should be kept tightly sealed and stored at room temperature. These reagents should remain stable for at least 1 year in their unopened containers.



GenElute™ Stool DNA Isolation Kit, Cat. No. DNB200
Quality of DNA was measured by Nanodrop. Highest DNA quality was provided from the Stool DNA isolated using the GenElute™ Stool DNA Isolation Kit.



GenElute™ Stool DNA Isolation Kit, Cat. No. DNB200
Comparison of the stool DNA isolated from 200 mg fresh stool samples using the GenElute™ Stool DNA Isolation Kit and Competitor Z. For evaluation, 10 µL of DNA from the elution was run on 1× TAE 1.2% agarose gel.

DNB200-50RXN

DNA/RNA/Protein

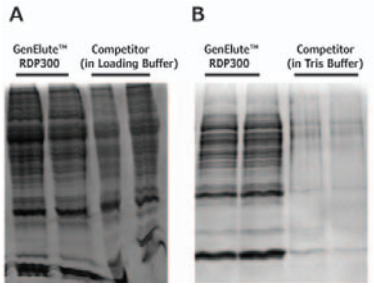
GenElute™ RNA/DNA/Protein Purification Plus Kit

GenElute™ RNA/DNA/Protein Purification Plus Kit provides a rapid method for the isolation and purification of total RNA, genomic DNA and proteins sequentially from a single sample of cultured animal cells, small tissue samples, blood, bacteria, yeast, fungi or plants. The total RNA, genomic DNA and proteins are all column purified in less than 30 minutes. This kit is ideal for researchers who are interested in studying the genome, proteome and transcriptome of a single sample, such as for studies of microRNA profiling, gene expression including gene silencing experiments or mRNA knockdowns, studies involving biomarker discovery, and for characterization of cultured cell lines. GenElute™ RNA/DNA/Protein Purification Plus Kit is especially useful for researchers who are isolating macromolecules from precious, difficult to obtain or small samples such as biopsy materials or single foci from cell cultures, as it eliminates the need to fractionate the sample. Furthermore, analysis will be more reliable since the RNA, DNA and proteins are derived from the same sample, thereby eliminating inconsistent results. The purified macromolecules are of the highest purity and can be used in a number of different downstream applications.

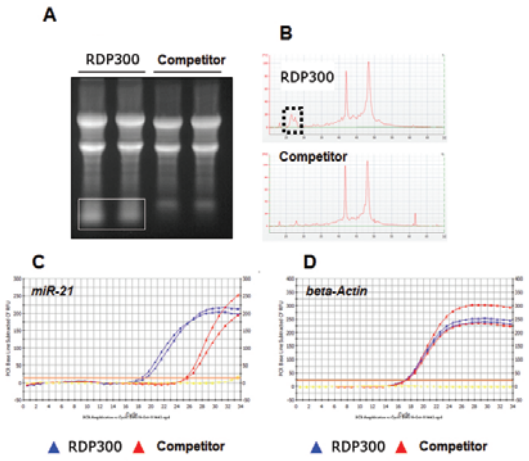
- Sequentially isolate and purify total RNA, genomic DNA and total proteins from a single sample
- Ideal for small or difficult to obtain samples
- No need to split the lysate, or to use phenol or precipitation methods
- Purify RNA/DNA/Protein from cultured animal cells, tissues, blood, bacteria, yeast, fungi or plants
- Rapid and efficient spin column procedure

Features and Benefits

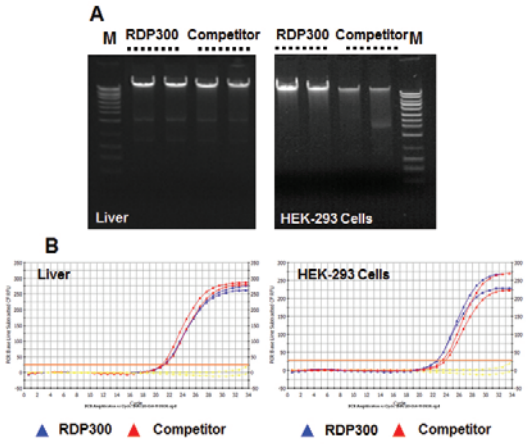
- **Complete column purification** - The RNA, DNA and proteins are all column purified
- **Reduce variability** - RNA, DNA and proteins are isolated from a single sample with no splitting of the lysate, thus reducing inconsistent results and variability
- **Isolate from small samples** - Sequential isolation of RNA, DNA and protein from a single sample. Ideal for precious, difficult to obtain or small samples such as biopsy material or single foci from cell cultures.
- **Rapid procedure** - Isolate total RNA, genomic DNA and total proteins from a single sample in less than 30 minutes
- **Isolate a diversity of RNA species** - All sizes of RNA are isolated, from large mRNA down to microRNA
- **Isolate high quality RNA, DNA and proteins** - The purified RNA, DNA and proteins are of the highest quality and can be used in a number of downstream applications



GenElute™ RNA/DNA/Protein Purification Plus Kit, Cat. No. RDP300
High Quality Total Proteins Eluted in Mass Spec-Compatible Buffer. The GenElute™ RNA/DNA/Protein Purification Plus Kit provides an additional column purification step for effective concentration and clean-up of the isolated proteins. In contrast, most competing multiple analyte isolation products require protein precipitation and the precipitated proteins are required to be resuspended in buffer with high-detergent content (such as SDS-PAGE loading dye) for full recovery. Protein fractions (from hamster liver) isolated by the GenElute™ RNA/DNA/Protein Purification Plus Kit and a competitor's kit were resolved on a 12% SDS-PAGE protein gel. Panel A showed that when the competitor's precipitated protein fraction was resuspended in a provided SDS-PAGE loading buffer, the protein recovery was similar among the two kits. Panel B showed that when the same precipitated protein fraction from the competitor's kit was resuspended in a Tris-based buffer containing no detergent or denaturant, the protein recovery became drastically reduced. In contrary, the GenElute™ RNA/DNA/Protein Purification Plus Kit purified proteins by column and the eluted proteins are already in a buffer compatible with most downstream applications including mass spectrophotometry as well as standard protein quantification methods (including Bradford assays).



GenElute™ RNA/DNA/Protein Purification Plus Kit, Cat. No. RDP300
Recovery of True Total RNA including microRNA from Hamster Liver. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of 15 mg hamster liver using either the GenElute™ RNA/DNA/Protein Purification Plus Kit or a competitor's multiple-analyte purification kit. Both kits isolated large RNA (represented by 28S and 18S rRNA) with high integrity but the GenElute™ RNA/DNA/Protein Purification Plus Kit provided the added benefit of recovering small RNA without any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, the GenElute™ RNA/DNA/Protein Purification Plus Kit showed the added benefit of recovering small RNA. The difference in small RNA recovery was also demonstrated by gene-specific RT-qPCR. One microgram of RNA was used in RT-qPCR reactions for hamster beta-Actin (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by the GenElute™ RNA/DNA/Protein Purification Plus Kit showed similar Ct value to RNA isolated by the competitor's kit for the large RNA (Panel D). However, the GenElute™ RNA/DNA/Protein Purification Plus Kit showed superior recovery of small RNA including microRNAs as depicted by the miR-21 RT-qPCR (Panel C).



GenElute™ RNA/DNA/Protein Purification Plus Kit, Cat. No. RDP300
Recovery of Intact, High Quality Genomic DNA from HEK-293 cells and Hamster Liver. Panel A is a 1% agarose gel showing the gDNA isolated from the same HEK-293 cell or hamster liver samples using the GenElute™ RNA/DNA/Protein Purification Plus Kit or competitor's multiple-analyte purification kit. Lane M is a 1 kb DNA Ladder and the sample lanes contain 10 µL of each of the 100 µL elutions. The gel showed high quality, and intact genomic DNA, with a better yield using the GenElute™ RNA/DNA/Protein Purification Plus Kit. Panel B is the result of qPCR amplification of 25 ng of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using the GenElute™ RNA/DNA/Protein Purification Plus Kit is of high quality and performed similar to or better than competitor's product.

RDP300-50RXN

supplemental reagents

DNase I

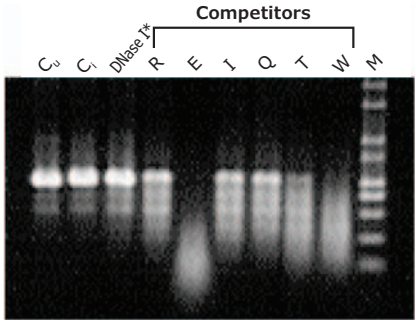
Deoxyribonuclease I (DNase I) is an endonuclease isolated from bovine pancreas that digests double- and single-stranded DNA into oligo- and mononucleotides. Using the Reaction Buffer provided, DNA is removed from RNA preparations in a 15 minute digestion at room temperature. The DNase I is then inactivated by heating with the Stop Solution. Heating also denatures hairpins in the RNA, so the RNA can be used directly in reverse transcription.

Many commercial DNase I formulations are contaminated with residual RNases. This RNase contamination can destroy or degrade valuable RNA samples prior to reverse transcription. Laboratory comparisons have shown that our Amplification Grade DNase I demonstrates lower RNase activity than that from several leading molecular biology product suppliers.

No current RNA isolation procedure removes 100% of the DNA. Many commercial DNase I formulations are contaminated with residual RNases. This RNase contamination can destroy or degrade valuable RNA samples prior to reverse transcription. Laboratory comparisons have shown that our Amplification Grade DNase I demonstrates lower RNase activity than that from several leading molecular biology product suppliers.

Features and Benefits

- Suitable for the elimination of DNA from RNA
- Minimal RNase activity available
- Optimized 10× reaction buffer and Stop Solution for complete inactivation of DNase I



Sigma-Aldrich® Amplification Grade DNase I* has the lowest RNase activity. For our DNase I, and for each competitor's DNase I, the following assay was completed: 1 µg of a 1.9 kb in vitro transcription product was incubated with 1 unit of the respective DNase I at 37 °C for 1 hour and analyzed on a 1% agarose gel. C_u = unincubated control (RNA in buffer without DNase, kept on ice). C_i = incubated control (RNA in buffer without DNase, incubated at 37 °C for 1 hour).
Note: To determine the effectiveness of DNase I treatment, parallel PCR reactions should be run without adding reverse transcriptase to check for amplification from contaminating DNA.

Amplification Grade

Suitable for use in removing DNA from RNA preparations.

AMPD1-1KT	1 kit

GenElute™-LPA

GenElute LPA Linear Polyacrylamide is an efficient neutral carrier for precipitating picogram amounts of nucleic acids with ethanol. The nucleic acid precipitate can be collected simply by centrifugation. LPA offers several advantages for recovering DNA or studying DNA-protein interactions, relative to other carriers, such as tRNA or glycogen. tRNA interferes with DNA during phosphorylation with polynucleotide kinase and glycogen competes with protein in DNA-protein interaction studies. In contrast, LPA is completely inert. LPA is synthesized chemically and, therefore, is not contaminated with biological material. The precipitate is visible immediately upon addition of LPA, thus eliminating wait time and low temperature incubation.

Neutral carrier for ethanol precipitation

56575	1 pkg
56575-1ML	1 mL

Glycogen from *Mytilus edulis* (Blue mussel)

[9005-79-2]

for DNA precipitations

Glycogen is an inert carrier that traps nucleic acids. It forms a precipitate with DNA/RNA while being insoluble in ethanol solution. Due to the manufacturing process, there is low risk of contaminating nucleic acids in the glycogen. This product is tested for DNase, RNase, and NICKase, but not nucleic acids.

for molecular biology

G1767-1VL	1 vial

Guanidine hydrochloride

[50-01-1] $NH_2C(=NH)NH_2 \cdot HCl$ FW 95.53
Strong chaotropic agent useful for the denaturation and subsequent refolding of proteins. This strong denaturant can solubilize insoluble or denatured proteins such as inclusion bodies. This can be used as the first step in refolding proteins or enzymes into their active form. Urea and dithiothreitol (DTT) may also be necessary.

for molecular biology

G3272-25G	25 g
G3272-100G	100 g
G3272-500G	500 g
G3272-1KG	1 kg
G3272-2KG	2 kg

Guanidine thiocyanate

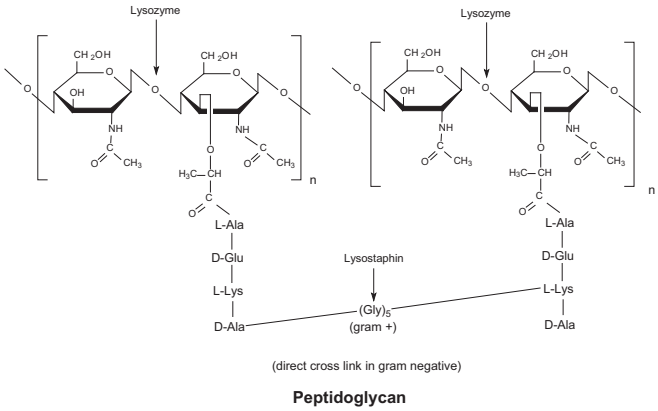
[593-84-0] $NH_2C(=NH)NH_2 \cdot HSCN$ FW 118.16
Chaotropic agent and strong denaturant; solubilizes cells.

for molecular biology

G9277-100G	100 g
G9277-250G	250 g
G9277-500G	500 g

Lysozyme from chicken egg white

[12650-88-3]
Enzyme breaks down the cell walls of bacteria; used to prepare spheroplasts.



Peptidoglycan

Lysozyme specificity: Peptidoglycans are polymers of β-(1-4)-N-Acetyl-D-glucosamine units. Alternating residues are modified to form N-acetylmuramic acid with the addition of lactate to form branching links to the tetrapeptide.

for molecular biology

Lysozyme hydrolyzes the β-1,4 linkages between N-acetylmuramic acid and N-acetylglucosamine, a polysaccharide backbone of peptidoglycans in the cell wall structure of many microorganisms. This is particularly useful for lysing Gram-positive and Gram-negative bacteria for subsequent nucleic acid extraction.

Features and Benefits

- Highly purified by repeated crystallization and dialysis
- Each lot is use-tested for isolation of plasmid DNA from *E. coli*

L7651-25G	25 g

Pellet Paint® NF Co-Precipitant

Pellet Paint® NF Co-Precipitant is a non-fluorescent dye-labeled carrier compatible with fluorescent sequencing. It facilitates rapid removal of BigDye® Terminators during the alcohol precipitation of cycle sequencing reaction products. Cycle sequencing reactions can be precipitated rapidly with 1 µL of carrier per reaction and centrifugation times of 10 minutes. The easily visualized carrier provides a simple confirmation that precipitation has occurred. Sequencing reaction products are efficiently pelleted and dye-labeled terminators remain in the supernatant during alcohol precipitation using the standard Applied Biosystems precipitation protocols. Resuspension of pelleted sequencing reaction products in deionized formamide can be confirmed by checking for dissolution of the carrier.

Pellet Paint® NF Co-Precipitant is fully compatible with the ABI PRISM® BigDye® Terminator Cycle Sequencing Ready Reaction. To avoid extra sample handling, Pellet Paint® NF Co-Precipitant can be added directly to the reaction mix, template DNA, crude PCR samples, or dilution buffer before the cycle sequencing reaction. Although Pellet Paint® NF absorbs in the UV range, accurate spectrophotometric measurements of DNA or RNA samples are possible; the absorbance ratio (provided with each package of Pellet Paint® NF) can be used as a correction factor when determining nucleic acid concentration. PelletPaint® NF Co-Precipitant has no detectable effect on the sequencing reaction or sequence accuracy.

Pellet Paint® NF Co-Precipitant is a useful substitute for the original PelletPaint® Co-Precipitant in applications where fluorescent detection is used.

Features and Benefits

- Efficient and rapid precipitation of BigDye® cycle sequencing products
- Efficient removal of dye terminators
- Direct visualization and tracking of precipitated material
- No effect on sequencing reaction
- Substitute for original Pellet Paint® Co-Precipitant for fluorescent detection applications

125 reactions

70748-3

1000 reactions

70748-4

Pellet Paint® Co-Precipitant

Pellet Paint® Co-Precipitant is a visible dye-labeled carrier formulated specifically for use in alcohol precipitation of nucleic acids (McCormick 1995, McCormick 1996). The two-minute precipitation uses just 2 µL per reaction and requires no low-temperature incubations or prolonged centrifugation. Both RNA and DNA are efficiently precipitated from even dilute solutions (2 ng/mL) and the pellet is easily located by its vivid pink color. The pellet can be easily followed during washing steps and prevents losses during handling.

Most applications of PCR benefit from a clean-up step in which primers and other reactants are removed and the target DNA is concentrated (Taggart 1998). Pellet Paint® Co-Precipitant is ideal for this cleanup because the procedure is rapid, primers <50 nt in length are efficiently removed, and the DNA is quantitatively recovered. Furthermore, it is easy to tell when the DNA has been completely resuspended following the precipitation step.

Pellet Paint® Co-Precipitant is compatible with most molecular biology procedures and is free of contaminating nucleic acids and nucleolytic enzymes. Although it absorbs in the UV range, accurate spectrophotometric measurements of DNA or RNA samples are possible; the absorbance ratio (provided with each package) can be used as a correction factor when determining nucleic acid concentration (McCormick 1996). Pellet Paint® Co-Precipitant is compatible with automatted Cy5® sequencers. Pellet Paint® NF Co-Precipitant is recommended for use with PE Applied Biosystems automated sequencers.

Features and Benefits

- Direct visualization and tracking of precipitated material

Comparison of Different carriers for precipitation of nucleic acids

Compatible with	Pellet Paint®	Glycogen	tRNA
gel electrophoresis	✓	✓	—
PCR amplification	✓	?	—
DNA sequencing	✓	✓	—
restriction digestion	✓	✓	✓
ligation	✓	✓	?
transformation	✓	✓	?
cDNA synthesis	✓	✓	?
kinase reactions	✓	✓	—
random priming	✓	?	—
in vitro transcription	✓	✓	?
in vitro translation	✓	✓	✓
RNase protection assay	✓	?	✓
phenol extraction	✓	✓	✓
LiCl precipitation	✓	✓	—
bacterial electroporation	✓	?	?
PEG precipitation	✓	?	?

Pellet Paint® Co-Precipitant *(continued)*

Comparison of different carriers for precipitation of nucleic acids

Sample	Incorp. cpm recovered
RNA (100 nt, 0.2 ng/µL)	0.90%
RNA (1000 nt, 0.2 ng/µL)	0.92%
RNA (10,000 nt, 0.2 ng/µL)	0.89%
DNA (100-2000 bp, 4 pg/µL)	0.86%

The indicated samples of ^{32}P-labeled RNA and DNA were prepared using standard protocols for transcription and random priming, respectively. Following the labeling reactions, incorporation was determined by DE81 filtration. Known amounts of incorporated material (300,000 cpm) were precipitated in the presence of Pellet Paint®. Samples without Pellet Paint® Co-Precipitant resulted in a 5- to 50-fold reduction in recovery.

125 reactions

69049-3	

1000 reactions

69049-4	

2-Propanol

[67-63-0] $(CH_3)_2CHOH$ FW 60.10

for molecular biology

Suitable for use in DNA precipitation using standard protocols. Also suitable as a solvent for making solutions for molecular biology applications.

Isopropanol is a clear, colorless, polar organic solvent commonly used in chemistry and molecular biology laboratories. It will dissolve a wide range of chemicals, and evaporates quickly.

I9516-25ML	25 mL
I9516-4X25ML	4 × 25 mL
I9516-500ML	500 mL

Poly(ethylene glycol)

[25322-68-3] $H(OCH_2CH_2)_nOH$

for molecular biology

P5413-500G	500 g
P5413-1KG	1 kg
P5413-2KG	2 kg

Proteinase K from *Tritirachium album*

[39450-01-6]
Useful for the proteolytic inactivation of nucleases during the isolation of DNA and RNA.

for molecular biology

P2308-5MG	5 mg
P2308-10MG	10 mg
P2308-25MG	25 mg
P2308-100MG	100 mg
P2308-500MG	500 mg
P2308-1G	1 g

for molecular biology

P4850-1ML	1 mL
P4850-5ML	5 mL

Ribonuclease A from bovine pancreas

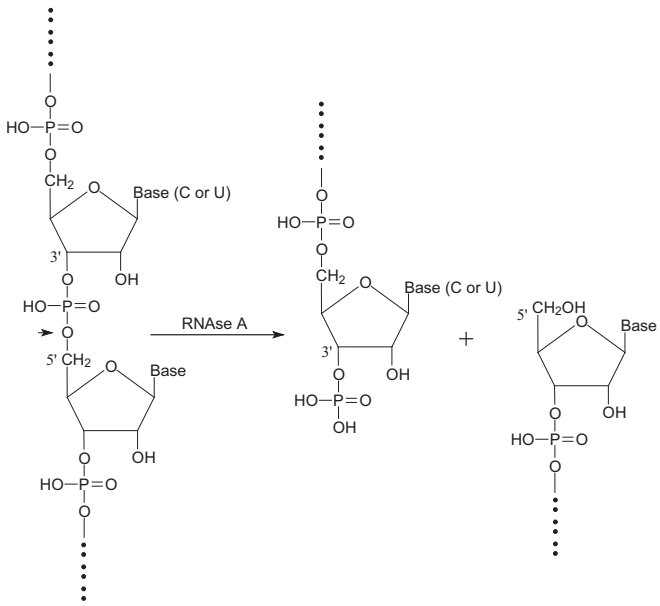
[9001-99-4]
RNase A is an endoribonuclease that attacks at the 3′OHphosphate of a pyrimidine nucleotide. The sequence of pG-pG-pC-pA-pG will be cleaved to give pG-pG-pCp and A-pG. The highest activity is exhibited with single stranded RNA.

Features and Benefits

- RNase protection assays
- Remove unspecifically bound RNA
- Analysis of RNA sequences
- Hydrolyze RNA contained in protein samples
- Purification of DNA

Protein determined by $E^{1\%}_{280}$.

Ribonuclease A Specificity



RNAse catalyzes the endonucleolytic cleavage of RNA to yield nucleoside 3′-phosphates and 3′-phosphooligonucleotides ending in Cp or Up.

for molecular biology

R6513-10MG	10 mg
R6513-50MG	50 mg
R6513-250MG	250 mg
R6513-500MG	500 mg
R6513-1G	1 g

Suitable for:

- RNase protection assays
- Removal of unspecifically bound RNA
- Analysis of RNA sequences
- Hydrolysis of RNA contained in protein samples
- Plasmid DNA purification

R4642-10MG	10 mg
R4642-50MG	50 mg
R4642-250MG	250 mg
R4642-1G	1 g

Ribonuclease inhibitor human

Useful for *in vitro* inhibition of ribonucleases, including procedures like cDNA synthesis, RT-PCR, and *in vitro* transcription and translation.

Inhibits ribonucleases during transcription and translation experiments

Suitable for use in

- in vitro inhibition of ribonucleases
- cDNA synthesis
- RT-PCR
- in vitro transcription and translation

Ribonuclease inhibitor works to inhibit RNase activity by forming a tight, non-covalent 1:1 complex. It is human placenta. It inhibits RNases A, B, and C. It will not inhibit RNases H, 1, T1, S1 Nuclease, SP6, T7 RNA Polymerase, T3 RNA Polymerase, AMV Reverse Transcriptase, M-MLV Reverse Transcriptase, or Taq Polymerase. The inhibitor can be removed by phenol extraction or by heating to 65°C for 10 minutes.
for molecular biology

R2520-2.5KU	2500 units
R2520-10KU	10000 units
R2520-20KU	20000 units

ProtectRNA™ RNase Inhibitor 500× Concentrate

A potent inhibitor of most nucleic acid binding enzymes, and thus useful as an RNase inhibitor. Especially useful when performing *in situ* hybridization. If it is added to all aqueous solutions used, it eliminates the need for special glassware washing and after-wash treatments. The 500x concentrate is economical; 2 ml treats 1,000 ml of solution. Not recommended in systems where other enzymatic activity is required.

RNase inhibitor for *in situ* hybridization assays

R7397-30ML	30 mL

Notes

MilliporeSigma

MY GENOMICS JAMS

You won't miss a beat with our dependable products that help you navigate your genomics workflow. Whether your goal is to clone and express your favorite gene, sequence cDNA, or study epigenetic changes in a disease of interest, we have a range of solutions, from comprehensive to off-the-shelf, to accelerate your molecular biology research. With unmatched customer service and technical expertise, we're always there for you — just like your favorite song — to heighten your experience in the lab.

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