GeneAll®

Catalog 2018/19

Innovative Life Science System

Customer & Technical Support

Should you have any further questions, do not hesitate to contact us.

We appreciate your comments and advice.

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Visit GeneAll® Community

www.geneall.com

www.geneall.co.kr

About GeneAll

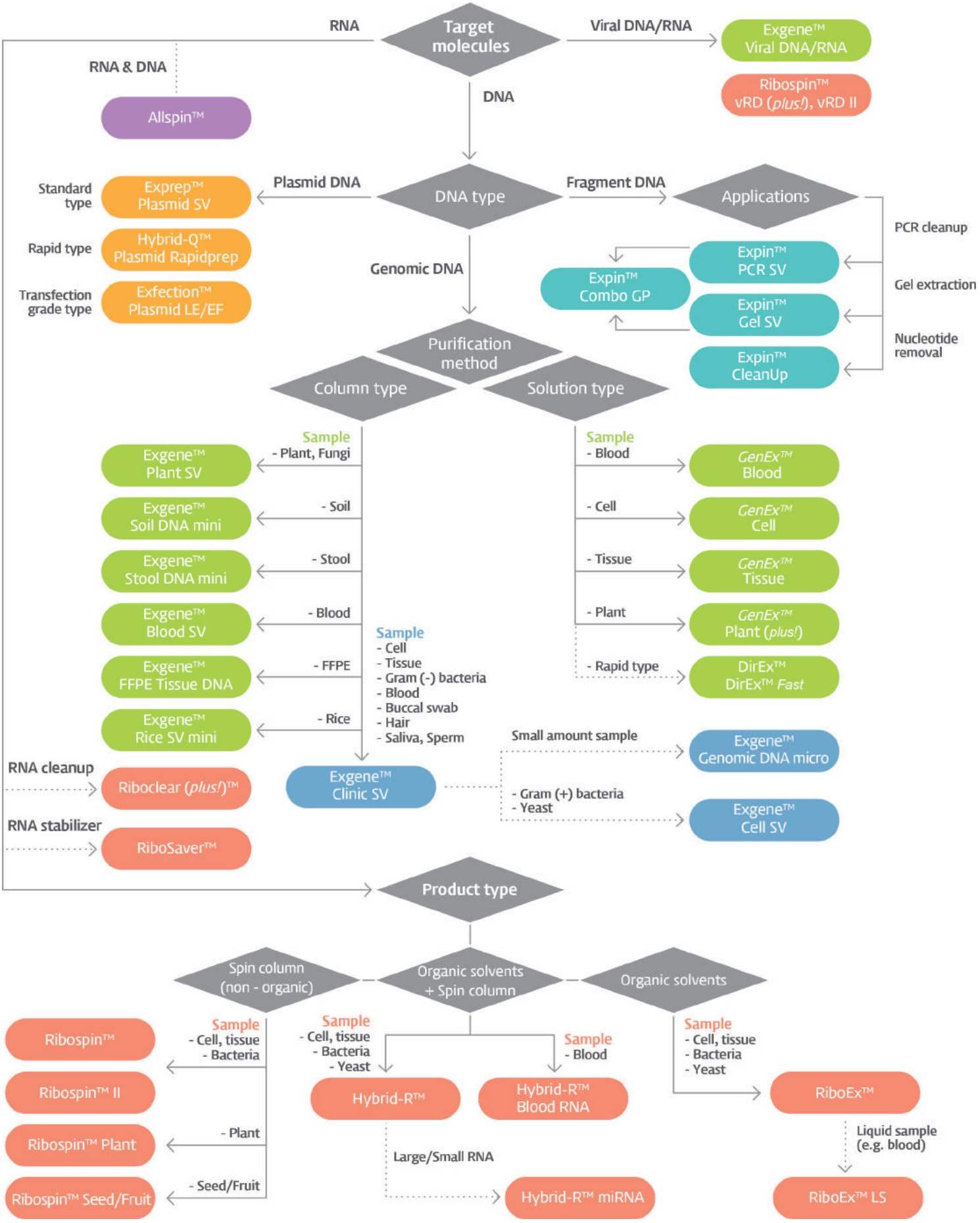
With the advance in molecular biological techniques, researchers have preferred the commercial ready-made kits to lab-made reagents in order to concentrate on doing research itself rather than making reagents. GeneAll® DNA and RNA Purification kit series are basic materials in molecular biological experiments and offer fast, accurate, convenient and reproducible methods. Every GeneAll® product is manufactured under strictly clean condition and controlled thoroughly from lot to lot, and we proudly guarantee the stable and consistent quality. GeneAll® SV column contains silica membrane that will bind DNA and easily apply to both centrifugation and vacuum protocols. Purification step is so simple, bind-wash-elute, that is all. Under high salt condition, DNA bind to silica membrane and impurities pass through membrane into a collection tube. The membranes are washed with an ethanol-containing buffer to remove any residual of proteins, cellular debris, salts, remnant of agarose, enzymatic reaction components and etc. Finally DNA is released into a clean collection tube with water or low ionic strength buffer.

GeneAll® 2018 / 19 Catalog

Visit www.geneall.com or www.geneall.co.kr for FAQ, Q&A and more information.

GeneAll® Kits Selection Guide

For DNA / RNA Purification System



Selection Guide

For Genomic DNA Purification

Exgene™ / *GenEx*™ / DirEx™ Series

Exgene™ and *GenEx*™ series are designed for the purification of total DNA from a variety of sample sources. Exgene™ series provide fast and easy methods in convenient spin or vacuum column format and there are no need phenol extraction or alcohol precipitation. *GenEx*™ series provide convenient, scalable purification methods in the specially formulated buffer system.
Purified total DNA can be directly applicable in conventional PCR, real-time PCR, southern blotting, genotyping, RFLP and other downstream applications. DirEx™ series provide easy and simple preparation of PCR template DNA in a single-tube without laborious extraction process. Prepared DNA can be applied directly to PCR analysis.

	Exgene™											*GenEx*™				DirEx™
Sample Type	Exgene™ Tissue SV (Plus) *	Exgene™ Blood SV	Exgene™ Cell SV	Exgene™ Clinic SV	Exgene™ Genomic DNA micro	Exgene™ Plant SV	Exgene™ Rice DNA	Exgene™ Viral DNA / RNA	Exgene™ Soil DNA mini	Exgene™ Stool DNA mini	Exgene™ FFPE Tissue DNA	*GenEx*™ Blood / Cell / Tissue ** B	*GenEx*™ Blood / Cell / Tissue ** C	*GenEx*™ Plant *** (Plus) T	*GenEx*™ Plant *** (Plus)	DirEx™ / DirEx™ *Fast*
Animal tissue	○		○	○	○									○		○
Body fluid		○	○	○	○			○				△				△
Bone					○											
Buccal swab	△	○	○	○	○			△								○
Buffy coat		○	○	○	△			△				△				
Callus						○									○	
Cultured cells	○	○	○	○	△			○					○	○		○
DNA virus		○	○	○	○			○								
Dried blood spot			○	○	○											○
Fixed tissue	○		○	○	△						○			△		
Forensic sample					○											△
Fungi						○			△						○	
Gram(-) bacteria	○		○	○	△			△					○	○		○
Gram(+) bacteria	△		○	△	△								△	△		△
Hair		○	○	○	○											○
Lichens									○							
Insect / worm	○		△	△	△									○		△
Mammalian whole blood	○*	○	○	○	○							○				○
Nail					○											○
Nucleated blood	△	○	○	○	△							△				△
Paraffin block	○		○	○	△						○			○		
Plant cells						○									○	
Plant tissue						○									○	
Rice							○								△	
Rodent tails	○		○	○	○									○		
Saliva			○	○	○											
Soil									○							
Sperm			△	△	○			○								
Urine			○	○	○											
Yeast	△		○	△	△								△	△		△
Stool										○						

○ *Recommended* / △ *Recomended with additional preparation step*

* *Exgene™ Tissue Plus provides the additional methods for the purification of total DNA from mammalian whole blood.*

** *GenEx™ series provide convenient, scalable purification methods in the specially formulated buffer systems.*

*** *GenEx™ Plant Plus kit has an additional feature, EzSep™ Filter for cleared supernatant*

Exgene™ Tissue SV (Plus)

For the isolation of gDNA from tissues, cells and whole blood (Plus)

Description

Exgene™ Tissue SV kit provides a simple and rapid method for the isolation of total DNA from animal tissues and cultured cells. This kit can process 25 mg (mini) of wet tissue and yields up to 50 μg (mini) depending on the type of sample used. Specially formulated buffer system minimize RNA copurified with DNA without RNase A treatment. RNase A can be treated in this protocol. No organic extraction and alcohol precipitation are needed and multiple samples can be easily processed simultaneously. Exgene™ Tissue SV Plus offers additional material and method for DNA purification from whole blood.

Features and Benefits

- Spin or vacuum column format
- Accurate and consistent DNA extraction from animal tissues, cultured cell line and whole blood (Plus only)
- Simple and safe procedure
- High purity : A_{260} / A_{280} = 1.8 ~ 2.0
- No use of organic solvents
- Ready for use in PCR, southern blotting, AFLP, RFLP, RAPD and other enzymatic reactions

Exgene™ Tissue SV (Plus) mini

Format : Column Type G (mini), (with 2.0 ml collection tube)

Sample size : ~ 25 mg tissue

Preparation time : 25 ~ 220 min

Typical yield : 5 ~ 50 μg

Elution volume : 30 ~ 400 μℓ

Midi

Format : Column Type G (Midi), (with 15 ml collection tube)

Sample size : ~ 100 mg tissue

Preparation time : 40 ~ 250 min

Typical yield : 20 ~ 150 μg

Elution volume : 200 ~ 600 μℓ

MAXI

Format : Column type G (MAXI), (with 50 ml collection tubes)

Sample size : ~ 250 mg tissue

Preparation time : 40 ~ 250 min

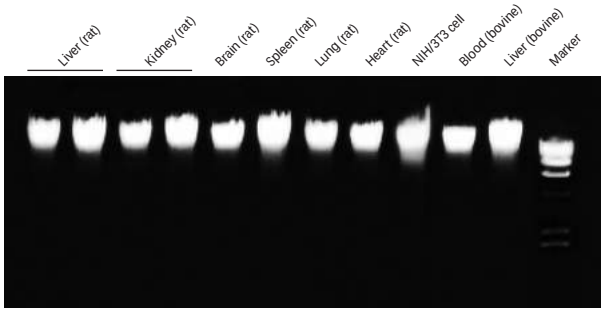
Typical yield : 80 ~ 400 μg

Elution volume : 400 ~ 2000 μℓ

* The time and results of the experiment differ depending on the type of sample used.

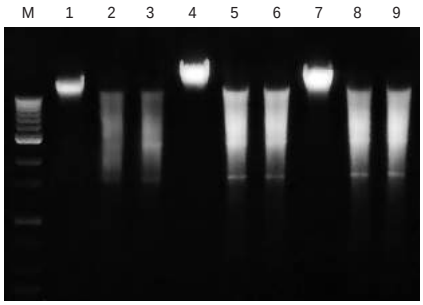
Cat. No.	Products	Type	Size
104(9)-101	Exgene™ Tissue SV (Plus)	mini / spin / vacuum	100
104(9)-152	Exgene™ Tissue SV (Plus)	mini / spin / vacuum	250
104(9)-226	Exgene™ Tissue SV (Plus)	Midi / spin / vacuum	26
104(9)-201	Exgene™ Tissue SV (Plus)	Midi / spin / vacuum	100
104(9)-310	Exgene™ Tissue SV (Plus)	MAXI / spin / vacuum	10
104(9)-326	Exgene™ Tissue SV (Plus)	MAXI / spin / vacuum	26

DNA Extraction from Various Samples



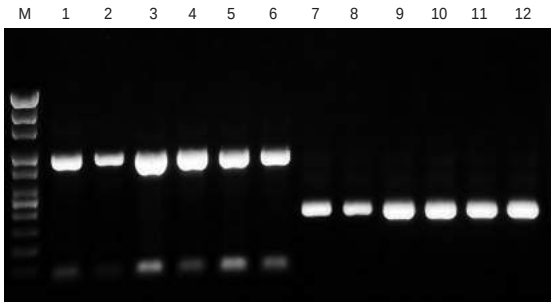
DNA purification using Exgene™ Tissue SV (Plus) kit. DNA from several kinds of animal tissues was prepared. Elution was performed with 100 μℓ of Buffer AE. 8 μℓ of eluates was resolved on 0.8% agarose gel.

Compatibility Test with Restriction Enzymes



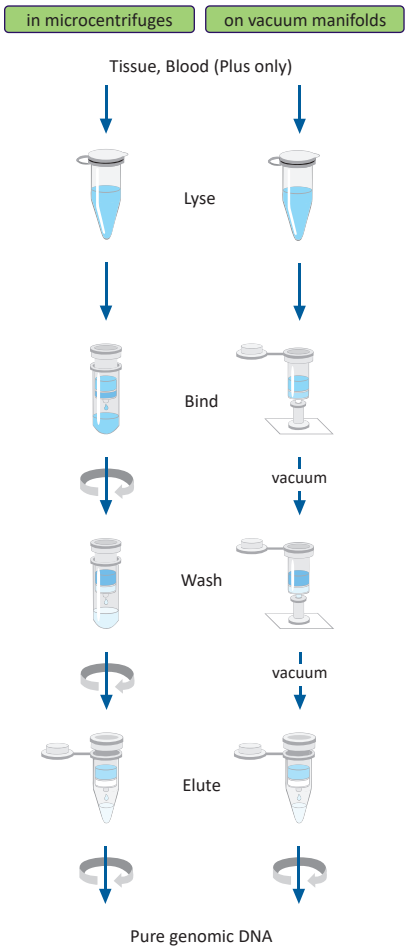
Genomic DNA purified from various rat samples using Exgene™ Tissue SV kit was partially digestied with EcoRI (Lane 2 ~ 3, 5 ~ 6, 8 ~ 9).
Lane 1, 4, 7 represent undigested DNA.
Lane M : 1 kb ladder

PCR Amplification



PCR reaction was performed with purified DNA using Exgene™ Tissue SV kit. Template was isolated from rat liver (Lane 1 ~ 2, 7 ~ 8), spleen (Lane 3 ~ 4, 9 ~ 10) and kidney (Lane 5 ~ 6, 11 ~ 12).
Lane M : 1 kb ladder

Procedures



Component list

Column Type G (with collection tube)
Collection tube
Buffer RL (Plus only)
Buffer TL
Buffer TB
Buffer BW
Buffer TW
Buffer AE
Proteinase K
PK Storage buffer
Protocol Handbook

* **GeneAll®** Midi / MAXI kits require the centrifuge which has swing bucket rotor and ability of 4,000 x g at least.

Exgene™ Blood SV

For the isolation of gDNA from blood and its derivatives

Description

Exgene™ Blood SV kit provides a simple and rapid method for the isolation of total DNA from fresh or frozen whole blood, buffy coat, serum, plasma, virus and cultured cells. Purification procedure is so simple and optimized to simultaneous processing of multiple samples. Exgene™ Blood SV yields pure DNA ready for direct PCR in just 20 minutes (mini) and 1 hour (Midi / MAXI). There is no need phenol extraction or alcohol precipitation.

Features and Benefits

- Spin or vacuum column format
- Accurate and consistent DNA extraction from whole blood, buffy coat, serum, plasma, cultured cells
- Fast, safe and simple procedure completed in 20 minutes (mini), 1 hour (Midi, MAXI)
- High purity : 1.8 ~ 2.0
- No use of organic solvents
- Ready for use in PCR, southern blotting and other enzymatic reactions

Exgene™ Blood SV mini

Format : Column Type G (mini), (with 2.0 ml collection tube)

Sample size : ~ 200 μℓ

Preparation time : 20 ~ 30 min

Typical yield : 4 ~ 20 μg

Elution volume : 30 ~ 400 μℓ

Midi

Format : Column type G (Midi), (with 15 ml collection tube)

Sample size : 1 ~ 2 ml

Preparation time : 40 ~ 55 min

Typical yield : 20 ~ 60 μg

Elution volume : 200 ~ 600 μℓ

MAXI

Format : Column type G (MAXI), (with 50 ml collection tube)

Sample size : 3 ~ 10 ml

Preparation time : 40 ~ 55 min

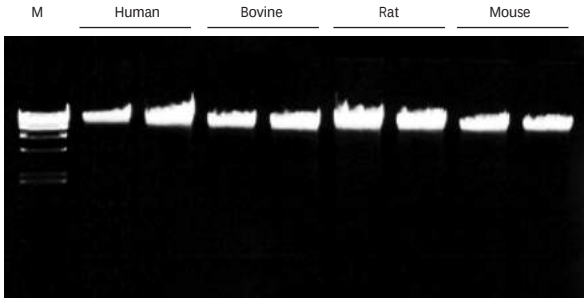
Typical yield : 80 ~ 400 μg

Elution volume : 400 ~ 2000 μℓ

* The time and results of the experiment differ depending on the type of sample used.

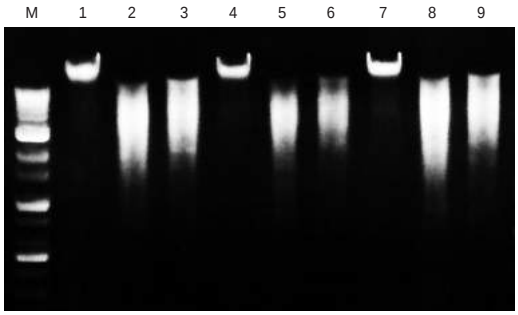
Cat. No.	Products	Type	Size
105-101	Exgene™ Blood SV	mini / spin / vacuum	100
105-152	Exgene™ Blood SV	mini / spin / vacuum	250
105-226	Exgene™ Blood SV	Midi / spin / vacuum	26
105-201	Exgene™ Blood SV	Midi / spin / vacuum	100
105-310	Exgene™ Blood SV	MAXI / spin / vacuum	10
105-326	Exgene™ Blood SV	MAXI / spin / vacuum	26

DNA Extraction from Various Samples



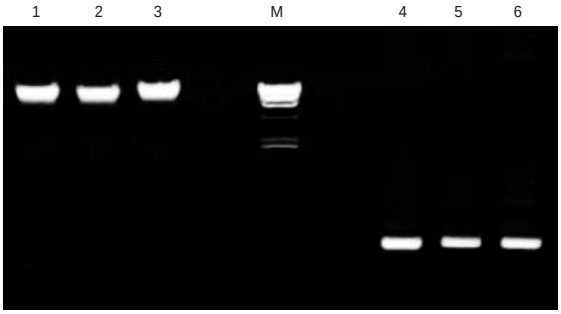
Total DNA was isolated from 200 μℓ of whole blood of various species using Exgene™ Blood SV mini kit. Each lane represents 8 μℓ of 100 μℓ eluates.
Lane M : Lambda-HindIII

Compatibility Test with Restriction Enzymes



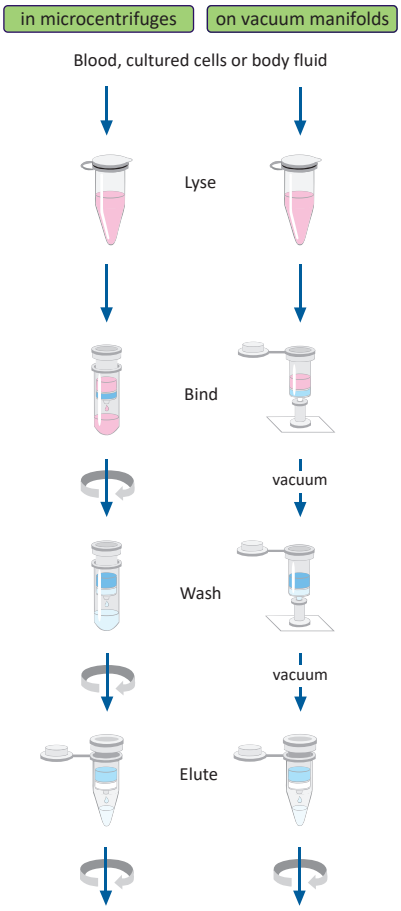
Genomic DNA purified from various rat blood samples using Exgene™ Blood SV mini kit was partially digestied with EcoRI (Lane 2 ~ 3, 5 ~ 6, 8 ~ 9). Lane 1, 4, 7 represent undigested DNA.
Lane M : 1 kb ladder

PCR Amplification



PCR reaction was performed with purified DNA using Exgene™ Blood SV kit as template. Each lane 1, 2 and 3 corresponds to the template of each PCR product (Lane 4, 5, 6). Template DNA was isolated from whole blood of rat (SD) and the exon region of GAPDH gene was amplified with Taq polymerase.

Procedures



Component list

Column Type G (with collection tube)
Collection tube
Buffer BL
Buffer BW
Buffer TW
Buffer AE
Proteinase K
PK Storage buffer
Protocol Handbook

* **GeneAll**® Midi / MAXI kits require the centrifuge which has swing bucket rotor and ability of 4,000 x g at least.

Exgene™ Clinic SV

For the isolation of gDNA from clinical tissues including whole blood

Description

Exgene™ Clinic SV kit provides an easy and fast method for the isolation of total DNA such as genomic, mitochondrial, bacterial, parasite or viral DNA from various clinical sample including tissues, whole blood and body fluids. The purified DNA is suitable for PCR, blotting, RFLP, RAPD, AFLP and etc.

Features and Benefits

- Spin and vacuum format
- Easy and fast purification of high-quality DNA
- No organic extraction or alcohol precipitation
- Consistent and high yields
- High purity : 1.8 ~ 2.0
- Ready for use in PCR, Southern blotting, genotyping and etc.

Exgene™ Clinic SV mini

Format : Column Type G (mini), (with 2.0 ml collection tube)

Sample size : ~ 20 mg

Preparation time : 25 ~ 220 min

Typical yield : 5 ~ 50 μg

Elution volume : 30 ~ 400 μℓ

Midi

Format : Column Type G (Midi), (with 15 ml collection tube)

Sample size : ~ 100 mg

Preparation time : 40 ~ 250 min

Typical yield : 20 ~ 80 μg

Elution volume : 200 ~ 600 μℓ

MAXI

Format : Column Type G (MAXI), (with 50 ml collection tube)

Sample size : ~ 250 mg

Preparation time : 40 ~ 250 min

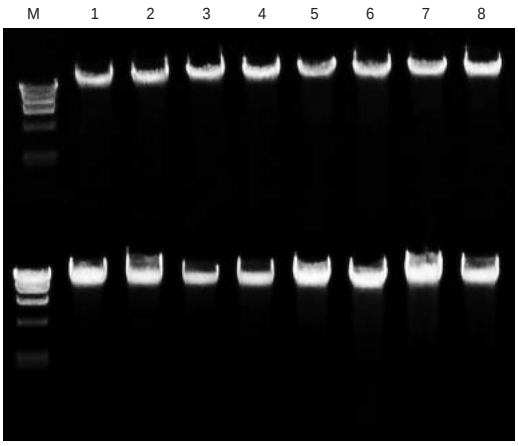
Typical yield : 80 ~ 400 μg

Elution volume : 400 ~ 2000 μℓ

* The time and results of the experiment differ depending on the type of sample used.

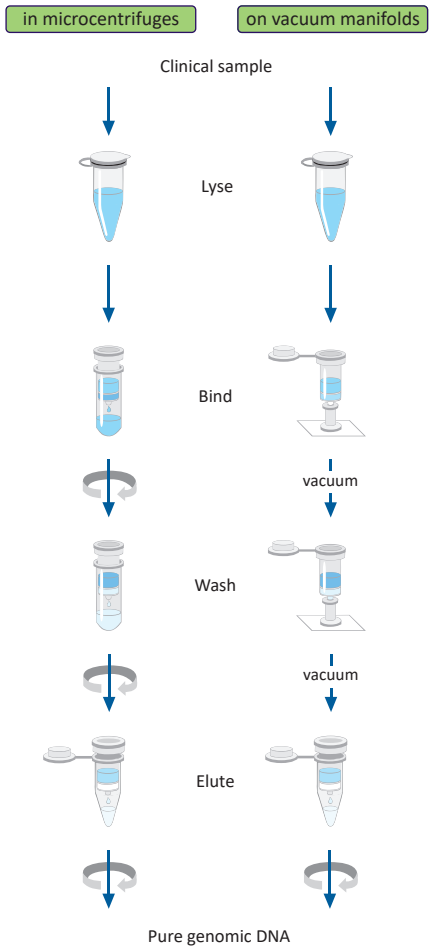
Cat. No.	Products	Type	Size
108-101	Exgene™ Clinic SV	mini / spin / vacuum	100
108-152	Exgene™ Clinic SV	mini / spin / vacuum	250
108-226	Exgene™ Clinic SV	Midi / spin / vacuum	26
108-201	Exgene™ Clinic SV	Midi / spin / vacuum	100
108-310	Exgene™ Clinic SV	MAXI / spin / vacuum	10
108-326	Exgene™ Clinic SV	MAXI / spin / vacuum	26

Consistent Result from Various Samples



Extracted gDNA using Exgene™ Clinic SV mini is resolved on 0.8% agarose gel.
M : Lambda-HindIII

Procedures



Component list

Column Type G (with collection tube)
Collection tube
Buffer CL
Buffer BL
Buffer BW
Buffer TW
Buffer AE
Proteinase K
PK Storage buffer
Protocol Handbook

* **GeneAll®** Midi / MAXI kits require the centrifuge which has swing bucket rotor and ability of 4,000 x g at least.

Exgene™ Cell SV

For the isolation of gDNA from cultured cell, yeast, gram positive/negative bacteria and etc.

Description

Exgene™ Cell SV kit provides a rapid and simple method for the purification of total DNA from a wide range of organism including bacterial cells, yeast, cultured cells, whole blood and blood derivatives. Up to 2 x 10^9 bacterial cells, 5 x 10^6 cultured cells or 3 ml of yeast cultures may yield 5 ~ 25 μg of DNA typically. The pure DNA can be acquired in just 30 minutes and this can be directly used in various applications such as PCR, Southern blotting and other enzymatic reactions.

Features and Benefits

- Spin or vacuum column format
- Accurate and consistent DNA extraction from gram positive or negative bacteria, cultured cell, yeast and various biological samples
- High purity : 1.8 ~ 2.0
- Simple and safe procedure
- No use of organic solvents
- Ready for use in PCR, Southern blotting, AFLP, RFLP, RAPD and other enzymatic reactions

Exgene™ Cell SV mini

Format : Column Type G (mini), (with 2.0 ml collection tube)

Sample size : ~ 2 x 10^9 bacterial cells ~ 5 x 10^7 yeast cells

Preparation time : 30 ~ 120 min

Typical yield : 5 ~ 25 μg

Elution volume : 30 ~ 400 μℓ

MAXI

Format : Column Type G (MAXI), (with 50 ml collection tube)

Sample size : ~ 5 x 10^{10} bacterial cells ~ 5 x 10^8 yeast cells

Preparation time : 60 ~ 240 min

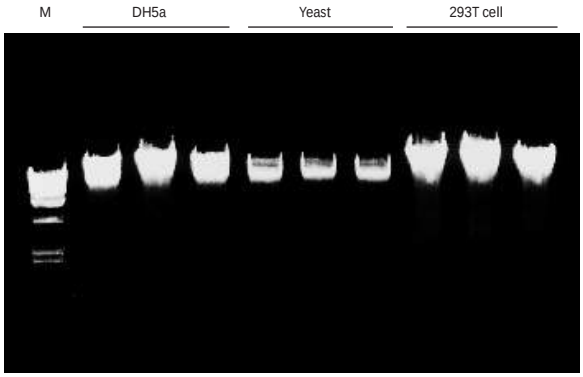
Typical yield : 80 ~ 400 μg

Elution volume : 400 ~ 2000 μℓ

* The time and results of the experiment differ depending on the type of sample used.

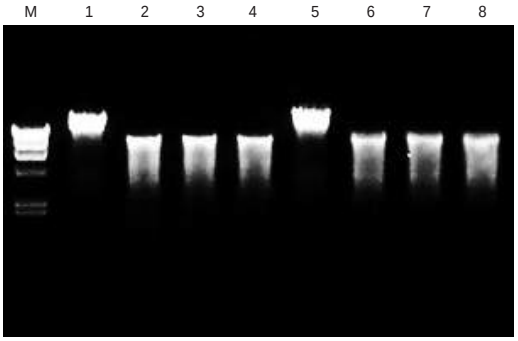
Cat. No.	Products	Type	Size
106-101	Exgene™ Cell SV	mini / spin / vacuum	100
106-152	Exgene™ Cell SV	mini / spin / vacuum	250
106-310	Exgene™ Cell SV	MAXI / spin / vacuum	10
106-326	Exgene™ Cell SV	MAXI / spin / vacuum	26

Consistent Result from Various Samples



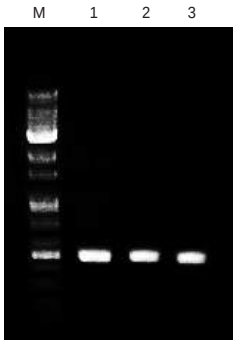
Genomic DNA prepared from a several species of cells using Exgene™ Cell SV kit. 5 ㎕ out of 100 ㎕ eluate was resolved on 0.8% agarose gel.
Lane M : Lambda-HindIII

Compatibility Test with Restriction Enzymes



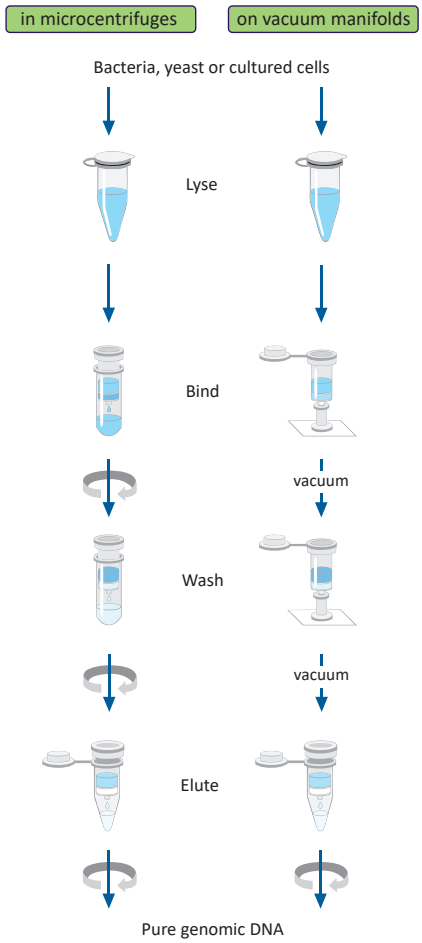
Genomic DNA purified from *E. coli* DH5α and JB6 samples using Exgene™ Cell SV kit was partially digested with BamHI (Lane 2 ~ 4, 6 ~ 8). Lane 1, 5 represent undigested DNA.
Lane M : Lambda-HindIII

PCR Amplification



PCR reaction was performed with purified DNA using Exgene™ Cell SV kit. Template DNA was isolated from *E. coli* DH5α (Lane 1, 2, 3).
PCR reaction was performed with genomic DNA purified from DH5α using Exgene™ Cell SV kit.
Lane M : Lambda-HindIII

Procedures



Component list

Column Type G (with collection tube)
Collection tube
Buffer GP
Buffer YL
Buffer CL
Buffer BL
Buffer BW
Buffer TW
Buffer AE
Proteinase K
PK Storage buffer
Protocol Handbook

* **GeneAll®** MAXI Kits require the centrifuge which has swing bucket rotor and ability of 4,000 x g at least.

Exgene™ Plant SV

For the isolation of gDNA from plant cells and tissues

Description

Exgene™ Plant SV kit provides a simple and easy method for the small, medium and large scale purification of total DNA from various plant tissues. With EzSep™ Filter and Column Type G, the procedure can be done in just 40 minutes (mini), yielding a pure genomic DNA suitable for various downstream appilcations without further manipulation. Up to 100 mg, 400 mg, and 1 g of plant tissue can be processed with Exgene™ Plant SV mini, Midi and MAXI, respectively. Exgene™ Plant SV procedure eliminates the need of organic solvent extraction and alcohol precipitation, allowing safe and fast preparation of many samples simultaneously. Purified total DNA can be directly applicable in conventional PCR, real-time PCR, Southern blotting, SNP genotyping, RFLP, AFLP and RAPD.

Features and Benefits

- Spin or vacuum column format
- Stable and consistent DNA extraction from plant cells, tissues and fungi
- Perfect removal of second metabolites such as polyphenols and polysaccharides
- Simple procedure by the use of EzSep™ Filter
- No use of organic solvents
- Ready for use in PCR, Southern blotting, AFLP, RFLP, RAPD and other enzymatic reactions

Exgene™ Plant SV mini

Format : Column Type G (mini), (with 2.0 ml collection tube)

Sample size : ~ 100 mg wet (25 mg dry)

Preparation time : < 40 min

Typical yield : 4 ~ 40 μg

Elution volume : 30 ~ 400 μℓ

Midi

Format : Column Type G (Midi), (with 15 ml collection tube)

Sample size : ~ 400 mg wet (100 mg dry)

Preparation time : < 1 hour

Typical yield : 10 ~ 150 μg

Elution volume : 200 ~ 600 μℓ

MAXI

Format : Column Type G (MAXI), (with 50 ml collection tube)

Sample size : ~ 1 g wet (250 mg dry)

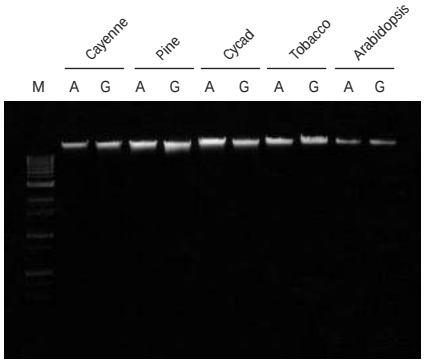
Preparation time : < 1 hour

Typical yield : 40 ~ 300 μg

Elution volume : 400 ~ 2000 μℓ

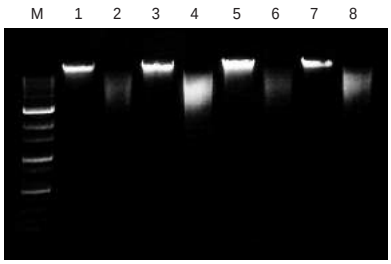
Cat. No.	Products	Type	Size
117-101	Exgene™ Plant SV	mini / spin / vacuum	100
117-152	Exgene™ Plant SV	mini / spin / vacuum	250
117-226	Exgene™ Plant SV	Midi / spin / vacuum	26
117-201	Exgene™ Plant SV	Midi / spin / vacuum	100
117-310	Exgene™ Plant SV	MAXI / spin / vacuum	10
117-326	Exgene™ Plant SV	MAXI / spin / vacuum	26

Comparison of DNA Extraction



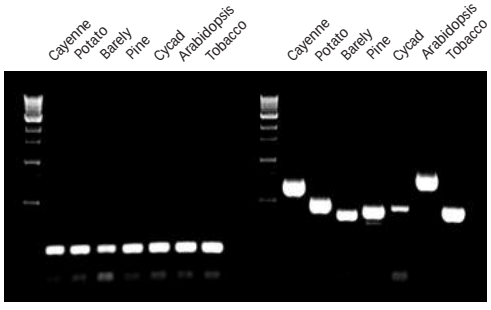
Genomic DNA was extracted from each 100 mg of various samples and analyzed on 0.8% agarose gel. To compare with supplier A, same kind and amount of each plant samples were subjected to extraction.
Lane A : supplier A, Lane G : Exgene™ Plant.
Lane M : 1 kb ladder

Compatibility Test with Restriction Enzymes



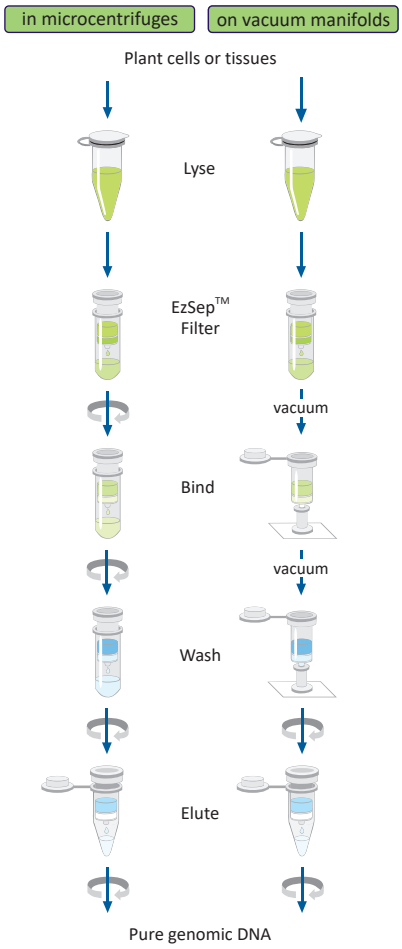
Genomic DNA purified from various plant samples by Exgene™ Plant SV kit was subjected to partial digestion with HindIII (Lane 2, 4, 6, 8). Lane 1, 3, 5, 7 represent undigested DNA.
Lane M : 1 kb ladder

PCR Amplification



PCR reaction was performed with purified DNA using Exgene™ Plant SV kit. Two primer sets were used : trnL region (left lanes) and large subunit rRNA gene (right lanes).

Procedures



Component list

Column Type G (with collection tube)
EzSep™ Filter (with collection tube)
Buffer PL
Buffer PD
Buffer BD
Buffer CW
Buffer AE
RNaseA (100 mg / ml)
Protocol Handbook

* **GeneAll®** Midi / MAXI Kits require the centrifuge which has swing bucket rotor and ability of 4,000 x g at least.

Exgene™ Soil DNA mini

For the isolation of gDNA from soil samples

Description

Exgene™ Soil DNA mini Kit provides a convenient method for the isolation of total DNA from soil samples. This kit utilizes the powerful beads, the optimized buffer system and the advanced silica binding technology to purify nucleic acid suitable for many applications. These complex systems of this kit can deal with a number of different types of samples in the soil including plant tissues, bacteria, fungi spores and others. Also, it removes a humic acid contents and other PCR inhibitors from various soil samples efficiently. The humic acid contents, which are a sort of brownish colour, are a critical factor for soil treating experiments. If remained in eluate, this can have a negative effect on the DNA downstream applications. Exgene™ Soil DNA mini provides a tube including powerful beads for strong pulverization. Soil samples are placed in this tube with lysis buffer, Buffer SL, and crushed by bead-beater or vortex. After centrifugation, supernatant is mixed with precipitation buffer, Buffer RH and Buffer PD, to precipitate humic acid and protein. Then, the separated DNA part, supernatant, blend into the binding buffer, Buffer TB, and DNA is bound on the silica membrane through centrifugation. Following washing step with Buffer NW, the bound DNA is eluted by Buffer EB. Purified DNA can be directly applicable in conventional PCR, restriction analysis, electrophoresis and any other downstream applications.

Features and Benefits

- Glassfiber membrane technology
- Easy and fast purification of high-quality DNA
- Efficient lysis step using Powerbead™ Tube
- Perfect removal of humic acid
- Stable and consistent yield
- No organic extraction or alcohol precipitation
- High purity : ready for the conventional and real-time PCR

Exgene™ Soil DNA mini

Format : Column Type G (mini),
(with 2.0 ml collection tube)

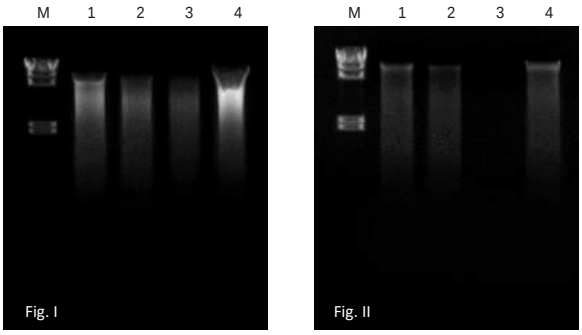
Sample size : ~ 500 mg

Preparation time : ~ 25 min

Elution volume : 30 ~ 200 $\mu\ell$

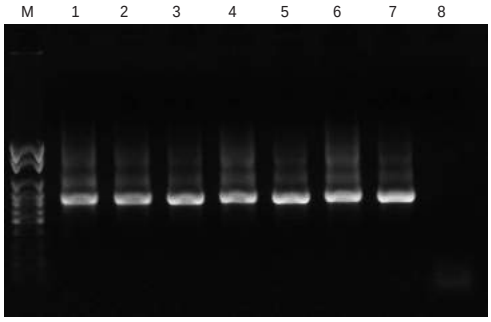
Cat. No.	Products	Type	Size
114-150	Exgene™ Soil DNA mini	mini / spin	50

Comparative Genomic DNA Purification Result



gDNA isolated from various soil samples with Exgene™ Soil DNA mini (Fig. I) vs supplier A (Fig. II) (used vortex homogenization method)
Lane M : Lambda-HindIII
Lane 1 : Soil under cherry blossom
Lane 2 : Soil of onion patch
Lane 3 : Soil of cabbage patch
Lane 4 : Mud

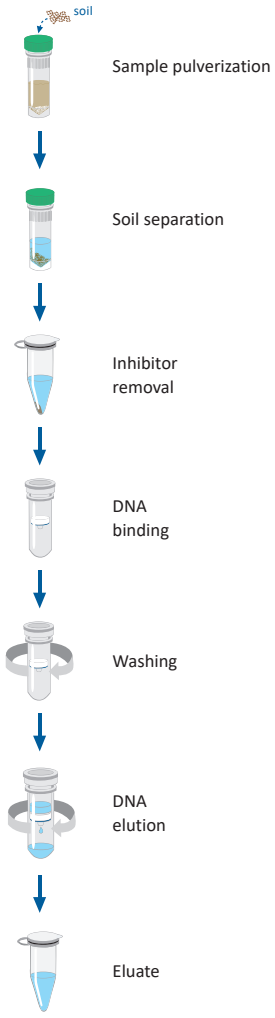
PCR Amplification



gDNA was purified from various soil samples using Exgene™ Soil DNA mini.
And then, the 16s rRNA was amplified by PCR and confirmed by electrophoresis.

Lane M : 100 bp ladder
Lane 1 : Pot soil
Lane 2 : Soil under cherry blossom A
Lane 3 : Soil of cabbage patch A
Lane 4 : Soil under cherry blossom B
Lane 5 : Soil of cabbage patch B
Lane 6 : Soil under cherry blossom C
Lane 7 : Soil of cabbage patch C
Lane 8 : Negative

Procedures



Component list

Component list
Column Type G (with collection tube)
1.5 ml microcentrifuge tube
2.0 ml microcentrifuge tube
Buffer SL
Buffer RH
Buffer PD
Buffer TB
Buffer NW
Buffer EB
Powerbead™ Tube
Protocol Handbook

Exgene™ Genomic DNA micro

For the isolation of total DNA from micro-scale biological samples

Description

Exgene™ Genomic DNA micro kit provides fast and easy methods for the micro scale purification of total (genomic and mitochondrial) DNA from various biological samples. Purified DNA can be used directly for PCR, quantitative PCR, genotyping such as STR analysis and other downstream applications. Exgene™ Genomic DNA micro utilizes the advanced silica-binding technology to purify total DNA sufficiently pure for many applications. Various samples are lysed in optimized buffer containing detergents and lytic enzyme. Under high salt condition, DNA in the lysate bind to silica membrane and impurities pass through membrane into a collection tube. The membranes are washed with a series of alcohol-containing buffer to remove any traces of proteins, cellular debris and salts. Finally pure DNA is released into a clean collection tube with deionized water or low ionic strength buffer.

Features and Benefits

- Spin column format
- Micro scale DNA purification using Column Type S (micro)
- Simple and safe procedure
- Stable and consistent result
- No use of organic solvents
- High yield and purity
- Various protocol for forensic sample : stain, chewing gum, cigarette butts, tooth brush, and etc.

Exgene™ Genomic DNA micro

Format : Column Type S (micro),
(with 2.0 ml collection tube)

Sample size : ~ 100 μℓ whole blood

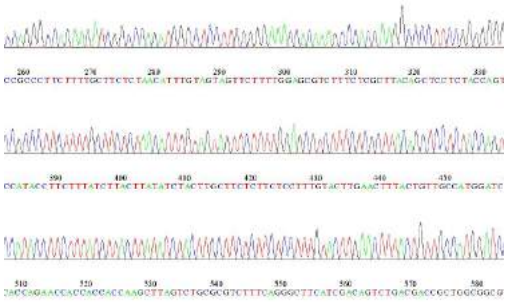
Preparation time : > 20 min

Elution volume : 20 ~ 50 μℓ

* The time and results of the experiment differ depending on the type of sample used.

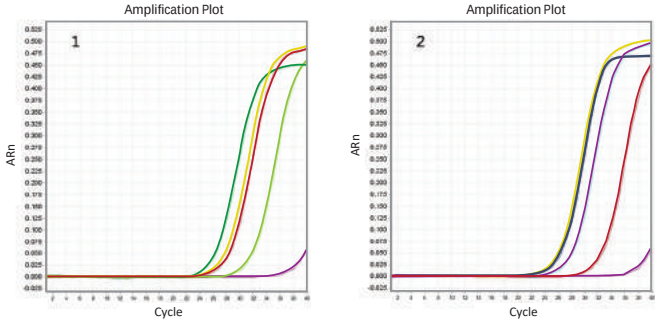
Cat. No.	Products	Type	Size
118-050	Exgene™ Genomic DNA micro	mini / spin	50

Stable and Reproducible Results

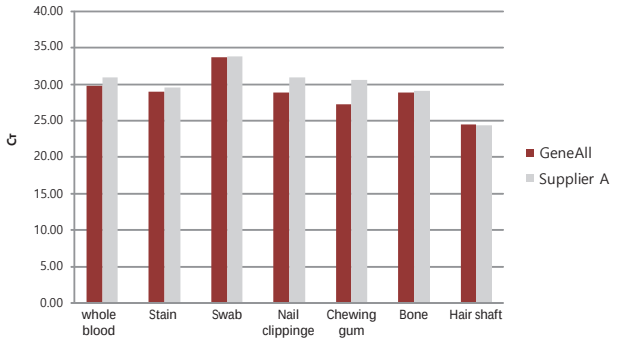


Automatic sequencing data of 1 kb PCR products of extracted genomic DNA by Exgene™ Genomic DNA micro kit. Sequencing was performed on an ABI3730XL (96-capillary) DNA sequencer using an internal primers.

Real-Time PCR Amplification

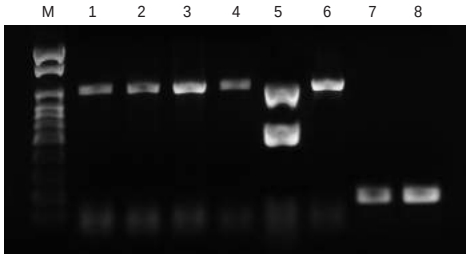


Real-time PCR was performed with purified DNA by Exgene™ Genomic DNA micro kit. The DNA was extracted from whole blood, stains, swab and hair root (Panel 1), nail clippings, chewing gum, tooth brush and urine (Panel 2). Real-time PCR was carried out with human GAPDH primer sets and detected by SYBR® Green reagent.



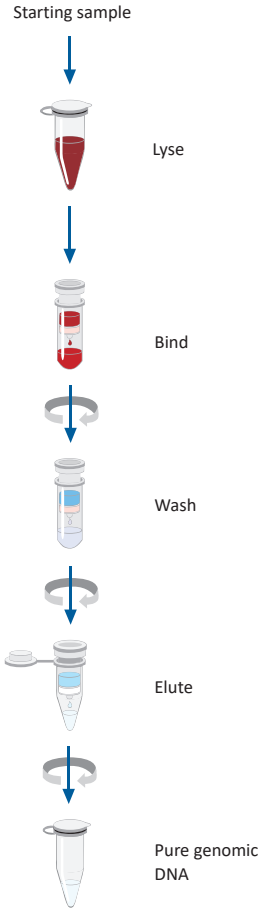
DNA extraction from various biological samples using Exgene™ Genomic DNA micro kit or a kit from Supplier A. Real-time PCR was carried out human GAPDH primer sets or mitochondria hypervariable region I primer sets and detected by SYBR® Green reagent.

PCR Amplification



PCR reaction was performed with purified DNA using Exgene™ Genomic DNA micro kit. Template was isolated from whole blood (Lane 1), dried blood spot (Lane 2), hair root (Lane 3), chewing gum (Lane 4), animal tissue (Lane 5), urine (Lane 6), bone (Lane 7) and hair shaft (Lane 8). Lane M : 1 kb ladder

Procedures



Component list
Column Type S (with collection tube)
Collection tube
Buffer CL
Buffer BL
Buffer BW
Buffer TW
Buffer AE
Carrier RNA
Proteinase K
PK Storage buffer
Protocol Handbook

Exgene™ Viral DNA / RNA

For viral DNA / RNA isolation from various samples

Description

Exgene™ Viral DNA / RNA kit provides fast and easy methods for the purification of total nucleic acids from viral samples such as cell-free fluid, cell-culture supernatant, plasma, serum, swab, urine, and virus-infected samples. Purified nucleic acids can be used directly for PCR, qPCR, RT-PCR, or any downstream application without further manipulation.

Exgene™ Viral DNA / RNA kit utilizes the advanced silica-binding technology to purify total nucleic acids sufficiently pure for many applications. Viral samples are lysed in optimized buffer containing detergent and lytic enzyme. Under optimized binding condition, nucleic acids in the lysate bind to silica membrane and impurities pass through membrane into a collection tube. The membranes are washed with a series of alcohol-containing buffer to remove any traces of proteins, cellular debris and salts. Finally pure nucleic acids are released into a clean collection tube with deionized water or low ionic strength buffer. The eluate should be treated with care because nucleic acids are very sensitive to contaminants, such as nucleases, often found on general labware and dust. To ensure nucleic acids stability, it is recommended to store at 4°C for immediate analysis or to freeze at -70°C for long-term storage.

Features and Benefits

- Spin column format
- No phenol / chloroform extraction
- No ethanol precipitation
- Apply to trace of sample : Using carrier RNA and micro column
- Efficient DNA and RNA virus lysis : Using proteinase K
- Optimized for liquid sample : Blood serum, plasma, liquid culture cell, and etc.
- Ready for use in PCR, RT-PCR, real-time PCR and other analytical procedures

Exgene™ Viral DNA / RNA

Format : Column Type S (micro),
(with 2.0 ml collection tube)

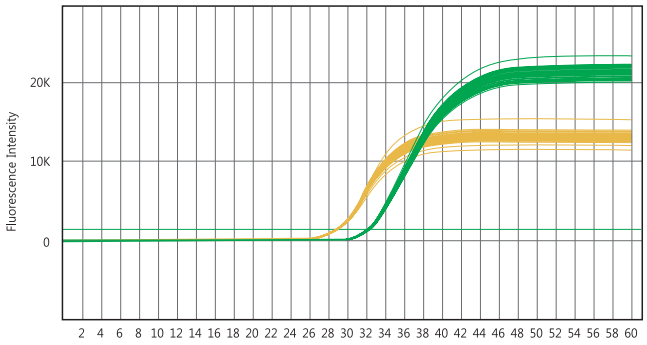
Sample size : ~ 200 μℓ

Preparation time : ~ 20 min

Elution volume : 20 ~ 50 μℓ

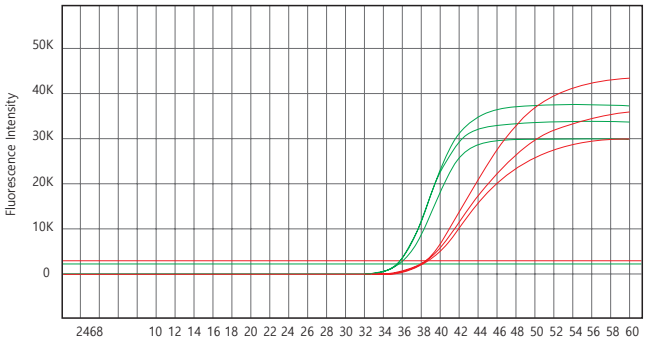
Cat. No.	Products	Type	Size
128-150	Exgene™ Viral DNA / RNA	mini / spin	50

Stable and Reproducible Results

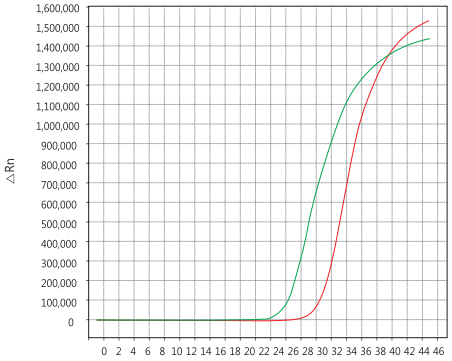


Exgene™ Viral DNA / RNA kit consistency test:
HIV positive was diluted to 1000 IU / ml with human serum.
Extraction tests of HIV samples of 24 repeats were performed with Exgene™ Viral DNA / RNA kit and the consistent result was confirmed by real-time PCR. Green is HIV signal and yellow is IC (internal control) signal.

Real-Time PCR Amplification

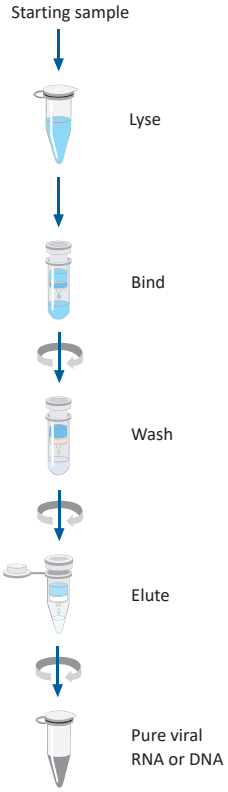


Results from different clinical human serum:
The extracted HIV (50 IU / ml, orange) and HBV (50 IU / ml, green) nucleic acids using Exgene™ Viral DNA / RNA kit were amplified and detected by real-time PCR. Three repeat tests were performed for each sample.



Real-time PCR analysis was conducted to amplify isolated DNA from HBV serum by Exgene™ Viral DNA / RNA (Green) and Supplier A (Orange).

Procedures



Component list

Column Type S (with collection tube)
1.5 ml microcentrifuge tube
Buffer BL
Buffer RB1
Buffer BW
Buffer TW
Nuclease-free water
Carrier RNA
Proteinase K
PK Storage buffer
Protocol Handbook

Exgene™ Stool DNA mini

For the isolation of gDNA from various stool samples

Description

Exgene™ Stool DNA mini kit provides a convenient method for the isolation of total DNA from stool samples. This kit utilizes a double binding procedure using the optimized buffer system and the advanced silica binding technology to purify nucleic acid suitable for many applications. Through this method, the contained impurities in the starting stool samples are removed so that high quality DNA can be purified from host and microbial cells. The stool samples can be applied up to 200 mg per prep and this procedure can be completed in 25 minutes.

This procedure is started with homogenization and lysis steps. The lysate is applied to EzPass™ Filter and then the stool DNA is eluted by centrifugation, the first binding step. After the first elution, the eluate is mixed with DNA binding buffer and the stool DNA is bound on the silica membrane. Following washing step, the bound DNA is eluted by elution buffer, the second elution. Purified DNA can be directly applicable in conventional PCR, restriction analysis, electrophoresis, and any other downstream applications.

Features and Benefits

- Spin column format
- Stable and consistent DNA extraction from stool samples
- Purification of high-quality DNA by the use of EzPass™ Filter
- Stable and consistent yield
- No organic extraction or alcohol precipitation
- Ready for use in PCR, restriction analysis, electrophoresis, and any other downstream applications

Exgene™ Stool DNA mini

Format : Column Type G (mini),
(with 2.0 ml collection tube)

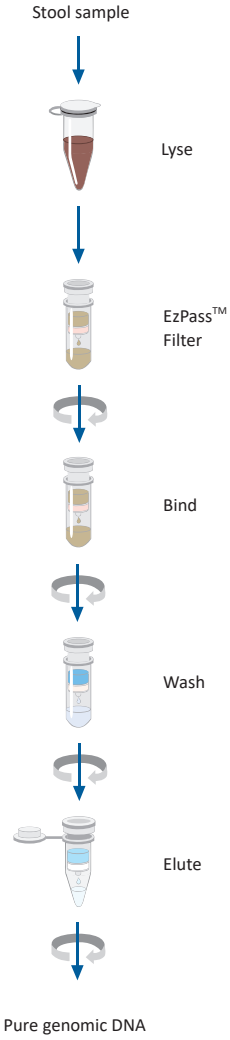
Sample size : ~ 200 mg

Preparation time : ~ 25 min

Elution volume : 30 ~ 200 μℓ

Cat. No.	Products	Type	Size
115-150	Exgene™ Stool DNA mini	mini / spin	50

Procedures



Component list
Column Type G (with collection tube)
EzPass™ Filter (with collection tube)
1.5 ml microcentrifuge tube
2.0 ml microcentrifuge tube
Buffer PBS
Buffer FL
Buffer EB
Buffer PB
Buffer NW
Protocol Handbook

Exgene™ FFPE Tissue DNA

For the isolation of total DNA from Formalin Fixed and Paraffin Embedded (FFPE) specimen

Description

Exgene™ FFPE Tissue DNA kit provides a convenient and easy method for the isolation of total DNA from Formalin Fixed and Paraffin Embedded (FFPE) specimen by non-organic solvent. FFPE is one of the most commonly used methods of clinical tissue preservation; the clinical tissue is fixed by formalin and subsequently embedded in paraffin to keep its original form.

The FFPE tissue is useful in disease research such as microscopic observation and immunohistochemical analysis. And the extracted-nucleic acid from FFPE specimen can be used for molecular diagnosis of various diseases. However, during the fixative process, the nucleic acids in FFPE are damaged significantly by various degrees of crosslinking between DNA and protein, and the damage get worse during its long-term preservation. For such a reason, the DNA isolated from the preserved FFPE specimen generally has low qualities in its yield, purity, integrity and PCR-processivity. But despite these problems, the purified nucleic acids from FFPE specimen are widely used for the PCR targeted to relatively short DNA fragments.

To obtain DNA from FFPE tissue by Exgene™ FFPE Tissue DNA kit, FFPE specimen is deparaffinized in Buffer DP which rapidly separate tissue from paraffin sections, and then the sample is lysed in the optimized buffer containing detergents and lytic enzymes. Under high salt condition, DNA in the lysate binds to silica membrane and impurities pass through membrane in to a collection tube. The membrane is washed with a series of alcohol-containing buffer to remove any traces of proteins, cellular debris and salts. Finally pure DNA is released into a clean collection tube with deionized water or low ionic strength buffer.

Purified DNA can be used directly for PCR (≤ 500 bp), real-time PCR, and other downstream applications.

Features and Benefits

- Easy, convenient and fast de-paraffinization with a single signature reagent in under 5 minutes
- Safer, odor-free environment with non-xylene based Buffer DP
- Guaranteed PCR product length up to 500 base pair
- RNase A included for pure DNA

Exgene™ FFPE Tissue DNA

Format : Column Type G (mini),
(with 2.0 ml collection tube)

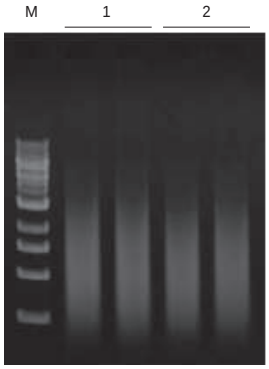
Sample size : ~ 8 sections of 10 μm in thickness

Preparation time : > 150 min

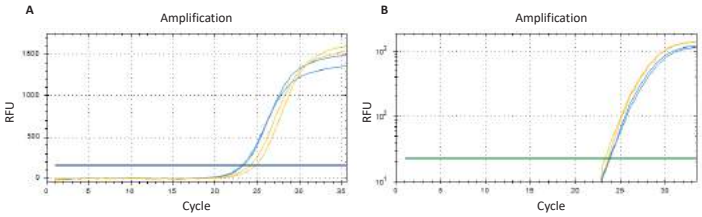
Elution volume : 30 ~ 50 μℓ

Cat. No.	Products	Type	Size
138-150	Exgene™ FFPE Tissue DNA	mini / spin	50
138-152	Exgene™ FFPE Tissue DNA	mini / spin	250

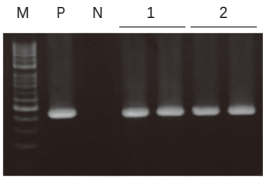
Comparison of Experimental Results



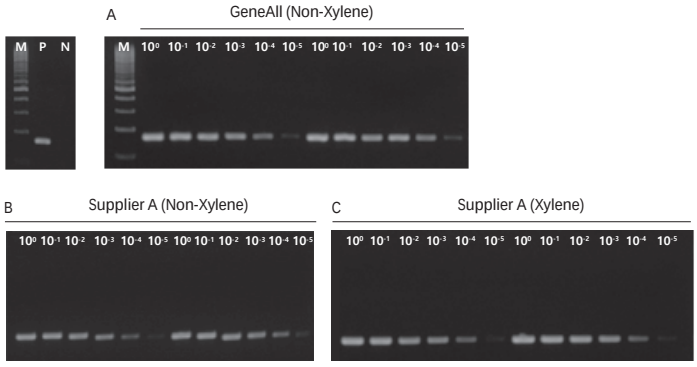
Total DNA was purified from human liver FFPE (5 µm, 1 section) using Exgene™ FFPE Tissue DNA and Supplier A. The purified total DNA was loaded on a 1% agarose gel.
Lane M : 1 kb ladder
Lane 1 : Total DNA from Exgene™ FFPE Tissue DNA
Lane 2 : Total DNA from Supplier A



Real-time PCR was performed with purified DNA using Exgene™ FFPE Tissue DNA (Blue) and Supplier A (Yellow). The DNA was purified from human stomach FFPE (Panel A) and human colorectal cancer FFPE (Panel B). Real-time PCR was carried out with human GAPDH primer sets and detected by AmpMaster™ qPCR Master mix.

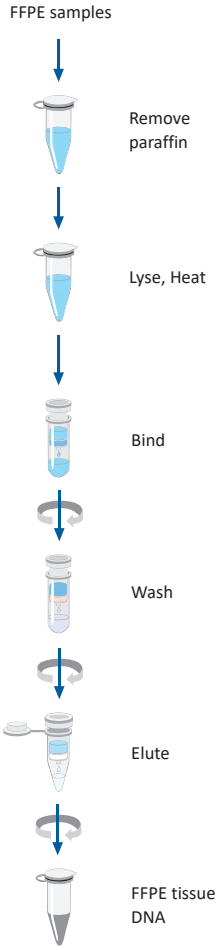


Total DNA was purified from human stomach FFPE infected by helicobacter pylori samples using Exgene™ FFPE Tissue DNA and supplier A. The DNA of helicobacter pylori was amplified by PCR and confirmed by electrophoresis.
Lane M : 100 bp ladder
Lane P : Positive control-Helicobacter pylori DNA as template
Lane N : Negative control-no template
Lane 1 : PCR of DNA from Exgene™ FFPE Tissue DNA
Lane 2 : PCR of DNA from supplier A



Comparison evaluation between Exgene™ FFPE Tissue DNA and supplier A were performed through PCR with GAPDH primers.
DNAs were purified from human cervix FFPE sample using both of Exgene™ FFPE Tissue DNA (Panel A) and Supplier A without (Panel B) and with xylene solution (Panel C) respectively.
Lane M : 100 bp ladder
Lane P : Positive control-Jurkat gDNA as template
Lane N : Negative control-no template

Procedures



Component list

Column Type G (with collection tube)
Collection tube
Buffer DP
Buffer FPL
Buffer FPB
Buffer BW
Buffer TW
Buffer AE
Proteinase K
PK Storage buffer
RNase A (100 mg / ml)
Protocol Handbook

Exgene™ Rice SV mini

For the isolation of gDNA from single rice grain

Description

Exgene™ Rice SV mini kit provides an easy and convenient procedure of DNA extraction to conduct PCR analysis from single rice grain. This kit consists of effective DNA purification system that adopts EzSep™ Filter column for removal of impurities simply in lysate and serves optimized buffer for elimination of PCR inhibitors during DNA isolation without the use of phenol / chloroform extraction or alcohol precipitation. The prepared DNA is ready for use in PCR to analyze rice genome.

Features and Benefits

- Spin or vacuum column format
- Stable and consistent DNA extraction from single rice grain
- Perfect removal of second metabolites
- No use of organic solvents

Exgene™ Rice SV mini

Format : Column Type G (mini),
EzSep™ Filter (with 2.0 ml collection tube)

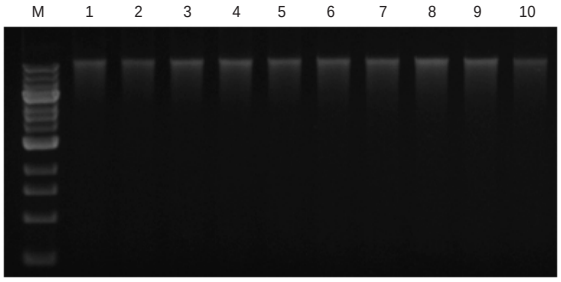
Sample size : 1 grain of rice

Max. loading volume : ~ 750 μℓ

Max. elution volume : ~ 30 μℓ

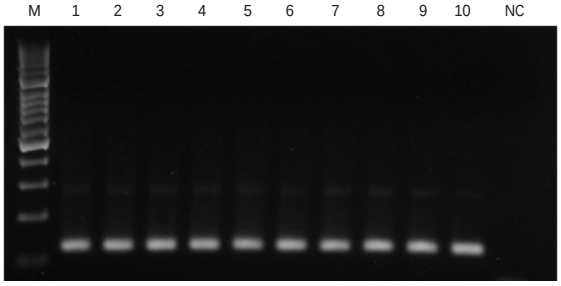
Cat. No.	Products	Type	Size
127-101	Exgene™ Rice SV mini	mini / spin	100

Consistent Result from Various Samples



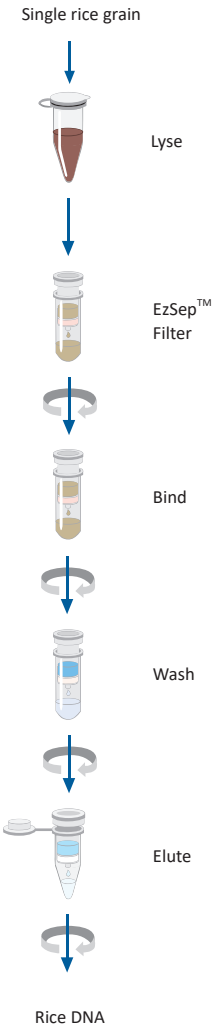
Total DNA purified from various rice grains using Exgene™ Rice SV mini is resolved on 1% agarose gel.
Lane M : 1 kb DNA ladder

PCR Amplification



PCR was performed with total DNA purified from several rice grains using Exgene™ Rice SV mini as template. Rice specific primer was used for gene amplification.
Lane M : 100 bp DNA ladder

Procedures



Component list
Column Type G (with collection tube)
EZSep™ Filter (with collection tube)
Buffer GL
Buffer PP
Buffer TB
Buffer CW
Buffer AE
Proteinase K
PK Storage buffer
Protocol Handbook

GenEx™ Blood / Cell / Tissue

For the isolation of gDNA from whole blood, cultured cells, animal tissues and etc.

Description

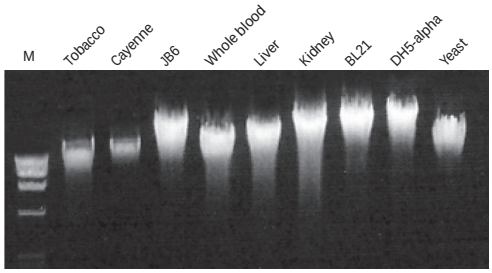
GenEx™ Series provide convenient methods for the isolation of total DNA from various biological samples without use of toxic chemical such as phenol or chloroform. These kits utilize the specially formulated buffer system in order to process the sample scalably and obtain the almost intact size of genomic DNA. Extracted genomic DNA can be applied directly to PCR, southern blotting and restriction enzyme assay and other downstream applications.

GenEx™ Series can be used for :
GenEx™ Blood-Whole blood or blood derivatives
GenEx™ Cell-Cultured cells or gram negative bacteria
GenEx™ Tissue-Animal tissues

Features and Benefits

- Specially formulated buffer system
- DNA preparation from diverse sample : whole blood, cultured cells, yeast, bacteria, animal tissues and etc.
- Recovery of very high molecular weight DNA
- Rescalable preparation depending on sample amount
- No organic extraction
- High purity : ready for PCR, southern blotting and other downstream applications

DNA Extraction from various samples



Genomic DNA prepared from several kinds of organism using *GenEx*™ series. 5 *μℓ* of eluate from each sample was resolved on 0.7% agarose gel.

Cat. No.	Products	Type	Size
220-101	*GenEx*™ Blood	Sx / Solution	100
220-105	*GenEx*™ Blood	Sx / Solution	500
220-301	*GenEx*™ Blood	Lx / Solution	100
221-101	*GenEx*™ Cell	Sx / Solution	100
221-105	*GenEx*™ Cell	Sx / Solution	500
221-301	*GenEx*™ Cell	Lx / Solution	100
222-101	*GenEx*™ Tissue	Sx / Solution	100
222-105	*GenEx*™ Tissue	Sx / Solution	500
222-301	*GenEx*™ Tissue	Lx / Solution	100

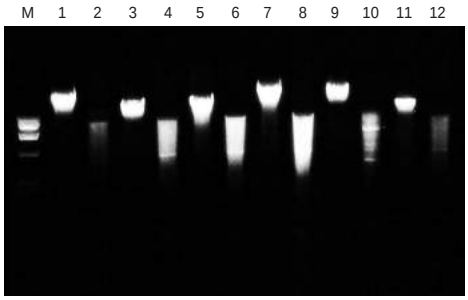
** Sx On the basis of DNA purification from 300 μℓ whole blood, 2 x 10^6 cells or 10 mg animal tissue*
Lx On the basis of DNA purification from 10 ml whole blood, 1 x 10^8 cells or 100 mg animal tissue

DNA Yields from Various Starting Materials

Materials	Species	Amount	Yields of DNA
Whole blood *	Human	300 µℓ	5 ~ 15 µg
		3 ml	80 ~ 150 µg
		10 ml	250 ~ 500 µg
	Mouse	300 µℓ	6 ~ 7 µg
Buffy coat *	Human	150 ~ 250 µℓ	50 ~ 150 µg
Body fluids	Human	50 µℓ	0.1 ~ 2.5 µg
Cultured cell lines	CHO	2 x 10^6 cells	14 ~ 16 µg
	RAW264.7	2 x 10^6 cells	16 ~ 17 µg
	COS	1.5 x 10^6 cells	9 ~ 12 µg
	K562	3 x 10^6 cells	15 ~ 30 µg
	NIH3T3	2 x 10^6 cells	9 ~ 13 µg
	PC12	8 x 10^6 cells	5 ~ 8 µg
Animal tissue	Mouse Liver	10 mg	20 ~ 25 µg
	Mouse Pancreas	10 mg	70 ~ 75 µg
	Mouse Heart	10 mg	2 ~ 4 µg
	Mouse Tail	1 cm of tail tip	15 ~ 30 µg
Gram(-) bacteria	*E.coli* / JM109	2 x 10^9 cells	18 ~ 25 µg
	E.cloacae	6 x 10^9 cells	20 ~ 26 µg

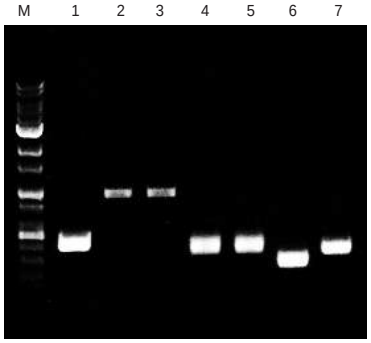
* Yield depends on the quantity of white blood cells present.

Compatibility Test with Restriction Enzymes



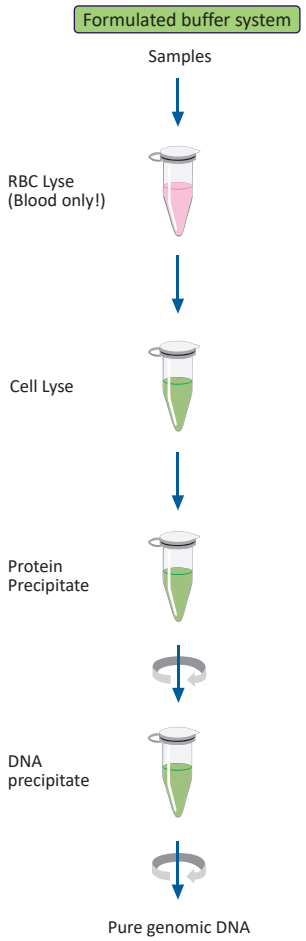
Genomic DNA purified from various organism samples using *GenEx*™ series was partially digested with HindIII (Lane 2, 4, 6, 8, 10, and 12). Lane 1, 3, 5, 7, 9 and 11 represent undigested DNA.
Lane M : Lambda-HindIII

PCR Amplification



PCR reaction was performed with purified DNA using *GenEx*™ series. Template DNA was isolated from Tobacco (Lane 1), BL21 (Lane 2), DH5α (Lane 3), Liver (Lane 4), Kidney (Lane 5), Whole blood (Lane 6) and JB6 (Lane 7).
Lane M : 1 kb ladder

Procedures



Component list

Buffer RL (*GenEx*™ Blood only)
Buffer AL
Buffer PP
Buffer RE
RNase A (20 mg / ml), (*GenEx*™ Cell / Tissue)
Proteinase K (*GenEx*™ Tissue only)
PK Storage buffer (*GenEx*™ Tissue only)
Protocol Handbook

GenEx™ Plant (Plus)

For the isolation of total DNA from various plant samples

Description

GenEx™ Plant kit provides an easy and convenient method for the isolation of total DNA from various plant samples without use of toxic chemical such as phenol or chloroform. This kit has a specially formulated solution format and enables the scalable preparation of almost intact size DNA. Especially when purifying DNA from plant, the removal of secondary metabolites is very important because contamination of these impurities can lead to inhibition of downstream application. The optimized buffer system adopted in this kit can facilitate the removal of contaminants, such as second metabolites and other impurities. Purified DNA can be applied directly to PCR, blotting, restriction enzyme assay and other downstream applications.

GenEx™ Plant Plus kit has an additional feature, EzSep™ Filter. With certain plant samples, it is very difficult to separate cleared supernatant from pelletal debris at a protein precipitation stage. This problem also appears often when large starting sample and it may be due to low density of debris and / or low centrifugal force with conventional centrifuge. EzSep™ Filter included in the Plus kit is the device to solve this problem and moreover it decreases the preparation time also.

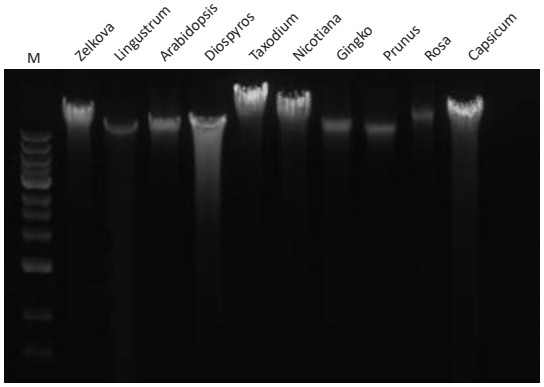
Features and Benefits

- Specially formulated buffer system
- DNA preparation from various plant sampls
- Recovery of very high molecular weight DNA
- Rescalable preparation depending on sample amount
- No organic extraction
- High purity : ready for PCR, Southern blotting and other downstream applications
- Simple separation of supernatant by EzSep™ Filter (Plus only)

Cat. No.	Products	Type	Size
227-101	*GenEx*™ Plant	Sx / Solution	100
227-201	*GenEx*™ Plant	Mx / Solution	100
227-301	*GenEx*™ Plant	Lx / Solution	100
228-101	*GenEx*™ Plant Plus	Sx / Solution	100
228-250	*GenEx*™ Plant Plus	Mx / Solution	50
228-320	*GenEx*™ Plant Plus	Lx / Solution	20

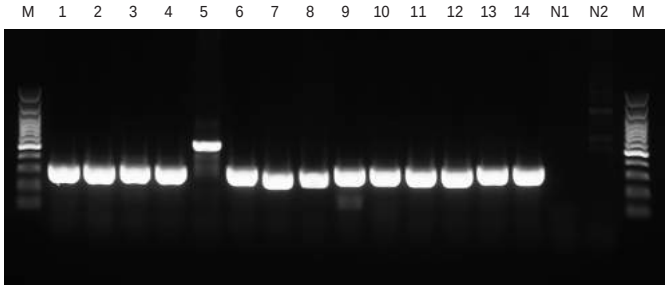
** Sx On the basis of DNA purification from 100 mg plant tissue*
Mx On the basis of DNA purification from 500 mg plant tissue
Lx On the basis of DNA purification from 2 g plant tissue

Result from Various Samples



Total DNA prepared from various plant leaves using *GenEx*™ Plant kit. Each sample was extracted from 100 mg of plant tissue (wet) approximately and 4 $\mu\ell$ of purified DNA was resolved on 1.0% agarose gel.
M : 1 kb DNA ladder

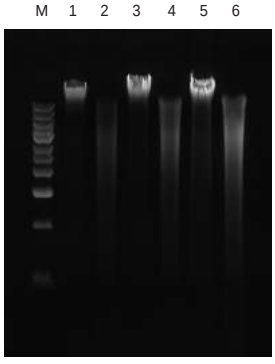
Result from Various Samples



PCR was performed with total DNA purified from various samples using *GenEx*™ Plant as template. The primer set is for a 297 bp fragment of a highly conserved region of chloroplast DNA. PCR products were resolved on 1.2% agarose gel.
Lane M : 100 bp DNA ladder

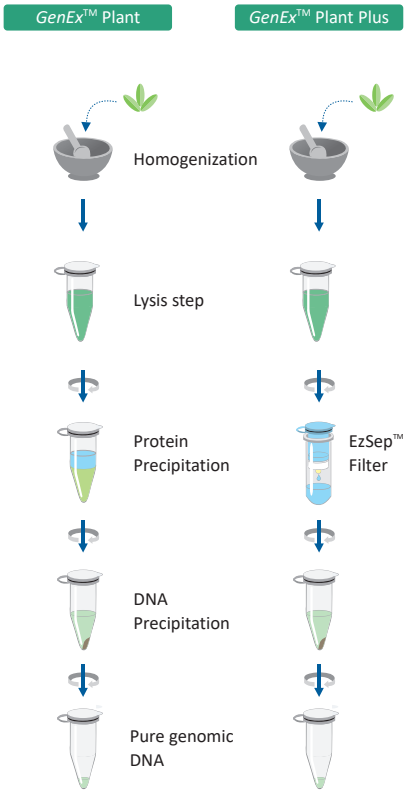
Lane 1 : Zelkova
Lane 2 : Lingustrum
Lane 3 : Arabidopsis
Lane 4 : Diospyros
Lane 5 : Taxodium
Lane 6 : Nicotiana
Lane 7 : Gingko
Lane 8 : Lactuca
Lane 9 : Prunus
Lane 10 : Rosa
Lane 11 : Solanum
Lane 12 : Capsicum
Lane 13 : Citrus
Lane 14 : Actinidia
Lane N1 : Negative control 1-no template.
Lane N2 : Negative control 2-*E. coli* gDNA as template.

Compatibility Test with Restriction Enzymes



Total DNA (Lane 1, 3, 5) purified from the leaves of several species using *GenEx*™ Plant was subjected to restricted digestion (Lane 2, 4, 6) by HindIII.
Lane M : 1 kb DNA ladder
Lane 1 : Zelkova
Lane 3 : Taxodium
Lane 5 : Nicotiana

Procedures



Component list
Buffer PL
Buffer PP
Buffer RE
RNase A (100 mg / ml)
EzSep™ Filter (with collection tube), (Plus only)
Protocol Handbook

DirEx™ / DirEx™ *Fast*

Single tube DNA preparation solution for PCR

Description

DirEx™ and DirEx™ *Fast* are designed for the easy and simple preparation of template DNA in PCR applications. The whole procedure can be completed in a single tube and it takes just 8 minutes. The procedure of DirEx™ and DirEx™ *Fast* are composed of two steps, the incubation and the inactivation, which are the lysis of sample and the heat-inactivation of enzyme respectively. DirEx™ is normally performed in a conventional water or dry-bath, but PCR thermal cycler can also be used alternatively. DirEx™ *Fast* has a premixed format which contains all reaction reagents in 8-strip tube and ready to use. It is basically designed to use PCR thermal cycler for whole procedure, although the conventional bath can be employed. The simple procedure of DirEx™ and DirEx™ *Fast* requires neither the centrifuge step nor the additional pipetting, and it facilitates the multiple preparations from many samples. Simultaneous preparation from many samples with minimum handling will help guarantee the fidelity of the analysis.
DirEx™ and DirEx™ *Fast* can be used for the preparation of template DNA from a wide range of biological and forensic samples, such as mammalian blood, hairs, tissues, swabs, blood stains, cigarette butts and cultured cells. Prepared DNA can be applied directly to PCR applications and / or stored in a freezer for storage.

Features and Benefits

- Specially formulated buffer system as single tube PCR-template preparation solution
- Ready for PCR in just 8 minutes
- Easy and simple procedure : only two steps
- Stable and consistent result
- Instant use : No need of additional reagents
- Pre-mixed format for minimal handling : DirEx™ *Fast*
- Optimized protocols for various samples such as cell, tissue, hair, buccal swab, blood, cigarette butts

DirEx™ / DirEx™ *Fast*

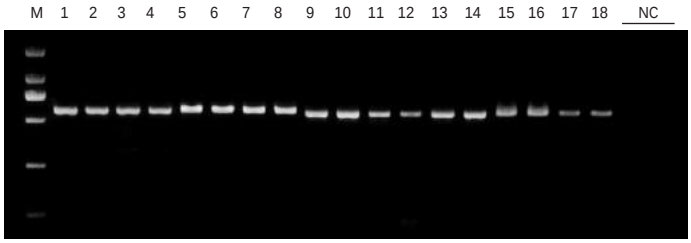
Format : Solution / Solution (0.2 ml 8-strip tubes)

Sample size : - 10 mg animal tissue
- 20 μℓ whole blood
- 5 x 10^6 cultured cells

Preparation time : 8 min

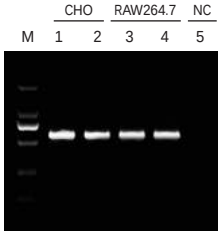
Cat. No.	Products	Type	Size
250-101	DirEx™	Solution	100
260-011	DirEx™ *Fast*-Tissue	Solution	96 T (8-strip tube x 12)
260-021	DirEx™ *Fast*-Cultured cell	Solution	96 T (8-strip tube x 12)
260-031	DirEx™ *Fast*-Whole blood	Solution	96 T (8-strip tube x 12)
260-041	DirEx™ *Fast*-Blood Strain	Solution	96 T (8-strip tube x 12)
260-051	DirEx™ *Fast*-Hair	Solution	96 T (8-strip tube x 12)
260-061	DirEx™ *Fast*-Buccal swab	Solution	96 T (8-strip tube x 12)
260-071	DirEx™ *Fast*-Cigarette	Solution	96 T (8-strip tube x 12)

Result from Various Samples

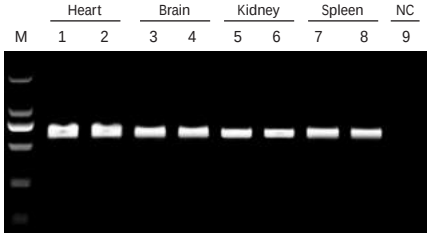


PCR analysis was performed with extracted DNA using DirEx™.
Template DNA was isolated from CHO cells (Lane 1, 2), RAW264.7 cells (Lane 3, 4), Heart (Lane 5, 6), Brain (Lane 7, 8), Whole blood (Lane 9, 10), Dried blood spot (Lane 11, 12), Hair follicle (Lane 13, 14), Buccal swab (Lane 15, 16), Cigarette butts (Lane 17, 18).
Lane NC : Negative control
Primer : Beta-actin (Lane 1 ~ 8, Rat), Globin (Lane 9 ~ 18, Human)
Lane M : 250 bp ladder

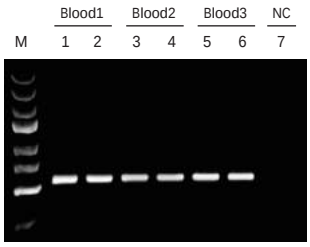
Compatibility Test with Restriction Enzymes



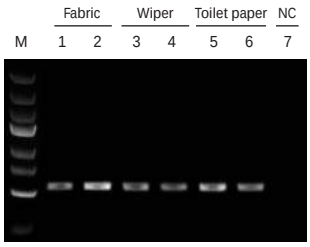
Total DNA was isolated from two types of mammalian cells using DirEx™ *Fast*-Cultured cell.
Lane NC : Negative control
Primer : Beta-actin (Rat)



PCR analysis was carried out with DNA isolated by DirEx™ *Fast*-Tissue. Template DNA was extracted from mammalian tissues (RAT) such as heart, brain, kidney, and spleen.
Lane NC : Negative control
Primer : Beta-actin (Rat)



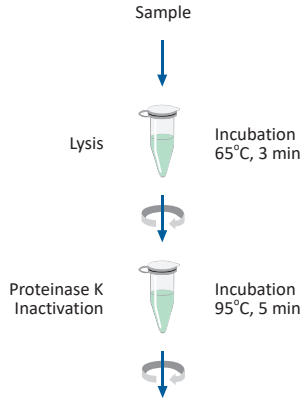
Total DNA was extracted from three types of human blood using DirEx™ *Fast*-Whole blood. The template DNA was amplified by PCR.
Lane NC : Negative control
Primer : Globin (Human)



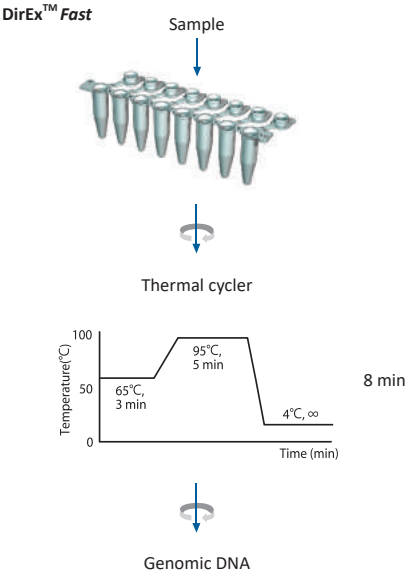
PCR analysis was confirmed with DNA isolated by DirEx™ *Fast*-Blood stain.
The template DNA was isolated from three types of dried blood stained on fabric, wiper, and toilet paper.
Lane NC : Negative control
Primer : Globin (Human)

Procedures

DirEx™



DirEx™ *Fast*



Component list

DirEx™ Solution
Proteinase K
PK Storage buffer
Buffer A

DirEx™ *Fast* series :
DirEx™ *Fast*-Tissue
DirEx™ *Fast*-Cultured cell
DirEx™ *Fast*-Whole blood
DirEx™ *Fast*-Blood strain
DirEx™ *Fast*-Hair
DirEx™ *Fast*-Buccal swab
DirEx™ *Fast*-Cigarette
Protocol Handbook

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We thank you for any comment or advice.