

NORGEN BIOTEK CORP.

The Sample Preparation Experts

DNA SAMPLE PREPARATION

The New Standard in DNA Isolation, Best-in-Class, Pure & Simple

Over 50 kits for the isolation of DNA from various sample types



www.norgenbiotek.com

An ISO 13485:2003, ISO 9001:2008 & ISO 15189:2012 Certified Company

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Norgen Biotek is dedicated to providing our customers with first class sample preparation kits for RNA, microRNA, DNA, protein and exosome purification, clean-up and concentration, as well as preservatives for nucleic acid (DNA and RNA) stabilization in various bodily fluids for both research and diagnostic applications; and to providing dedicated and expert support services to our customers and commercial partners worldwide.

Norgen is an **ISO 9001:2008**, **ISO 13485:2003** and **ISO 15189:2012** registered company, indicating our commitment to quality.



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V 1.0

Ordering Information

To Order by Phone:

Telephone: (905) 227-8848

Toll Free in North America: 1-866-667-4362

To Order by Fax:

(905) 227-1061

To Order by Email:

orders@norgenbiotek.com

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CANADA

Telephone Orders

Customer service representatives are available to receive orders Monday through Friday from 9:00 A.M. to 5:30 P.M. EST (Eastern Standard Time).

When placing an order, please be prepared to provide us with the following information:

1. Purchase order number
2. Customer number (if known)
3. Billing Address
4. Shipping Address
5. Name of person to whose attention the order should be shipped
6. Name, telephone number and email of contact person
7. Product catalogue number, description, size and quantity

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Technical Support

Contact our Technical Support Team between the hours of 9:00 and 5:30 EST (Eastern Standard Time) at (905) 227-8848 or Toll Free in North America at 1-866-667-4362.

Technical support can also be obtained from our website (www.norgenbiotek.com) or through email at techsupport@norgenbiotek.com.

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DNA Sample Preparation

Milk Bacterial DNA Isolation Kit

Cat. # 21550



For the rapid purification of genomic DNA from various bacterial species found in milk

This kit provides a rapid spin column method for the isolation and purification of genomic DNA from both Gram-negative and Gram-positive bacteria in milk samples. It can also be used to process challenging milk samples such as Mastitic milk for example. The kit is highly sensitive and can isolate DNA from a cell density of as little as 10 bacteria contained in 1 mL of milk. Genomic DNA is isolated in 45 minutes, free of inhibitors and ready for any number of downstream applications including PCR, qPCR and Southern Blot analysis, sequencing and more.

Features and Benefits

- Genomic DNA can be isolated from as few as 10 bacterial cells in 1 mL of milk
- Isolate genomic DNA from both Gram-negative and Gram-positive bacteria in milk
- Inhibitor-free DNA is ready for PCR, qPCR and more
- Fast and efficient spin-column format

Feature	Specifications
Minimum Input	10 bacteria in 1 mL of milk
Maximum Input	1 mL
Bacteria Species Processed	Gram positive and Gram negative
Time to Complete 10 Purifications	1 hour

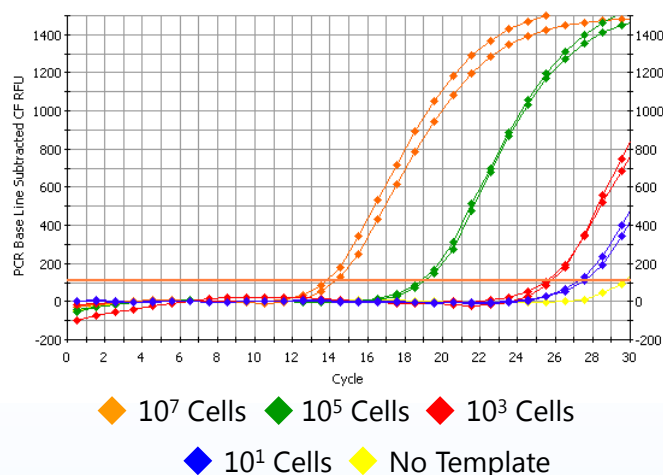


Figure 1. Isolation and Detection of DNA from as Little as 10 Bacterial Cells in 1 mL of Milk. Increasing amounts of *E. coli* (10¹ cells, 10³ cells, 10⁵ cells, 10⁷ cells) were added to 1 mL pasteurized milk samples, and the bacterial DNA was subsequently isolated using Norgen's Milk Bacterial DNA Isolation Kit with a 200 μ L elution volume. One microliter of the isolated genomic DNA was then detected in a 20 μ L real-time PCR reaction using primers specific to *E. coli*. Bacterial genomic DNA could be isolated and detected from all the 1 mL milk samples, including the sample that contained only 10 bacterial cells (blue line).

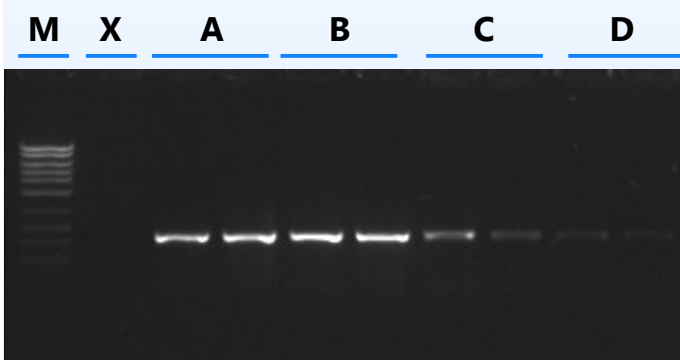


Figure 2. End-Point PCR of Milk Bacterial DNA samples. One milliliter of milk was spiked with various amount of *E. coli*. Bacterial DNA was isolated in duplicate using Norgen's Milk Bacterial DNA Isolation Kit, and 1 μ L of each 200 μ L elution was used for conventional PCR. For analysis 10 μ L of each PCR was loaded on an agarose gel. The amount of bacteria in each milk sample is as follows: A = 10⁷ cells, B = 10⁵ cells, C = 10³ cells, D = 10¹ cells. Lane X is a negative control (no template) and Lane M is Norgen's PCR Sizer 100bp DNA Ladder.

Ordering information

Description	Cat #	Size
Milk Bacterial DNA Isolation Kit	21550	50 prep

DNA Sample Preparation

Saliva DNA Isolation Kit

Cat. # RU45400

For the rapid purification of high-quality DNA from preserved and fresh saliva samples

This kit provides a fast and simple spin column procedure for isolating genomic DNA from saliva samples collected and preserved using Norgen's Saliva DNA Collection and Preservation Devices, as well as fresh saliva samples.

Saliva DNA purified using Norgen's kit is of the highest quality, and is compatible with a number of downstream research applications including PCR, Southern Blot analysis, sequencing and microarray analysis.

Background

Saliva represents an excellent non-invasive alternative to blood collection. Human genomic DNA extracted from buccal epithelial cells and white blood cells found in saliva can be used in various applications in diagnostics. Saliva DNA can be used for the detection of biomarkers to diagnose a disease, follow the disease's progress or monitor the effects of a particular treatment. Saliva DNA can also be used to diagnose particular types of infections. Isolation of DNA from saliva has become an attractive alternative to isolation from blood or tissue due to the fact that sample collection is non-invasive, the samples can be collected by individuals with little training, and no special equipment is required. Norgen's Saliva DNA Isolation Kit provides a fast and simple procedure for isolating genomic DNA from both preserved saliva samples and fresh saliva samples.

Features and Benefits

- Sample collection is non-invasive and painless
- Fast and easy processing using a rapid spin-column format
- Isolate high quality genomic DNA
- Compatible with preserved saliva samples collected using Norgen's Saliva DNA Collection and Preservation Devices, as well as fresh saliva samples

Feature	Specifications
Maximum Input	0.5 mL preserved saliva / 0.25 mL fresh saliva
Average Yield from 0.25 mL of Saliva	3-7 µg
Average Purity (OD260/280)	1.7-2.1
Time to Complete 10 Purifications	30 minutes

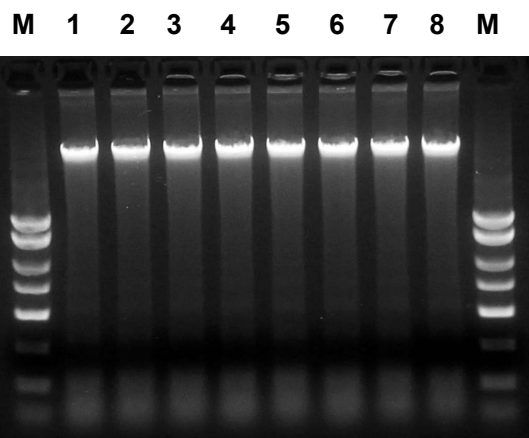


Figure 1. High Quality and Yield of DNA from Saliva Samples. Total DNA was isolated from 250 µL of eight different saliva samples using Norgen's Saliva DNA Isolation Kit (Lanes 1-8). For evaluation, 10 µL of each 100 µL DNA elution was run on a 1.2 % agarose gel. Note the high yield and quality of the DNA in all lanes. Lane M: Norgen's Fast runner 1kb DNA Ladder.

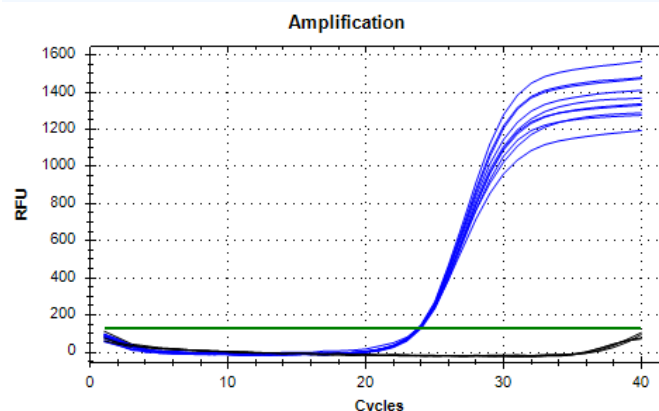


Figure 2. Real-time PCR Consistency from Saliva Samples. Norgen's Saliva DNA Isolation Kit was used to isolate DNA from 250 µL samples of saliva. Ten samples were used from same donor. From the 100 µL elution, 5 µL of saliva DNA was directly mixed to real-time PCR master mix (total reaction volume 20 µL), and the real-time PCR reaction was performed. The GAPDH gene was successfully amplified from the different samples without any inhibition and at the same Ct, indicating the isolation consistency and the excellent quality of saliva DNA for downstream applications.

Ordering information

Description	Cat #	Size
Saliva DNA Isolation Kit	RU45400	50 prep

DNA Sample Preparation

Saliva DNA Isolation 96-Well Kit

Cat. # RU35200



8

A rapid method for the high-throughput isolation of total DNA from saliva

This kit features a rapid, high-throughput 96-well format for isolating high yield and high quality DNA from saliva. The purified saliva DNA is compatible with any number of downstream applications including PCR, qPCR, Southern Blot analysis, sequencing, microarray analysis and more. This kit is also compatible with Norgen's Saliva DNA Collection, Preservation and Isolation Kits (Cat.# RU35700). It is fully compatible to both vacuum and centrifugation protocols.

Background

Human genomic DNA found in saliva can be used in various applications in diagnostics including the detection of biomarkers to diagnose a disease, follow the disease's progress or monitor the effects of a particular treatment. Isolation of DNA from saliva for diagnostics has become an attractive alternative to isolation from blood or tissue due to the fact that sample collection is non-invasive.

Features and Benefits

- Fast and easy high throughput processing using 96-well plates
- Effective removal of PCR inhibitors
- Compatible with Norgen's Saliva DNA Collection, Preservation and Isolation Kit

Feature	Specifications
Binding Capacity Per Well	50 µg
Maximum Loading Volume Per Well	600 µL
Size of DNA Purified	All sizes
Time to Complete 96 Purifications	40 minutes

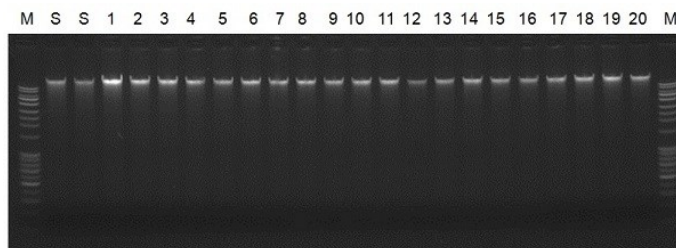


Figure 1. Consistent DNA Isolation. Saliva samples were collected from 10 donors using Norgen's Saliva DNA Collection and Preservation Devices (Cat# RU49000). Norgen's Saliva Preservative was added to the saliva samples, and the 10 samples were then pooled together. Total DNA was then isolated from aliquots of the pooled and preserved saliva using columns from Norgen's Saliva DNA Isolation Kit (Cat# RU45400) or Norgen's Saliva DNA Isolation 96-Well Kit. Ten µL of each 100 µL elution from the 96-well plates were loaded on 1.2 % TAE agarose gel (Lanes 1 to 20), with the results indicating that the DNA isolation was consistent between the samples. S: DNA isolated using a single column (eluted in 200 µL). Lane M: Norgen's HighRanger 1kb DNA Ladder.

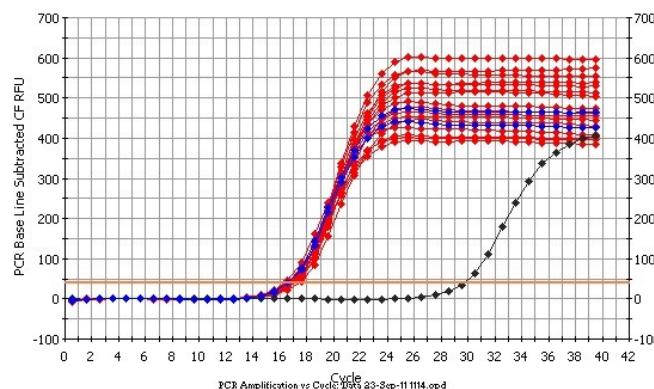


Figure 2. Real-time PCR Consistency from Saliva Samples. Saliva DNA was isolated from pooled saliva samples using Norgen's Saliva DNA Isolation 96-Well Kit and Norgen's Saliva DNA Isolation Kit (Cat# RU45400). From the 100 µL elution, 2 µL of saliva DNA was directly mixed to real-time PCR master mix (total reaction volume 20 µL), and the real-time PCR reaction was performed. The GAPDH gene was successfully amplified from the different samples without any inhibition, indicating the isolation consistency and the excellent quality of saliva DNA for downstream applications. Red: DNA samples isolated from the 96 well plate. Blue: DNA samples isolated using the single column. Black: Negative control.

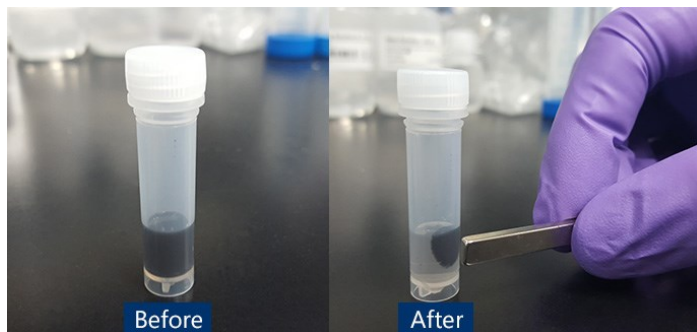
Ordering information

Description	Cat #	Size
Saliva DNA Isolation 96-Well Kit	RU35200	2 x 96-well

DNA Sample Preparation

Saliva DNA Isolation Kit (Magnetic Bead System)

Cat. # RU55400



For the rapid purification of high-quality DNA from preserved and fresh saliva samples

Norgen's Saliva DNA Isolation Kit (Magnetic Bead System) provides a fast and reproducible method for isolating genomic DNA from saliva samples collected and preserved using Norgen's Saliva DNA Collection and Preservation Devices, as well as fresh saliva. Saliva DNA purified using Norgen's kit is of the highest quality, and is compatible with a number of downstream research applications including PCR, Southern Blot analysis, sequencing and microarray analysis.

Features and Benefits

- Sample collection is non-invasive and painless
- Fast and easy processing using a magnetic bead system
- Isolate high quality genomic DNA
- Compatible with preserved saliva samples collected using Norgen's Saliva DNA Collection and Preservation Devices

Feature	Specifications
Maximum Input	0.5 mL preserved saliva / 0.25 mL fresh saliva
Average Yield from 0.25 mL of Saliva	2-4 µg
Average Purity (OD260/280)	1.5-1.8
Time to Complete 10 Purifications	30 minutes

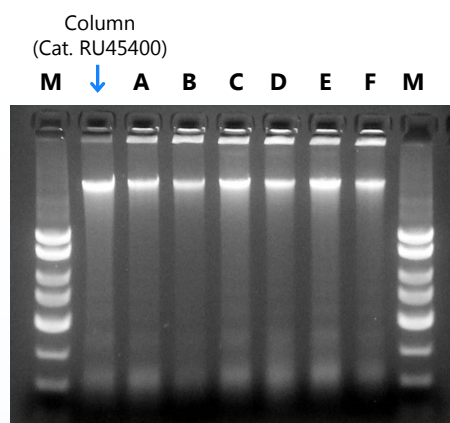


Figure 1. Resolution of DNA Isolated from Preserved Saliva Samples. DNA was isolated from 0.5 mL of preserved saliva samples collected from 6 different donors (A to F) using Norgen's Saliva DNA Isolation Kit (Magnetic Bead System). As a control, DNA was isolated from one preserved saliva sample using Norgen's Saliva DNA Isolation Kit (column format, Cat. RU45400). For evaluation, 10 µL of each 75 µL elution was run on a 1X TAE 1.2% agarose gel. Similar DNA integrity and yield were observed between the two Norgen methods, indicating the robust performance of the Saliva DNA Isolation Kit (Magnetic Bead System). Marker = Norgen's HighRanger DNA Ladder.

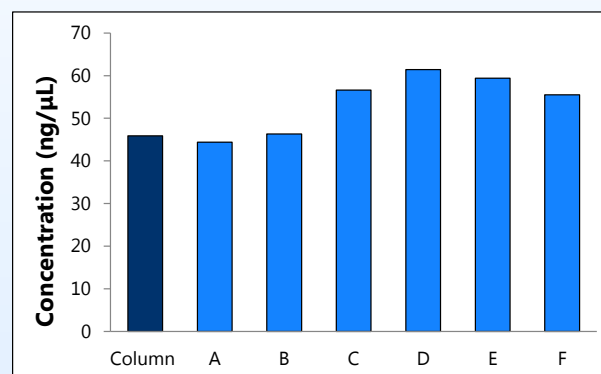


Figure 2. Comparison of Saliva DNA Isolation Methods (Column vs. Magnetic Bead System). DNA was isolated from 0.5 mL of preserved saliva samples collected from 6 different donors (A to F) using Norgen's Saliva DNA Isolation Kit (Magnetic Bead System). As a control, DNA was isolated from one preserved saliva sample using Norgen's Saliva DNA Isolation Kit (column format, Cat. RU45400). All DNA purified using Norgen's Saliva DNA Isolation Kit (Magnetic Bead System) [A to F] showed a comparable concentration to DNA isolated using Norgens Saliva DNA Isolation Kit (column format, Cat. RU45400), indicating the consistent and robust performance of the Saliva DNA Isolation Kit (Magnetic Bead System).

Ordering information

Description	Cat #	Size
Saliva DNA Isolation Kit (Magnetic Bead System)	RU55400	50 prep

DNA Sample Preparation

Sputum DNA Isolation Kit

Cat. # 46200

For the rapid purification of high quality DNA from sputum samples

This kit constitutes an all-in-one system for the rapid isolation of DNA from sputum samples. It allows for the isolation of bacterial or eukaryotic DNA from the sputum samples using a convenient spin column format. The kit includes all the reagents needed to process sputum DNA including a sputum liquifier to reduce viscosity and facilitate DNA isolation. The protocol can be completed in 30 minutes. Purified DNA is of the highest quality and free from inhibitors, and can be used in sensitive downstream applications including PCR and qPCR.

Background

A sputum specimen is the name given to the mucus which is expectorated from the lower airways. High quality sputum samples should contain very little saliva, as this may contaminate the sputum sample with oral bacteria. Sputum samples are typically evaluated to look for infections such as *Moraxella catarrhalis*, *Mycobacterium tuberculosis*, *Streptococcus pneumoniae* and *Haemophilus influenzae*. Other pathogens can be detected in sputum as well, including HIV. In addition, sputum samples are useful in the detection of lung cancer or to evaluate chronic inflammation.

Features and Benefits

- Fast and easy processing using a spin column format
- DNA can be isolated and detected from as little as 100 μ L of sputum
- Includes Sputum Liquifier to reduce viscosity and facilitate DNA isolation
- Effective removal of PCR inhibitors
- Fully compatible with Norgen's Sputum DNA Collection, Preservation and Isolation Kit (Cat#RU46100).

Feature	Specifications
Average Purity (OD260/280)	1.8-2.1
Average Yield of DNA*	75 μ g
Time to Complete DNA Isolation	< 1 hour

* Average DNA yield will vary depending on the health status of the donor

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

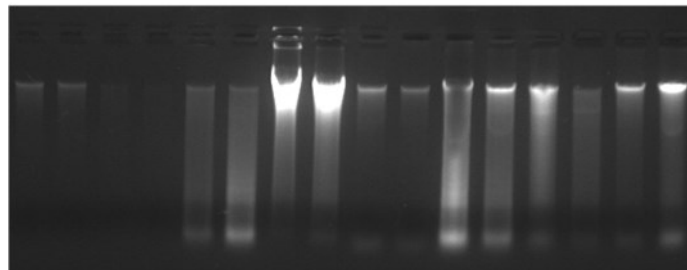


Figure 1. Consistent Isolation of Sputum DNA. Sputum samples were collected from 16 donors using the collection devices from Norgen's Sputum DNA Collection, Preservation and Isolation Kit (Cat. RU46100), and the DNA was subsequently isolated using Norgen's Sputum DNA Isolation Kit. Ten μ L of the purified DNA from each sample was then run on a 1X TAE, 1% agarose gel for visual analyses. DNA was successfully isolated from all 16 of the samples and was of a high integrity. It is important to note that the yield of DNA in a typical sputum sample will vary greatly and is highly dependent on the health status of the donor. The DNA yields obtained using Norgen's kit were equal to or exceeding those of what is stated in the literature.

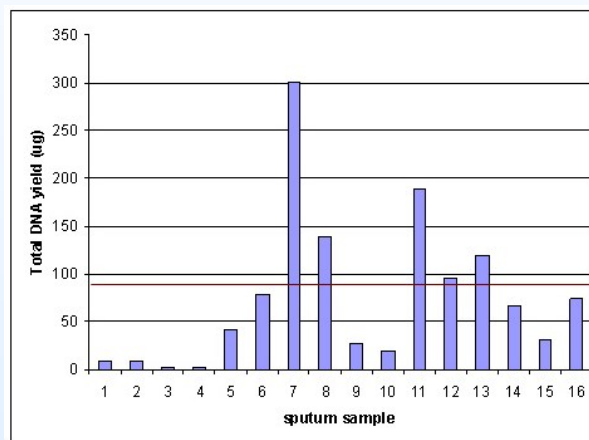


Figure 2. High Yield of Sputum DNA. Sixteen sputum samples were collected using Norgen's Sputum DNA Collection, Preservation and Isolation Kit (Cat. RU46100) and stored at room temperature for 1 day. DNA was subsequently purified using Norgen's Sputum DNA Isolation Kit, and the DNA yield was determined using the NanoVue Plus (GE Healthcare). The total average sputum DNA yield from 1.0 mL of preserved sputum of the 16 samples processed using Norgen's kit was 75.25 μ g (indicated by the red line in the graph). Again it is important to stress that the yield of DNA obtained from each sample will vary from donor to donor as it relies heavily on the health status of the donor at the time the sample was taken.

Ordering information

Description	Cat #	Size
Sputum DNA Isolation Kit	46200	25 prep

DNA Sample Preparation

Genomic DNA Isolation Kit

Cat. # 24700, 24750



For the isolation of genomic DNA from animal tissues, cells, bodily fluids, virus and swabs

This kit is designed for the rapid preparation of genomic DNA from various tissue samples, cultured cells, viruses, bodily fluids and swabs using a rapid spin column procedure. Purified DNA is of an excellent yield and quality, and is immediately ready for any downstream application including PCR, qPCR, genotyping, sequencing and more. The protocol can be completed in approximately 80 minutes (including incubation time).

Features and Benefits

- Isolate genomic DNA from animal tissues, cells, bodily fluids, viruses and swabs
- Rapid and convenient spin column procedure
- Purified DNA is of the highest quality and integrity for sensitive downstream applications including PCR, qPCR, genotyping, sequencing and more

Feature	Specifications
Column Binding Capacity	25 µg
Average Yield*	
HeLa Cells (1 x 10 ⁶)	8 µg
Tissue (from 10 mg kidney)	10 µg
Maximum Amount of Starting Material:	
Animal Tissues	20 mg
Cultured Cells	3 x 10 ⁶ cells
Bodily Fluids (blood, saliva)	150 µL
Viral Suspension	150 µL
Time to Complete 10 Purifications	30 minutes

* Yield will vary depending on the type of sample processed

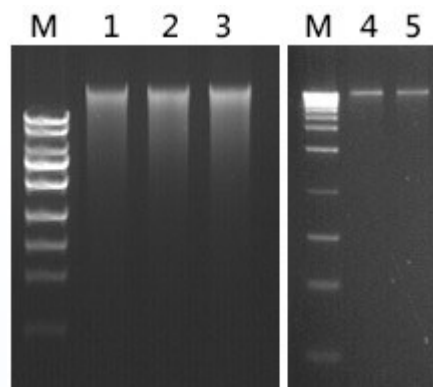


Figure 1. Isolation of High Quality Genomic DNA. Genomic DNA was isolated from various sample types using Norgen's Genomic DNA Isolation Kit. Lanes 1-3 contain genomic DNA that was isolated from four different samples containing 5×10^5 HeLa cells, while lanes 4 and 5 contain genomic DNA that was isolated from 5 mg of heart tissue. All the purified genomic is of the highest quality and integrity. Lane M is the Norgen HighRanger 1kb DNA Ladder. For all purified DNA, 10 µL of each 200 µL elution were resolved on a 1X TAE, 1% agarose DNA gel.

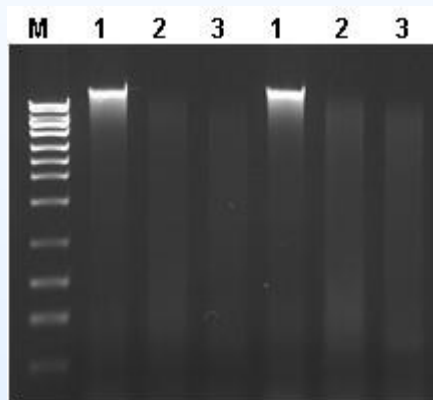


Figure 2. Full Compatibility with Digests. Genomic DNA was isolated from 10 mg of kidney tissue using Norgen's Genomic DNA Isolation Kit, and subsequently digested. Twenty microliters of the 200 µL eluted DNA were used in a 50 µL restriction digestion with 10 units of either *Hind* III or *Nde* I (overnight at 37°C). Fifteen microliters of the digested DNA were then loaded on a 1X TAE, 1% agarose gel. Lane 1 contains undigested Norgen-isolated DNA, while Lanes 2 contain the genomic DNA digested with *Hind* III and Lanes 3 contain the genomic DNA digested with *Nde* I. Lane M is Norgen's HighRanger 1kb DNA Ladder.

Ordering information

Description	Cat #	Size
Genomic DNA Isolation Kit	24700	50 prep
Genomic DNA Isolation Kit	24750	100 prep

DNA Sample Preparation

Direct DNA Extraction Kit (Bacteria)

Cat. # 61500

For the rapid extraction of high quality DNA from bacteria samples

Norgen's Direct DNA Extraction Kit (Bacteria) contains a Direct Pathogen Extraction Buffer (Buffer DL) and pre-filled bead tubes for the extraction of DNA from enriched Gram negative and positive bacteria from food and culture samples. The kit first allows for the extraction of DNA directly from bacteria using mechanical homogenization with Buffer DL. The cell debris is then removed by a short centrifugation and the clean supernatant is ready for use in PCR reactions. Buffer DL is designed to stabilize extracted DNA and inactivate PCR inhibitors to provide a rapid and economic solution for high throughput pathogen detection, particularly for Gram-positive bacteria such as *Listeria* spp. Norgen's Direct DNA Extraction Kit (Bacteria) is compatible with sensitive detection applications including end-point PCR and real-time PCR.

Features and Benefits

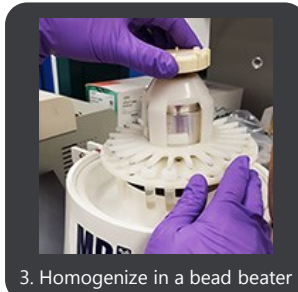
- Rapid procedure
- Easy and convenient protocol
- Reproducible
- Applicable for high throughput detection platforms

Direct DNA Extraction Kit (Bacteria) Procedure

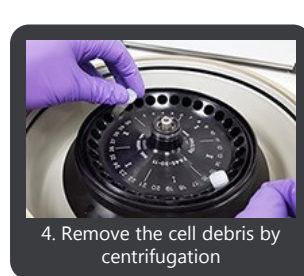
1. Take 1 mL from enriched culture



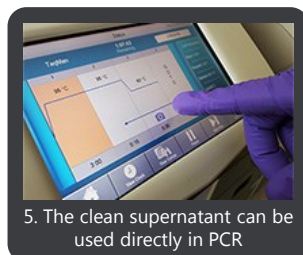
2. Pellet the cells and resuspend with 400 µL of Buffer DL



3. Homogenize in a bead beater



4. Remove the cell debris by centrifugation



5. The clean supernatant can be used directly in PCR

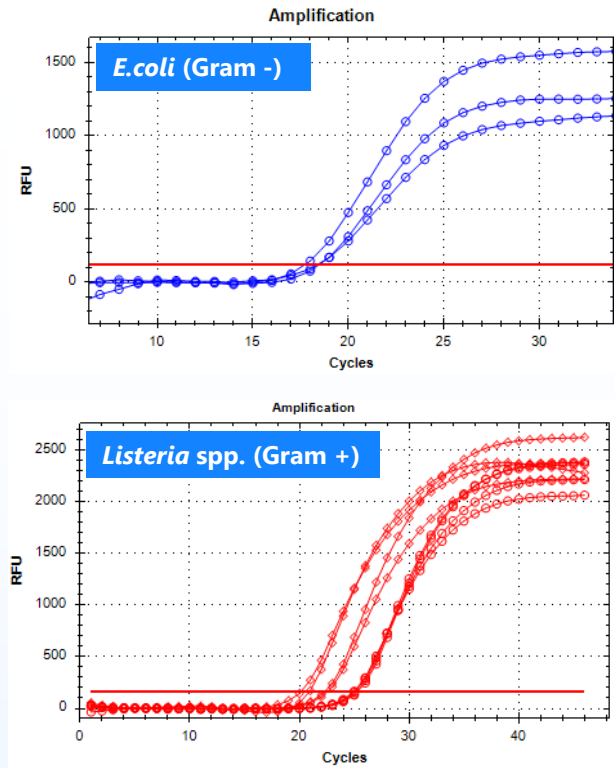


Figure 1. Detection of Gram negative (*E.coli*) and Gram positive (*Listeria* spp.) bacteria using Norgens Direct DNA Extraction Kit (Bacteria) in real-time PCR system. Two microlitres of the clean supernatant was directly added to a PCR reaction (total 20 µL) to detect 16s rRNA target or *Listeria* spp. specific gene for *E.coli* and *Listeria* spp. respectively. Targets were successfully amplified, indicating the high quality of the inhibitor-free DNA that was extracted using Norgen's Direct DNA Extraction Kit (Bacteria). This kit is applicable for rapid and sensitive microorganism detection for food quality monitoring and other high throughput analysis applications.

Ordering information

Description	Cat #	Size
Direct DNA Extraction Kit (Bacteria)	61500	50 prep

DNA Sample Preparation

Cells and Tissue DNA Isolation Kits

Cat. # 53100, 57300



For the rapid preparation of genomic DNA from cultured cells as well as various tissue samples

The Cells and Tissue DNA Isolation Kit (Cat. 53100) is designed for the purification of genomic DNA from cultured cells, viruses and various tissue samples using rapid and convenient spin columns. Purified DNA is of an excellent yield and quality and is immediately ready for any downstream application including PCR, qPCR, genotyping and more.

The Cells and Tissue DNA Isolation Micro Kit (Cat. 57300) is designed for the rapid preparation of genomic DNA from low inputs of cultured cells as well as various tissue samples. This kit is optimized to isolate DNA from small inputs of cells and tissues, such as Laser-Captured Microdissection (LCM) samples. The genomic DNA is preferentially purified from other cellular proteinaceous components, and is eluted into a small elution volume. Typical yields of genomic DNA will vary depending on the sample being processed.

Features and Benefits

- Rapid spin column format
- High yield and excellent quality
- DNA ready for any application including PCR, qPCR, genotyping and more

Feature	Specifications (53100)	Specifications (57300)
Maximum Input	20 mg of animal tissue / Up to 150 μ L of viral suspension / 3 x 10 ⁶ cells	3 mg animal tissue / Up to 150 μ L of viral suspension / 5 x 10 ⁵ cells
Column Binding Capacity	> 50 μ g	> 750 μ L
Elution Volume	50-200 μ L	20 - 40 μ L
Analyte Purified	Genomic DNA, mitochondrial DNA, viral DNA	Genomic DNA, mitochondrial DNA, viral DNA
Time to Complete 10 Purifications	30 minutes (cells) / 90 minutes (tissue)	60 minutes

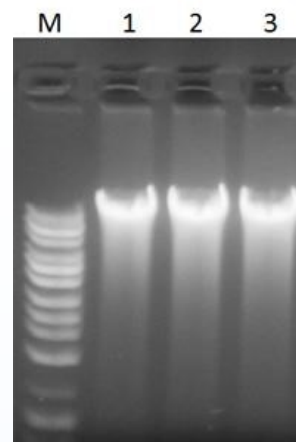


Figure 1. Isolation of High Quality Genomic DNA from Tissue. Genomic DNA was isolated from 15 mg of liver tissue using Norgen's Cells and Tissue DNA Isolation Kit. Triplicate samples were used (lanes 1-3) and yielded genomic DNA of the highest quality and integrity. Lane M is the Norgen UltraRanger 1kb DNA Ladder. For all purified DNA, 15 μ L of each 200 μ L elution were resolved on a 1X TAE, 1% agarose DNA gel.

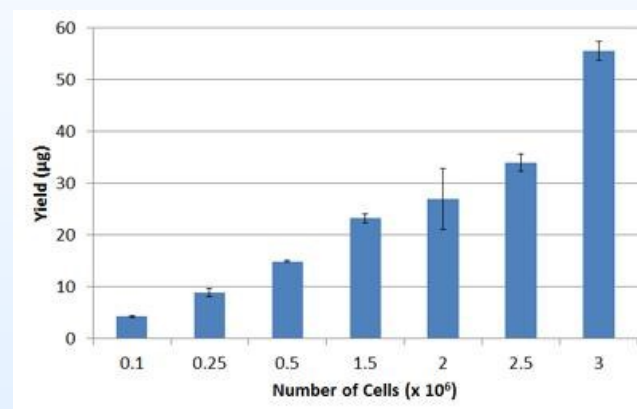


Figure 2. Yield of Genomic DNA from 0.1 x 10⁶ up to 3 x 10⁶ mammalian cells. Genomic DNA was isolated from 0.1 x 10⁶ up to 3 million HeLa cells using Norgen's Cells and Tissue DNA Isolation Kit. Triplicate samples were used from each cell input and 25 μ L of the 200 μ L elution were diluted in 475 μ L of nuclease-free water, and DNA concentrations were measured using the UltraSpec 2100 Pro (Fisher Scientific). Linear increase in DNA yield was obtained when increasing the cell input from 0.1 x 10⁶ - 3 x 10⁶ HeLa cells.

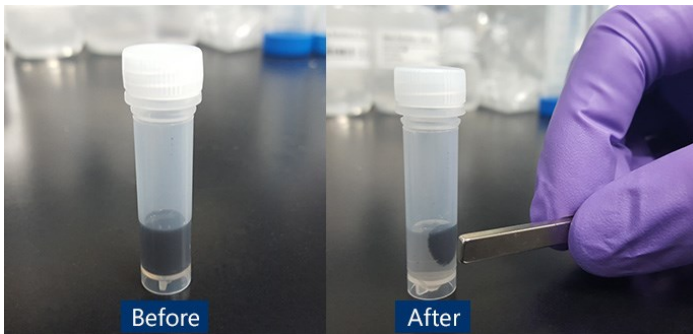
Ordering information

Description	Cat #	Size
Cells and Tissue DNA Isolation Kit	53100	50 prep
Cells and Tissue DNA Isolation Micro Kit	57300	50 prep

DNA Sample Preparation

Cells and Tissue DNA Isolation Kit (Magnetic Bead System)

Cat. # 59100



For the rapid preparation of genomic DNA from cultured cells as well as various tissue samples

Norgen's Cells and Tissue DNA Isolation Kit (Magnetic Bead System) provides a fast and reproducible method for isolating genomic DNA from cultured cells as well as various tissue samples, cultured cells, bodily fluids and nasal or throat swabs. Purification is based on the use of magnetic beads, and Norgen's Cells and Tissue DNA Isolation Kit (Magnetic Bead System) purifies DNA of the highest quality which is compatible with a number of downstream research applications including PCR, NGS and microarray analysis.

Features and Benefits

- Isolate genomic DNA from cultured cells as well as various tissue types
- Fast, reproducible and easy processing using a Magnetic bead system
- Isolate high quality genomic DNA
- Recovered genomic DNA is compatible with various downstream applications

Feature	Specifications
Maximum Input	20 mg of animal tissue 3 x 10 ⁶ cells
Average Yield*	8-10 µg (20 mg of animal tissue) 8-12 µg (3 x 10 ⁶ cells)
Average Purity (OD _{260/280})	1.8 - 1.9
Time to Complete 10 Purifications	40 minutes (hands-on time)

* Average DNA yield will vary depending on the donor

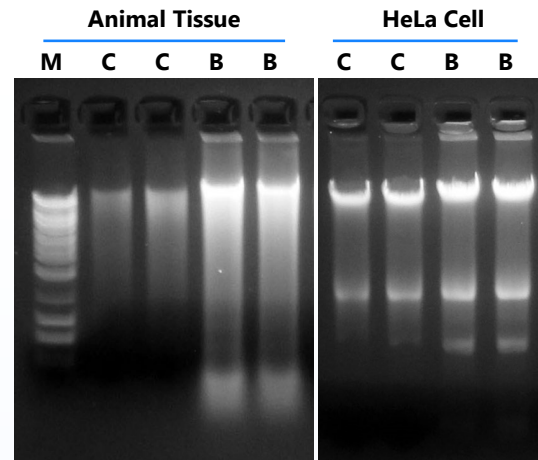


Figure 1. Resolution of DNA isolated from Animal Tissue and Mammalian Cells. DNA was isolated from 20 mg animal tissue (beef) and 1 x 10⁶ HeLa cells using Norgens Cells and Tissue DNA Isolation Kit (Magnetic Bead System), and Norgen's Cells and Tissue DNA Kit (column format, Cat. 53100) as a control. The DNA isolated with the Magnetic Bead System (B) was then compared with the column method (C). For evaluation, 10 µL from each 200 µL of elution were run on 1X TAE 1.2% agarose gel. As it can be seen, Norgen's Magnetic Bead System (B) was able to isolate high yields of DNA from both the tissue and cells. M = Norgens HighRanger DNA Ladder.

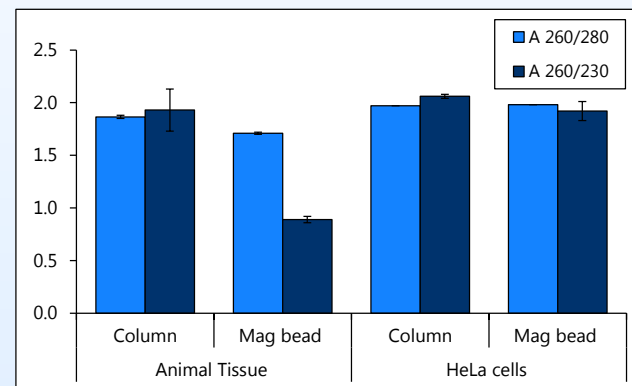


Figure 2. Comparison of A260/280 and A260/230 ratios. DNA was isolated from 20 mg animal tissue (beef) and 1 x 10⁶ HeLa cells using Norgens Cells and Tissue DNA Isolation Kit (Magnetic Bead System), and Norgen's Cells and Tissue DNA Kit (column format, Cat. 53100). The DNA isolated with the Magnetic Bead System was then compared with the column method for A260/280 and A260/230 ratios. DNA isolated using Norgens Cells and Tissue DNA Isolation Kit (Magnetic Bead System) showed a comparable DNA quality to the column method (Cat. 53100).

Ordering information

Description	Cat #	Size
Cells and Tissue DNA Isolation Kit (Magnetic Bead System)	59100	50 prep

DNA Sample Preparation

Bacterial Genomic DNA Isolation Kit

Cat. # 17900, 17950



For the rapid preparation of genomic DNA from bacteria

This kit is designed for the rapid spin column preparation of genomic DNA from 2×10^9 viable bacterial cells (between 0.5 and 1.0 mL of culture). This kit can be used for both Gram-negative and Gram-positive bacteria including *Escherichia coli* and *Bacillus cereus*. Purified genomic DNA is of an excellent quality and yield, and is fully compatible with restriction enzyme digestions, sequencing, PCR, qPCR and more. Also available in 96-well format for high throughput applications.

Features and Benefits

- Isolate genomic DNA from all types of bacteria (both Gram-positive and Gram-negative)
- Rapid and convenient spin column protocol
- 96-well format available for high throughput
- High yield, high quality DNA for sensitive downstream applications including sequencing, PCR, qPCR and more

Feature	Specifications
Maximum Input	2×10^9 bacterial cells
Column Binding Capacity	25 μ g
Average Yield*	Up to 20 μ g
Time to Complete 10 Purifications	1 hour

* Yield will vary depending on the type of sample processed

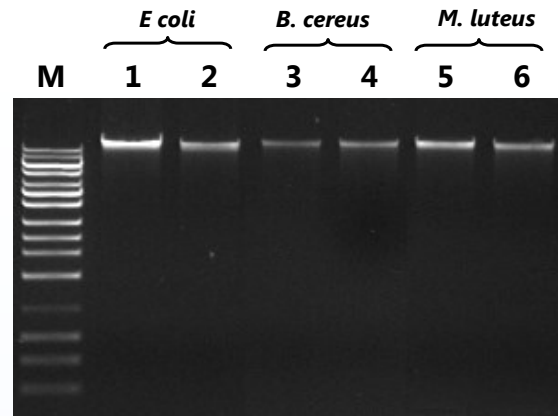


Figure 1. Isolation of Genomic DNA from both Gram Positive and Gram Negative Bacteria. The Bacterial Genomic DNA Isolation Kit was used to isolate genomic DNA from 1 mL overnight culture (1×10^9 cells) of the Gram negative bacteria *E. coli* (Lanes 1 and 2), the lysozyme-resistant Gram positive bacteria *B. cereus* (Lanes 3 and 4) and the Gram positive bacteria *M. luteus* (Lanes 5 and 6). Lane M is Norgen's UltraRanger 1kb DNA Ladder. For analysis 5 μ L of the 200 μ L eluted genomic DNA were loaded on a 1X TAE, 0.9% agarose gel.

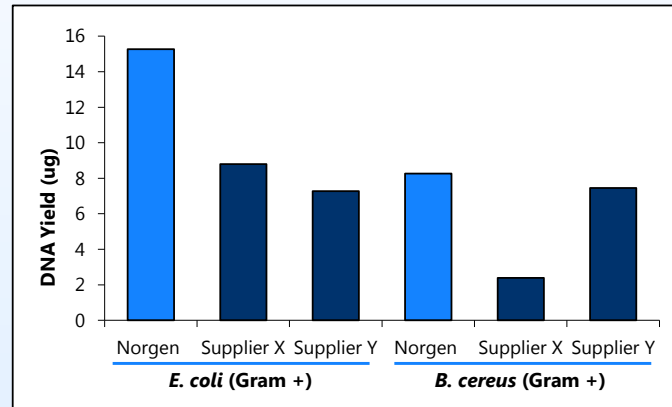


Figure 2. High Yield Purification. The high yield of Norgen's Bacterial Genomic DNA Isolation Kit is illustrated by purifying genomic DNA from 1 mL overnight culture (1×10^9 cells) of both a Gram positive (*B. cereus*) and a Gram negative strain (*E. coli*), and comparing the yield with two major competitors. The quantification of the DNA yield was performed by resolving 5 μ L of the 200 μ L of eluted DNA on a 1X TAE, 0.9% agarose gel followed by densitometry. With both types of bacteria, Norgen's kit was found to give a higher recovery than the competitors kits.

Ordering information

Description	Cat #	Size
Bacterial Genomic DNA Isolation Kit	17900	50 prep
Bacterial Genomic DNA Isolation 96-Well Kit	17950	2 x 96-well

DNA Sample Preparation

Stool DNA Isolation Kit

Cat. # 27600



For the rapid and simple purification of bacterial and host DNA from stool and fecal samples

This kit provides a convenient and rapid method to isolate total DNA from fresh, frozen and preserved stool samples, including those preserved using Norgen's Stool Nucleic Acid Collection and Transport Tubes (Cat. 45630). 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 acids and other inhibitors using Bead Tubes and a combination of chemical and physical homogenization and lysis, without the need of any phenol-chloroform extractions. A simple and rapid spin column procedure is then used to further purify the DNA with high yields and molecular weights of up to 50 kb plus. The purified DNA is of the highest quality and is fully compatible with all downstream applications such as PCR, qPCR, Sequencing and microarrays since all humic acid substances and other PCR inhibitors are removed during the isolation process.

Features and Benefits

- Simultaneous isolation of both host DNA and microbial DNA (universal protocol)
- Eliminates PCR inhibitors including humic acids
- Fully compatible with Norgen's Stool Nucleic Acid Collection and Transport Tubes
- High quality DNA for sensitive downstream applications including PCR, qPCR, Sequencing and microarray

Feature	Specifications
Maximum Input	200 mg
Type of Stool Processed	Frozen, fresh or preserved
Column Binding Capacity	50-650 μ L
Time to Complete 10 Purifications	30 minutes

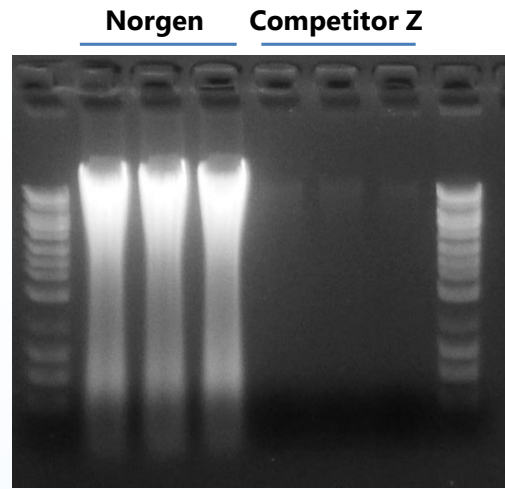


Figure 1. Higher Yields of DNA than Competitor Z. Stool DNA was isolated from 200 mg of fresh stool samples using Norgen's Stool DNA Isolation Kit and Competitor Z's Kit. For evaluation, 10 μ L of DNA from the elution was run on 1X TAE 1.2% agarose gel. Norgen's kit isolated much higher yields of DNA. Marker= Norgen's HighRanger DNA Ladder .

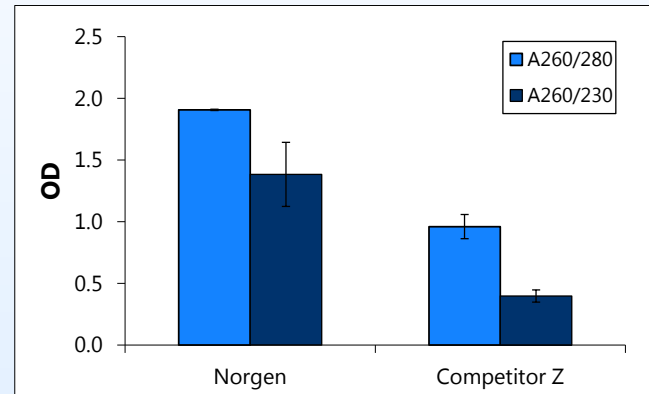


Figure 2. Higher Quality DNA than Competitor Z. Stool DNA was isolated from 200 mg of fresh stool samples using Norgen's Stool DNA Isolation Kit and Competitor Z's Kit. DNA quality was then measured by Nanodrop. Norgen's Stool DNA Isolation Kit isolated DNA of the highest quality.

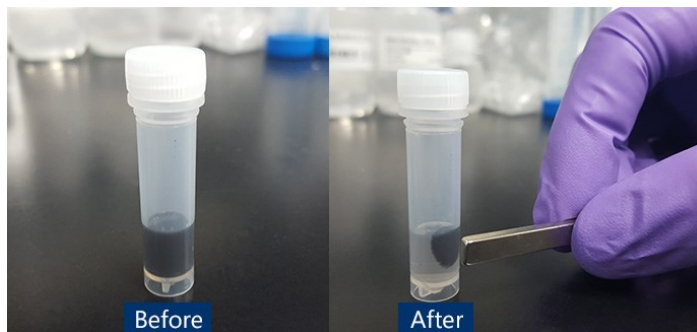
Ordering information

Description	Cat #	Size
Stool DNA Isolation Kit	27600	50 prep

DNA Sample Preparation

Stool DNA Isolation Kit (Magnetic Bead System)

Cat. # 55700



For the rapid and simple purification of bacterial and host DNA from stool and fecal samples

Norgen's Stool DNA Isolation Kit (Magnetic Bead System) provides a fast and reproducible method for isolating genomic DNA from stool samples collected and preserved using Norgen's Stool Nucleic Acid Collection and Transport Tubes (Cat. 45630), as well as fresh or frozen stool. Stool DNA purified using Norgen's kit is of the highest quality, and is compatible with a number of downstream research applications including PCR, NGS sequencing and microarray analysis.

Features and Benefits

- Fast and easy processing using a magnetic bead system
- Robust lysis system (chemical lysis combined with a mechanical homogenization)
- Isolate high quality genomic DNA
- Compatible with preserved stool samples collected using Norgen's Stool Nucleic Acid Collection and Transport Tubes
- High yields - Consistent, high yields of inhibitor-free DNA up to 50 kb plus

Feature	Specifications
Maximum Input	0.2 mL preserved stool / 0.2 g fresh or frozen stool
Type of Stool Processed	Fresh, frozen or preserved
Average Yield from 0.25 mL of stool*	15-25 µg
Average Purity (OD _{260/280})	1.7-1.8
Time to Complete 10 Purifications	35 minutes

* Average DNA yield will vary depending on the donor

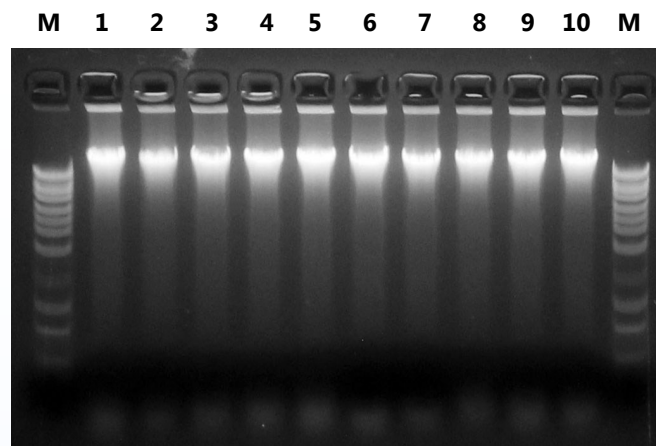


Figure 1. High Quality DNA Isolated from Preserved Stool Samples. DNA was isolated from 200 µL preserved stool samples using Norgens Stool DNA Isolation Kit (Magnetic Bead System). For evaluation, 10 µL from 75 µL of elution were run on 1X TAE 1.2% agarose gel. Stool samples were preserved in Norgens Stool Nucleic Acid Collection and Transport Tubes (Cat. 45630, 45660). Marker = Norgens HighRanger DNA Ladder.

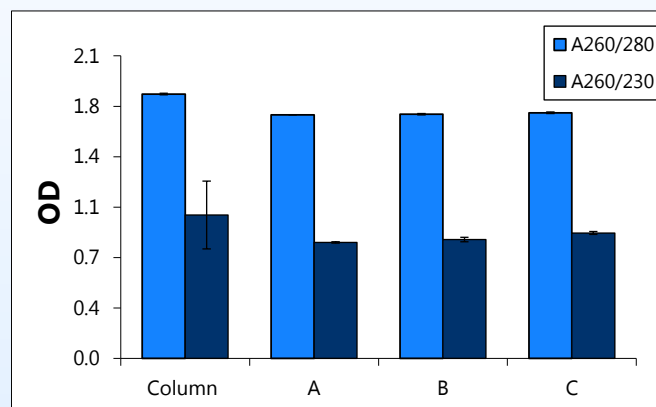


Figure 2. Comparison of A260/280 and A260/230 ratios. DNA was isolated from 200 mg stool samples using Norgen's Stool DNA Isolation Kit (Magnetic Bead System) and Norgen's Stool DNA Isolation Kit (column format). The purified DNA was then compared for A260/280 and A260/230 ratios. DNA isolated using Norgens Stool DNA Isolation Kit (Magnetic Bead System) (A, B and C) showed a comparable DNA quality to the DNA isolated using Norgens Stool DNA Isolation (Column method), indicating the consistence and highest DNA quality were generated by the Stool DNA Isolation Kit (Magnetic Bead System).

Ordering information

Description	Cat #	Size
Stool DNA Isolation Kit (Magnetic Bead System)	55700	50 prep

DNA Sample Preparation

Stool Nucleic Acid Isolation Kit

Cat. # 45600



A convenient and rapid method to isolate total DNA and RNA from fresh, frozen and preserved stool samples

This kit provides a rapid spin column method to isolate total DNA and RNA from fresh or frozen stool samples, as well as from stool collected using Norgen's Stool Nucleic Acid Collection and Transport Tubes. The universal protocol conveniently allows for the isolation of total genomic DNA and total RNA from all the various microorganisms and host cells found in the stool sample simultaneously. The kit removes all traces of humic acids and provides consistent, high yields of RNA and DNA.

The purified DNA and RNA are of the highest quality and are fully compatible with downstream PCR applications, as all humic acid substances and other PCR inhibitors are removed during the isolation.

Features and Benefits

- Simultaneous isolation of both host and microbial DNA and RNA
- Eliminates PCR inhibitors including humic acids
- High quality total RNA and DNA for sensitive downstream applications

Feature	Specifications
Maximum Input	200 mg
Type of Stool Processed	Frozen, fresh or preserved
Column Binding Capacity	50-650 μ L
Time to Complete 10 Purifications	30 minutes

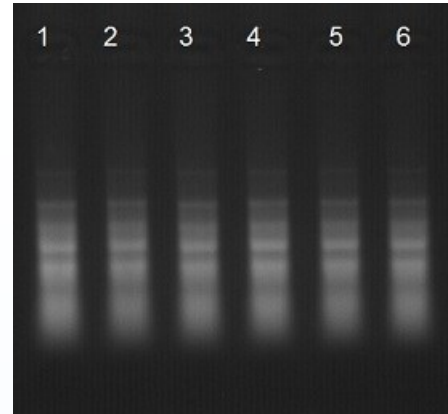


Figure 1. Total RNA Profile from Different Stool Samples. Total RNA and DNA were isolated from 6 different 200 mg human stool samples using Norgen's Stool Nucleic Acid Isolation Kit. For analysis, 7.5 μ L from each 75 μ L elution were loaded on 1.2 % MOPS agarose gel. All six sample showed a good RNA integrity and total RNA profile that includes large and small RNA.

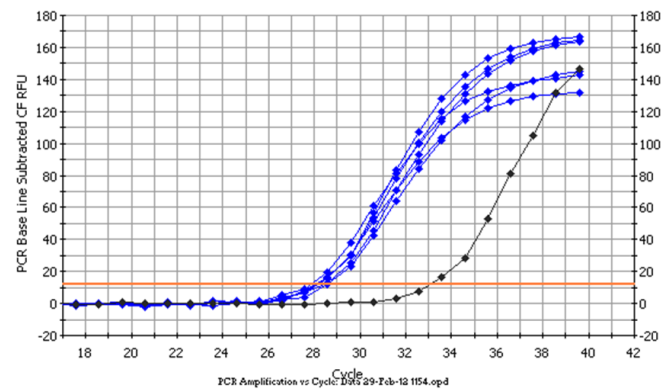


Figure 2. Detection of Bacterial RNA from Stool Samples. Real-time one step RT-PCR analysis (SYBR Green) was carried out to detect the bacterial 16s rRNA expression from six stool samples isolated using Norgen's Stool Nucleic Acid Isolation Kit. The RNA template was treated with DNase I and concentrated with Norgen's RNA Clean-Up and Concentration Kit (Cat# 23600, 43200). No PCR inhibition was observed from 300 ng of total RNA in 20 μ L PCR reaction. Black diamond: negative control, Blue diamond: six stool RNA samples.

Ordering information

Description	Cat #	Size
Stool Nucleic Acid Isolation Kit	45600	50 prep

DNA Sample Preparation

Phage DNA Isolation Kit

Cat. # 46800, 46850



For the rapid purification of total DNA from bacteriophages

This kit provides a rapid spin column method for the purification of total DNA from a broad spectrum of bacteriophages propagated in bacteria grown in liquid cultures. The DNA is isolated without the use of phenol, chloroform or cesium chloride banding procedures. The spin-column based procedure is rapid and can be completed in less than 45 minutes. The kit is highly efficient for processing small volumes of phage supernatant (500 μ L – 1 mL) and with the optional DNase and Proteinase K treatments phage DNA yields are maximized while host DNA contamination is minimized. Purified total phage DNA is of the highest integrity, and can be used in a number of downstream applications including PCR, qPCR, Restriction Fragment Length Polymorphism (RFLP), sequencing, cloning, Southern Blot and more.

Features and Benefits

- Isolate high quality DNA from a broad variety of phage strains
- Fast and easy processing using a rapid spin-column format
- No phenol or chloroform extractions or cesium chloride banding required
- High yields of DNA recovered 10-30 μ g DNA from 10^6 - 10^{10} pfu/ mL of enriched phages

Feature	Specifications
Size of DNA Purified	All sizes
Maximum Amount of Starting Material	1 x 10^{10} pfu/mL enriched phages
Average Yield*	3-15 μ g DNA from 10^6 - 10^{10} pfu/mL of enriched phages
Time to Complete 10 Purifications	45 minutes

* Average yields will vary depending upon a number conditions used and developmental stage.

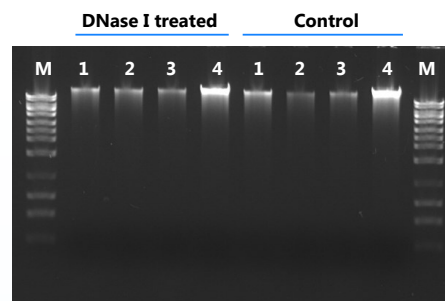


Figure 1. Effective Host Genomic DNA Removal without Reducing Phage DNA Yield. Total DNA was isolated from four enriched phage cultures using Norgen's Phage DNA Isolation Kit. A DNase I pre-treatment was performed prior to adding the provided Lysis Buffer. Briefly, 20 units of DNase I was added to 1 mL of enriched phage culture and the mixture was incubated at room temperature for 20 minutes. After the DNase I treatment the procedure was followed. As a control, DNA was isolated from aliquots of the same 4 cultures using Norgen's Phage DNA Isolation Kit without performing the DNase I treatment. For DNA analysis 10 μ L of each 50 μ L elution was loaded onto a 1X TAE agarose gel. As it can be seen, the phage DNA was safely protected from the DNase I treatment by its coat protein, while the host genomic DNA was efficiently degraded by the DNase I. Thus the DNase I pre-treatment resulted in less host gDNA contamination in the final phage elution without influencing the total phage DNA yield. Lane M is Norgen's Highranger 1 kb DNA Ladder (Cat. 11900).

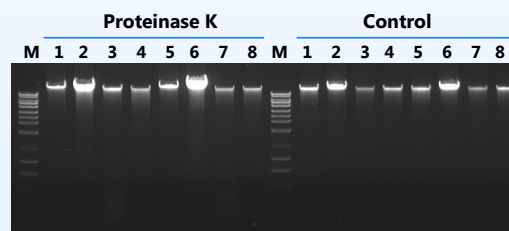


Figure 2. Optional Proteinase K Treatment Improves DNA Yield for Certain Phage Strains. Total DNA was isolated with and without the optional Proteinase K treatment using Norgen's Phage DNA Isolation Kit. Briefly, 4 μ L of Proteinase K (20 mg/mL) was added to 1 mL of enriched phage culture and incubated at 55°C for 15 minutes with the phage Lysis Buffer. After the Proteinase K treatment the procedure was followed. As a control, DNA was isolated from aliquots of the same 8 cultures using Norgen's Phage DNA Isolation Kit without performing the Proteinase K treatment. For DNA analysis 10 μ L of each 50 μ L elution was loaded onto a 1X TAE agarose gel and the yield of DNA was compared from the eight different phage types (lane 1 to 8). As it can be seen, the optional treatment of Proteinase K improved the phage DNA yield in Lanes 2, 5 and 6 dramatically. Lane M is Norgen's Highranger 1 kb DNA Ladder (Cat. 11900).

Ordering information

Description	Cat #	Size
Phage DNA Isolation Kit	46800	50 prep
Phage DNA Isolation Kit	46850	100 prep

DNA Sample Preparation

FFPE DNA Purification Kit

Cat. # 47400

For the rapid and efficient extraction and purification of DNA from FFPE samples

This kit provides a rapid method for the isolation and purification of 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. Norgen's 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 purified DNA is of high yield and integrity and is free of inhibitors, ready for use in a number of downstream applications including qPCR, mutation screening, microarray analysis, sequencing, single nucleotide polymorphism (SNP) and short-tandem repeat (STR) genotyping. The protocol can be completed in as little as 1 hour.

Features and Benefits

- Fast and easy processing using rapid and convenient spin-columns
- Isolate high quality and high yield DNA
- DNA is free of inhibitors and ready for downstream use including SNP (single nucleotide polymorphism) and short-tandem repeat (STR) genotyping

Feature	Specifications
Maximum Column Binding Capacity (gDNA)	10 µg
Maximum Loading Volume Per Spin Column	650 µL
Size of DNA Purified	All sizes > 80bp
Maximum Amount of Starting Material	5 sections ≤ 20 µm thick paraffin slices / 25 mg of unsectioned block

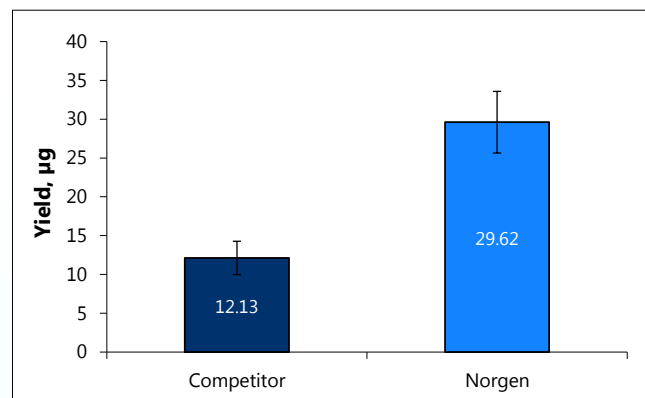


Figure 1. Comparison of Total DNA Yield Isolated by Norgen's FFPE DNA Kit and a Leading Competitor FFPE DNA Purification Kit. DNA was isolated from 10 mg of FFPE kidney blocks. DNA concentrations were measured using the NanoVue spectrophotometer (GE Healthcare). Norgen's kit was found to have a much higher DNA yield, compared to the competitor kit.

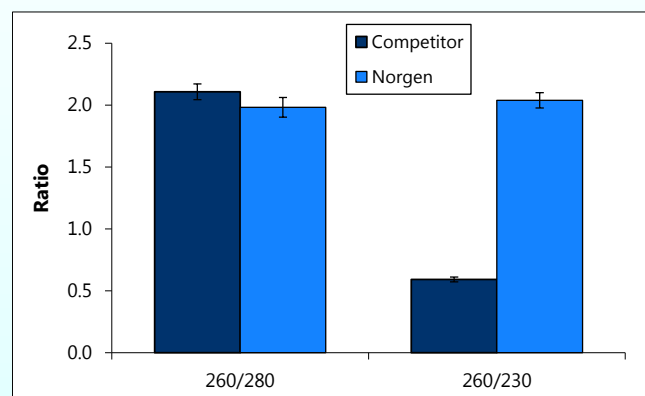


Figure 2. Comparison of DNA Quality Isolated by Norgen's FFPE DNA Kit and a Leading Competitor FFPE DNA Purification Kit. DNA was isolated from 10 mg of FFPE kidney blocks. Quality was assessed using A260:A280 and A260:A230 ratios generated from the NanoVue spectrophotometer (GE Healthcare). While Norgen and the competitor kit were found to have similar A260:A280 ratios, Norgen was found to have a much higher A260:A230 ratio, indicating higher quality DNA.

Ordering information

Description	Cat #	Size
FFPE DNA Purification Kit	47400	50 prep

FFPE RNA/DNA Isolation Kit

Cat. # 25000



For the rapid isolation and purification of total RNA (including microRNA) and genomic DNA from FFPE tissue samples

This kit provides a rapid method for the isolation and purification of total RNA (including microRNA) and DNA from formalin-fixed paraffin-embedded (FFPE) tissue samples. Alternatively, the kit can be used to isolate total RNA alone or genomic DNA alone from FFPE tissue samples through varying the protease digestion time and performing optional RNase or DNase digestions. Nucleic acids recovered with this kit are suitable for further downstream analysis by PCR, qPCR, microarrays, sequencing etc.

Norgen Biotek also offers a kit to separate RNA and DNA from the same FFPE tissue sample. Please visit the product page 22 for more details.

Features and Benefits

- Purify all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA)
- Convenient spin column protocol
- The kit allows for the purification of either pure total RNA, pure genomic DNA or both RNA and genomic DNA together through the use of tailored protease digestion times
- Purified RNA and genomic DNA are of the highest quality for use in numerous downstream applications including next generation sequencing, real-time RT-PCR, PCR, mutation screening, and microarray analyses

Feature	Specifications
Column Binding Capacity (RNA)	50 µg
Column Binding Capacity (gDNA)	15 µg
Maximum Amount of Starting Material:	
Paraffin Slices	5 slices of 20 µm thick
Unsectioned Block	25 mg

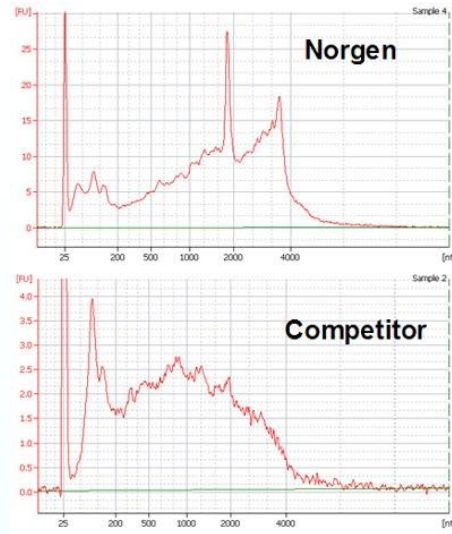


Figure 1. High Quality and Yield of Total RNA. Total RNA was isolated from one slice of hamster FFPE kidney section (20 micron thickness) using Norgens FFPE RNA/DNA Purification Kit and a leading competitors kit. One microliter of the 50 µL purified RNA was then resolved on an Agilent 2100 BioAnalyzer using an RNA Nano 6000 chip. As it can be seen, Norgen 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 Norgens RNA.

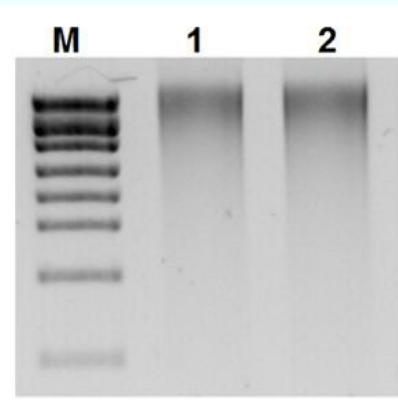


Figure 2. High Quality Genomic DNA. Genomic DNA was isolated from one slice of hamster FFPE kidney section (20 micron thickness) using Norgen's FFPE RNA/DNA Purification Kit in duplicate. Fifteen microliters of the 150 µL DNA elutions were run on a 1.5% agarose gel. From observing the gel it can be seen that the kit isolates high yields of intact genomic DNA. Lane M is Norgens HighRanger 1kb DNA Ladder, and Lanes 1 and 2 contain the purified DNA samples.

Ordering information

Description	Cat #	Size
FFPE RNA/DNA Purification Kit	25000	50 prep

DNA Sample Preparation

FFPE RNA/DNA Purification Plus Kit

Cat. # 54300



Sequential isolation and purification of total RNA and genomic DNA from FFPE tissue samples

Norgen's 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. The RNA and DNA are sequentially purified into separate fractions using this kit. 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. Norgen's 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.

Features and Benefits

- 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

Feature	Specifications
Binding Capacity Per Column	RNA: Up to 35 µg DNA: Up to 10 µg
Maximum Loading Volume Per Spin Column	600 µL
Size of RNA Purified	All sizes, including < 200 nt
Maximum Amount of Starting Material	4 sections <20 µm thick 10 mg of unsectioned block

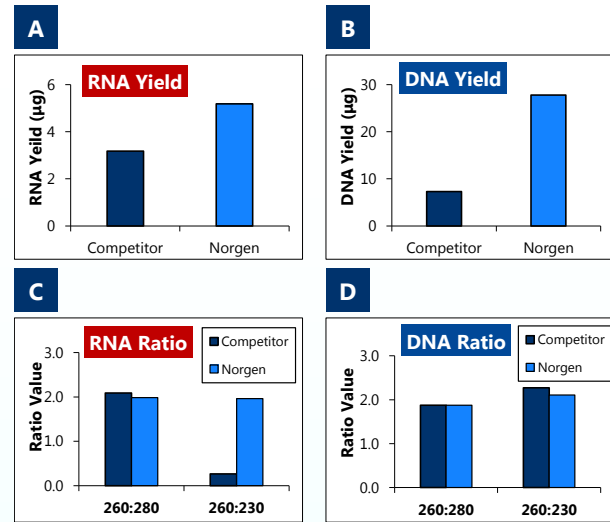


Figure 1. Superior Recovery of High Quality RNA and DNA from FFPE Spleen Tissues. Norgen's FFPE RNA/DNA Purification Plus Kit isolates FFPE RNA and DNA that exceeds the yield of competitors. Total RNA and DNA was isolated from equal amount of hamster FFPE spleen sections (20 micron thickness) using Norgen's FFPE RNA /DNA Purification Plus Kit and a leading competitors 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. Norgen's kit consistently purified total RNA and DNA with a higher yield and higher quality than for those obtained using the market competitor's kits.

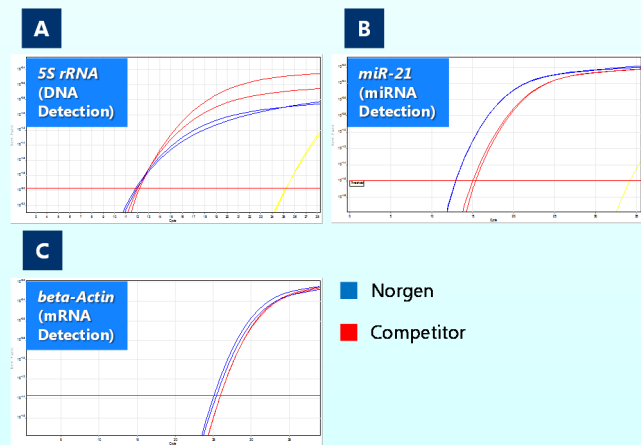


Figure 2. Recovery of High Quality DNA and True Total RNA including microRNA from Hamster Spleen. Genomic DNA isolated using Norgen's FFPE RNA/DNA Purification Plus Kit is of high quality with effective qPCR amplification. Panel A showed that in a qPCR using primers against the 5S rRNA gene using equal amount of FFPE DNA as template, the DNA isolated with Norgen's kit showed better amplification (lower Ct value). Moreover, Norgen's FFPE RNA/DNA Purification Plus Kit isolates true total RNA including microRNA. With the same amount of RNA as template in RT-qPCR reactions for transcripts of miR-21 (Panel B for microRNA) and beta-Actin (Panel C for mRNA), RNA isolated by Norgen showed better amplification in beta-Actin and significantly better in miR-21 microRNA.

Ordering information

Description	Cat #	Size
FFPE RNA/DNA Purification Plus Kit	54300	50 prep

PCR Purification Kit

Cat. # 14400, 24800, 45700



For the rapid purification of amplified DNA products from PCR mixes

This kit enables the rapid purification of amplified DNA products from PCR mixes. It is able to effectively remove PCR by-products including primers, dimers, enzymes, unincorporated nucleotides and mineral oil from the desired PCR product. The purified PCR products are fully compatible with restriction enzyme digestion, ligation into vectors, labeling, sequencing and more. This kit can also be used as an alternative to organic extraction and ethanol precipitation to clean up various enzymatic reactions.

The kit is also available in a 96-well format for high-throughput PCR purification. Purification with the 96-well plate can be performed using either a vacuum manifold or centrifugation.

Features and Benefits

- Purify amplified DNA ranging from 100 bp -15,000 bp in size
- Fast and efficient spin column format
- Available in a 50 prep size and a 250 prep size
- Also available in 96 well format

Feature	Specifications
Column Binding Capacity	10 µg
Size of DNA Purified	100 - 15,000 bp
Average Recovery	> 90%
Average Primer Removal	> 90%
Minimum Elution Volume	30 µL
Time to Complete 10 Purifications	15 minutes

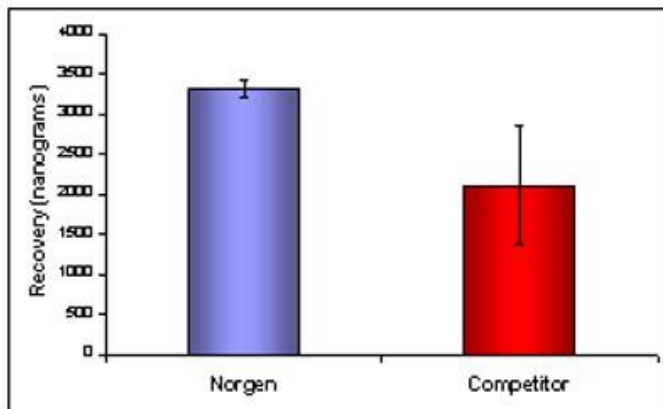


Figure 1. High Yield Purification. The high yield of Norgen's PCR Purification Kit is illustrated by purifying 3.5 µg of a 500 bp PCR-amplified product from a reaction mixture and comparing the recovery with a competitor. The purifications were performed in triplicate. DNA recovery was quantified by running 350 ng (1/10th) of the input and 5 µL (1/10th) of 50 µL DNA elution on a 1X TAE, 1% agarose gel followed by densitometry. The average yield for each kit is shown in Figure 1. Norgen's kit shows a significantly higher recovery than the competitor's kit.

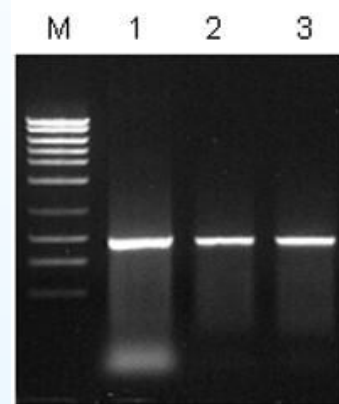


Figure 2. Removal of Primer-Dimers. Primer-dimers present in PCR reactions are effectively removed during the purification process with Norgen's PCR Purification Kit. One microgram of a 700 bp PCR fragment, spiked with 250 pmole of primer (Lane 1) was purified using Norgen's kit, with high recovery and no traces of spiked primer present in the elutions (Lanes 2 and 3). Lane 1 contains 400 ng (40%) of the input, and Lanes 2 and 3 contain 20 µL (40%) of the 50 µL elution (duplicate). Lane M is Norgen's MidRanger 1kb DNA Ladder. Eluted DNA was resolved on a 1X TAE, 1% agarose gel.

Ordering information

Description	Cat #	Size
PCR Purification Kit	14400	50 prep
PCR Purification 96-Well Kit	24800	2 x 96-well
PCR Purification Kit	45700	250 prep

DNA Sample Preparation

DNA Gel Extraction Kit

Cat. # 13100



For rapid extraction of DNA from agarose gel fragments

This kit is designed for the rapid preparation and purification of DNA fragments that have been fractionated on agarose gels. The recovered DNA is free from agarose and other impurities, and is compatible with restriction enzyme digestion, ligation into vectors and sequencing. The protocol can be completed in 20 minutes.

Features and Benefits

- Fast and easy recovery of DNA from agarose gel fragments
- High recovery of desired DNA
- Convenient spin column format
- DNA is ready for ligation, restriction digestion, sequencing and more

Feature	Specifications
Column Binding Capacity	10 µg
Maximum Weight of Gel Slice	400 mg
Average Recovery	70-90%
Size of DNA Purified	100 - 15,000 bp
Minimum Elution Volume	30 µL
Time to Complete 10 Purifications	30 minutes

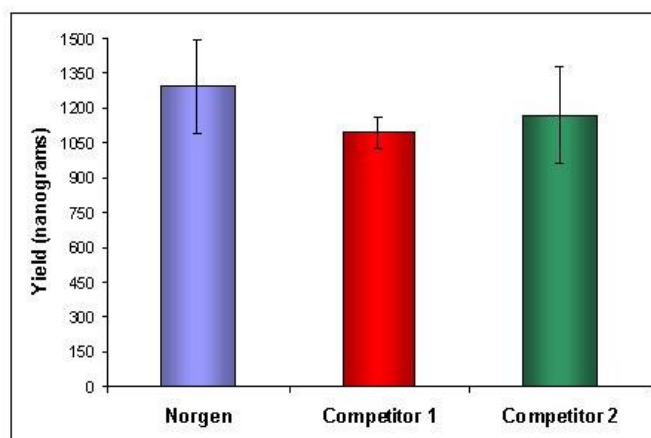


Figure 1. Efficient Recovery from Agarose Gels. The high yield of Norgen's DNA Gel Extraction Kit is illustrated by purification of 1.5 µg of a 500 bp fragment from a 1% agarose gel using Norgen's DNA Gel Extraction Kit and two other commercial kits. DNA recovery was quantified by running 300 ng (1/5th) of the input and 10 µL (1/5th) of the 50 µL DNA elution on a 1X TAE, 1% agarose gel followed by densitometry. The Norgen kit shows a significantly higher efficiency compared to the competitor kits based on the average of three purifications.

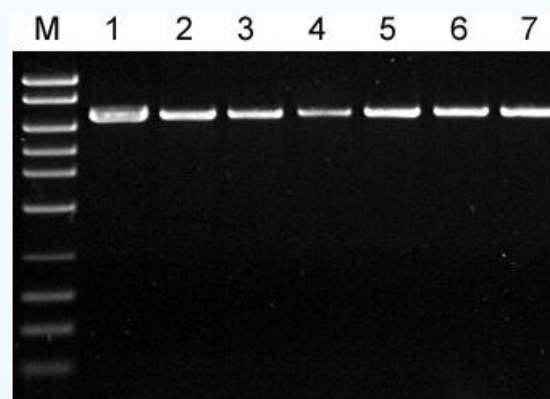


Figure 2. Efficient Recovery of Large DNA Fragments. The efficient recovery of Norgen's DNA Gel Extraction Kit is illustrated by purification of 1.5 µg of a 3,700 bp fragment from a 0.9% agarose gel using Norgen's DNA Gel Extraction Kit (Lanes 5-7) and a competitor's kit (Lanes 2-4). Eluted DNA was resolved on a 1X TAE, 0.9% agarose gel. Lane 1 indicates 300 ng (20%) of the input amount, while lanes 2-7 contain 10 µL (20%) of the 50 µL eluted amount. Norgen's kit shows a higher recovery than the competitor's kit.

Ordering information

Description	Cat #	Size
DNA Gel Extraction Kit	13100	50 prep

Oligo Clean-Up and Concentration Kit

Cat. # 34100



Fast and simple clean-up and concentration of oligonucleotides without the use of phenol

This kit provides a rapid spin column procedure for the purification and concentration of up to 10 µg of oligonucleotides of various sizes. The kit is used for the purification of synthesized oligos, as well as the clean-up of oligos from various upstream enzymatic reactions such as ligation, Poly(A) tailing and end-labeling. Single or double stranded DNA or RNA oligos larger than 10 bp can be purified with this kit (not recommended for the removal of PCR primers). Oligos of up to 1000 bp have been tested with this kit. This kit purifies oligos from other reaction components including proteins, buffers and nucleotides without the use of phenol, chloroform, alcohol precipitation or urea PAGE extraction. The kit provides a high quality product with up to 90% recovery. The purified oligos can be used in a number of downstream applications including end-point or quantitative reverse transcription PCR, Northern blotting, *in situ* hybridization, and RNAi studies.

Features and Benefits

- Cleans and concentrates single-stranded or double-stranded DNA or RNA oligonucleotides larger than 10 bases
- No phenol, chloroform or alcohol precipitations are involved
- Efficient removal of enzymatic reaction buffers and proteins

Feature	Specifications
Column Binding Capacity	10 µg for DNA or RNA
Maximum Column Loading Volume	600 µL
Size of DNA/RNA Purified	> 10 nt, single stranded or double stranded
Maximum Amount of Starting Material	10 µg of DNA or RNA
Minimum Elution Volume	20 µL
Time to Complete 10 Purifications	15

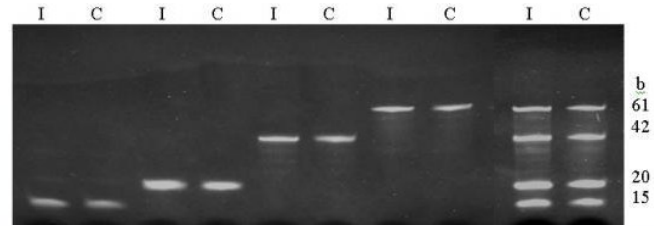


Figure 1. Integrity of Purified DNA Oligonucleotides. Oligonucleotides of different sizes (15mer, 20mer, 42mer and 61mer) were purified using Norgen's Oligo Clean-Up and Concentration Kit, and the integrity of the oligonucleotides before and after cleaning were compared by running a 15% urea-PAGE gel. Equal volumes of the input (I) and cleaned (C) oligonucleotide were run, and as it can be seen the purified oligonucleotides were of a high quality and integrity. Please note that the kit can also clean a mixture of different oligo sizes, as shown on the far right two lanes.

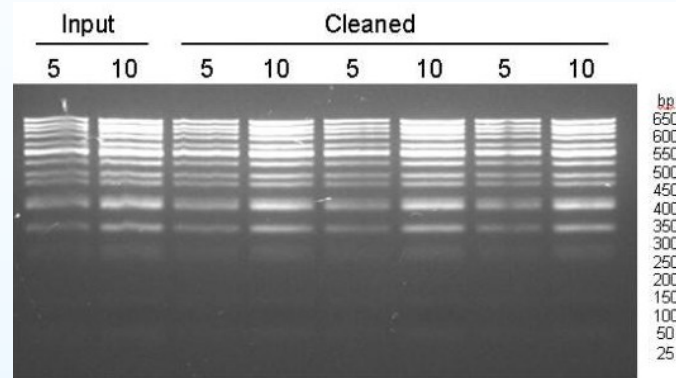


Figure 2. Integrity of Purified dsDNA. Samples of Norgen's MiniSizer DNA ladder (25bp-650bp) were purified using Norgen's Oligo Clean-Up and Concentration Kit, and the integrity of the dsDNA before and after cleaning was compared by running aliquots on a 2% agarose gel. Both the input volume and the elution volume were maintained at 50 µL, and 5 µL and 10 µL of the input and 5 µL and 10 µL of the elution were run on the gel for visual comparison. As it can be seen, the purified dsDNA was of a high quality and integrity. The overall recovery of the different ladder bands is 82% of the input.

Ordering information

Description	Cat #	Size
Oligo Clean-Up and Concentration Kit	34100	50 prep

DNA Sample Preparation

Sequencing Reaction Clean-Up Kit

For the rapid purification of sequencing extension products from reaction mixes

This kit provides a rapid spin column procedure for the purification and clean-up of sequencing and various other enzymatic reactions including restriction enzyme digests, Klenow reactions, alkaline phosphatase reactions, and ligations. The kit is used to remove reaction contaminants including dye terminators, salts, enzymes, excess primers and primer dimers. Contaminants are undesirable as they can interfere with many downstream applications including sequencing, RFLP, restriction enzyme digestions and ligation. Purification is based on spin-column chromatography without the use of phenol, chloroform or alcohol precipitation. The kit provides a high quality product with up to 90% recovery.

The kit is also available in a 96-well format for high-throughput sequencing reaction clean-up. Purification with the 96-well plate can be performed using either a vacuum manifold or centrifugation.

Features and Benefits

- Purify sequencing extension products from dye terminators, primers and other contaminants
- Also purify DNA from different enzymatic reactions including restriction enzyme digests, Klenow reactions, alkaline phosphatase reactions, and ligations.
- High recovery
- Fast and efficient spin column format
- Also available in 96 well format for high throughput

Feature	Specifications
Column Binding Capacity	13 µg
Maximum Column Loading Volume	650 µL
Maximum Amount of Starting Material	25 µg
Time to Complete 10 Purifications	10 minutes
Minimum Elution Volume	30 µL

Cat. # 34500, 34400

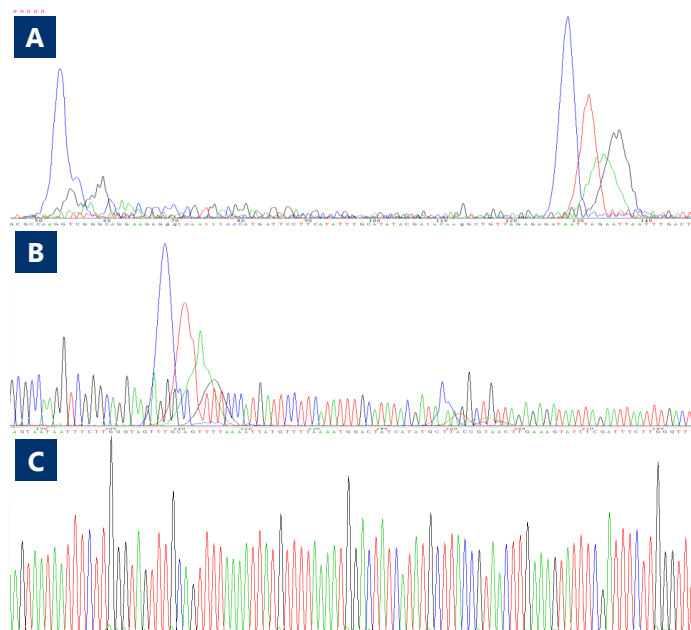
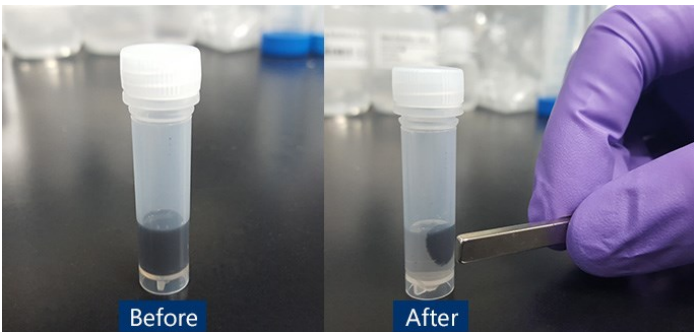


Figure 1. Sequencing Chromatogram of pDC-CG DNA. A single extension product was divided into 3 equal aliquots and was cleaned using either Norgen's Sequencing Reaction Clean-Up Kit, or one of two competitor kits. Sequencing data was then generated using Bigdye Terminator chemistry on the Applied Biosystems 3130xL DNA Sequencer. Panel A corresponds to the results when the sample was cleaned using Competitor 1, and this chromatogram indicates low extension product yields. Panel B corresponds to the results when the sample was cleaned using Competitor 2, and this product exhibited poor dye terminator removal that introduced several blobs to the sequence. Panel C corresponds to the sample cleaned with Norgens Sequencing Reaction Clean-Up Kit, and shows good yield and efficient removal of dye terminator and contaminants as indicated from the chromatogram signals.

Ordering information

Description	Cat #	Size
Sequencing Reaction Clean-Up Kit	34500	50 prep
Sequencing Reaction Clean-Up 96-Well Kit	34400	2 x 96-well



For the rapid purification of sequencing extension products and the rapid purification of amplified DNA products from PCR mixes

Norgen's PCR and Sequencing Reaction Clean-Up Kit (Magnetic Bead System) provides a rapid, simple and efficient procedure for the purification and clean-up of sequencing and various other enzymatic reactions including restriction enzyme digests, Klenow reactions, alkaline phosphatase reactions, and ligations. The kit is used to remove reaction contaminants including dye terminators, salts, enzymes, excess primers and primer dimers. Contaminants are undesirable as they can interfere with many downstream applications including sequencing, RFLP, restriction enzyme digestions and ligation. Purification is based on magnetic beads without the use of phenol, chloroform or alcohol precipitation. The kit provides a high quality product with up to 90% recovery.

Features and Benefits

- Purification from all sequence cycling by-products
- Purification of all types of enzymatic reactions
- High recovery
- Complete magnetic bead purification
- High integrity product

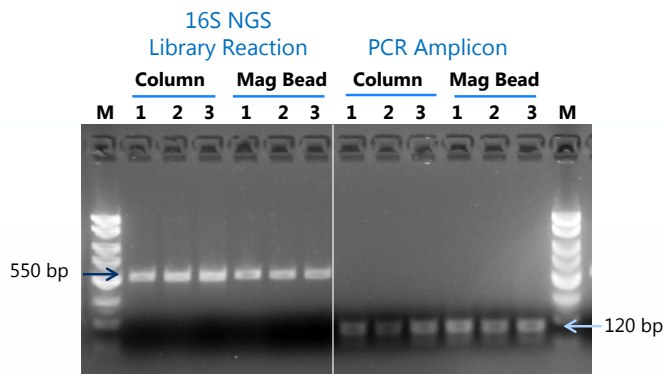


Figure 1. Efficient Clean-Up and Recovery. The performance of Norgen's PCR and Sequencing Reaction Clean-Up Kit (Magnetic Bead System) was compared to Norgen's column-based PCR Purification Kit and Sequencing Reaction Clean-Up Kit by purifying and cleaning 20 µL of 16S NGS library reaction and an end-point PCR. For evaluation, 10 µL of each 50 µL elution were run on a 1X TAE 1.4% agarose gel. As it can be seen, Norgen's PCR and Sequencing Reaction Clean-Up Kit (Magnetic Bead System) was able to successfully recover the target bands without any primer dimer contamination. Marker = Norgens RastRunner DNA Ladder.

Ordering information

Description	Cat #	Size
PCR and Sequencing Reaction Clean-Up Kit (Magnetic Bead System)	60200	50 prep

DNA Sample Preparation

Size-Select Kit for NGS Library Preparation

Cat. # 53600

A rapid, simple and efficient procedure for the size selection and clean-up of fragmented DNA

This kit provides a rapid, simple and efficient procedure for the size selection and clean-up of fragmented DNA. The resulting DNA is suitable for use in next generation sequencing library preparation. The kit selectively isolates DNA ranging in size from approximately 200-500 bp from a mixture of fragmented DNA, and removes various impurities including un-incorporated adaptors and enzymes, without the use of magnetic beads or agarose gel extraction. The kit is robust and is compatible with input volumes of up to 10 µg. The purified and size selected DNA is of the highest quality and can then be used in subsequent PCR reactions for next generation sequencing library preparation. The protocol can be completed in approximately 25 minutes.

Features and Benefits

- Rapid and convenient column purification
- Selection of DNA sizes of 200 bp - 500 bp for NGS
- Provides high quality DNA fragments

Feature	Specifications
Column Binding Capacity	10 µg of DNA
Maximum Column Loading Volume	600 µL
Size of DNA Purified	Approximately 200-400 bp
Time to Complete 10 Purifications	25 minutes
Minimum Elution Volume	30 µL

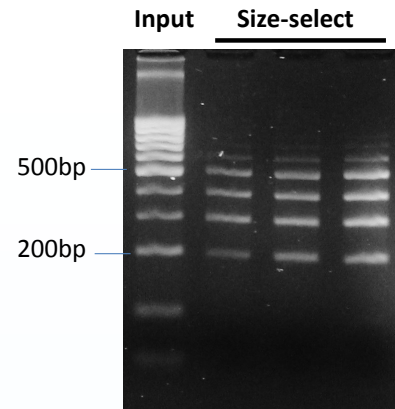


Figure 1. Efficient purification of 200-500 bp from a full DNA size range. Ten µg of DNA (50-1000 bp ladder with spiked genomic DNA band) was used per sample. Norgen's Size-Select Kit for NGS Library Preparation was used to purify DNA sizes from 200-500 bp. Following purification, 10 µL from each 30 µL elution was loaded on 2% TAE agarose gel. Norgen's Size-Select Kit for NGS Library Preparation demonstrated a good DNA recovery within the expected size range.

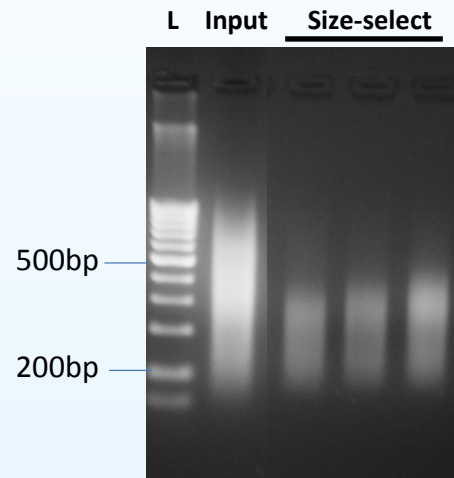


Figure 2. Efficient purification of 200-500 bp from fragmented HeLa cell DNA. Ten µg of sonication fragmented HeLa DNA (up to about 1000 bp) was used per sample. Norgen's Size-Select Kit for NGS Library Preparation was used to purify DNA sizes from 200-500 bp. Following purification, 10 µL from each 30 µL elution was loaded on 2% TAE agarose gel. Norgen's Size-Select Kit for NGS Library Preparation demonstrated a good DNA recovery within the expected fragmented size range.

Ordering information

Description	Cat #	Size
Size-Select Kit for NGS Library Preparation	53600	25 prep

For the rapid and efficient purification, cleanup and concentration of RNA or DNA

Norgen's CleanAll DNA/RNA Clean-Up and Concentration Micro Kit provides a rapid method for the purification, cleanup and concentration of RNA or DNA from different isolation methods or upstream applications. The kit can be used as an alternative to organic extraction and ethanol precipitation to clean up various enzymatic reactions.

The CleanAll Kit purifies RNA from phenol/guanidine-based protocols or from various upstream enzymatic reactions such as DNase treatment, labeling and *in vitro* transcription. Furthermore, endotoxins can be removed from previously purified RNA solutions.

The kit can be used to clean up DNA from digestions, ligations, PCR reactions, labeling reactions, DNA modification reactions and staining. The kit also provides a protocol for the rapid removal of endotoxins from previously purified DNA down to 0.1 EU/μg DNA or less.

Purify all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA).

Purify all sizes of DNA, from small PCR products, native or linearized plasmids, to genomic DNA. Using an alternative protocol, even oligonucleotides and smaller DNA fragments can be purified.

Features and Benefits

- Can be used for the clean up of both RNA and DNA from enzymatic reactions, labeling etc.
- Purifies all sizes of RNA, from large mRNA down to microRNA (miRNA)
- Purifies all sizes of DNA, from small PCR products to plasmids to genomic DNA
- Removes endotoxins for transfection of injection ready RNA or DNA
- Rapid and efficient spin-column format (20 minutes)

Feature	Specifications
Maximum Amount of Starting Material	50 μg RNA 10 μg DNA
Maximum Column Loading Volume	600 μL
Minimum Elution Volume	20 μL
Time to Complete 10 Purifications	20 minutes
Size of RNA Purified	All sizes
Size of DNA Purified	≥ 100 bp
Average Recovery	≥90% for RNA ≥90% for DNA 100 bp - 10 kbp ≥75% for DNA ≥ 10 kbp

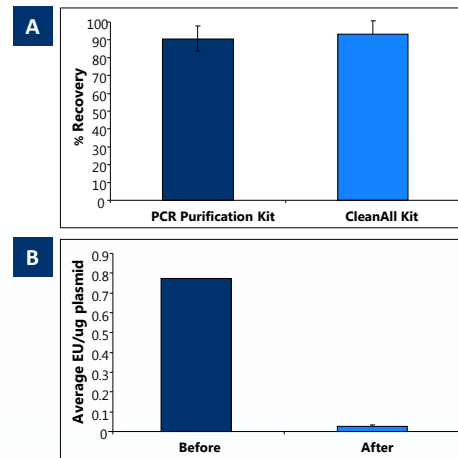


Figure 1. High Recoveries and Efficient Endotoxin Removal. High recoveries of DNA can be seen when using the CleanAll kit, and these high recoveries are not compromised even during endotoxin removal. In Panel A, 1 μg of a PCR product was cleaned using the CleanAll DNA/RNA Clean-Up and Concentration Micro Kit as well as Norgen's PCR Purification Kit. More than 0.9 μg of the DNA was recovered from both kits with a comparable percent recovery of over 90%. In Panel B, 10 μg of plasmid DNA preparation was cleaned from endotoxin by using the CleanAll DNA/RNA Kit. Endotoxin levels of the plasmid DNA sample were reduced from 0.75 EU/μg plasmid DNA to less 0.05 EU/μg plasmid DNA. Approximately 95% of the endotoxin units in the DNA sample were removed using the kit, therefore the kit allows for high recoveries coupled with exceptional cleanup.

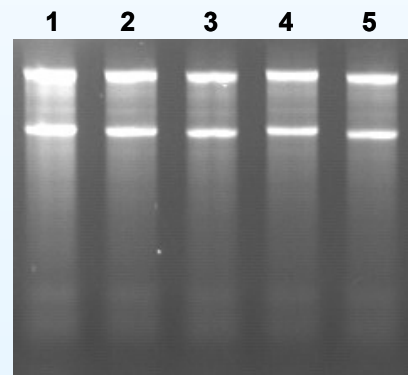


Figure 2: Clean-Up of RNA with High Recovery. Norgen's CleanAll DNA/RNA Clean-Up and Concentration Micro Kit can be used to clean up various enzymatic reactions including DNase treatment. Lane 1 is the RNA input, while lanes 2-5 contain the RNA that has been cleaned using Norgen's CleanAll Kit. It can be seen that in all cases the recovery is high, and the purified RNA is intact and of a high quality.

Ordering information

Description	Cat #	Size
CleanAll DNA/RNA Clean-Up and Concentration Micro Kit	23800	50 prep

DNA Sample Preparation

Endotoxin Removal Kit (Mini) - For DNA

Cat. # 22700



For the rapid removal of endotoxins from previously purified DNA

This kit is designed for the rapid spin column removal of endotoxins from up to 25 mg of previously purified DNA. Norgen's spin columns bind DNA while endotoxins, salts and other contaminants are washed away. This kit reduces endotoxins to 0.1 EU/mg DNA or less providing plasmid DNA that is immediately ready for transfections or other endotoxin-sensitive applications. The convenient spin column procedure can be completed in approximately 20 minutes and typical recovery of DNA is >90% of the starting sample.

Features and Benefits

- Reduce endotoxin levels to 0.1 EU/ μ g DNA or less
- Effectively remove endotoxins in as little as 20 minutes
- Remove endotoxins from up to 25 μ g of DNA
- Rapid spin-column format

Feature	Specifications
Maximum DNA Input	25 μ g
Final Endotoxin Level	\leq 0.1 EU/ μ g DNA
Size of DNA Purified	Up to 13,000 bp
Maximum DNA Volume Input	100 μ L
Average Recovery	> 90%
Time to Complete 10 Purifications	20 minutes

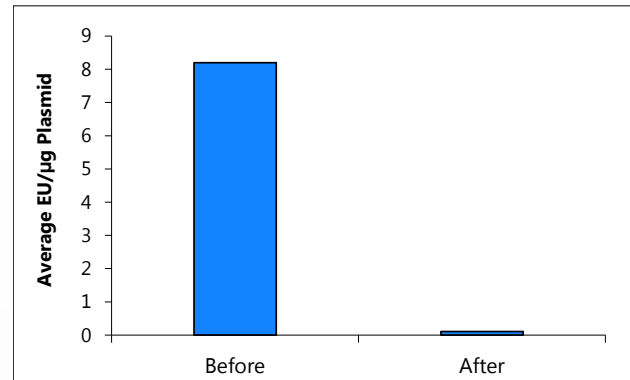


Figure 1. Efficiently Remove Endotoxins. An input of 11 μ g of a plasmid in a 50 μ L volume with an endotoxin level of over 8 EU/ μ g was subjected to clean-up by Norgen's Endotoxin Removal Kit. One microliter of the input and the 50 μ L eluted DNA was diluted 1000-fold or 10 fold, respectively for a 100 μ L end-point Limulus Amebocyte Lysate test for endotoxin level. The endotoxin levels of the plasmid DNA sample were reduced from over 8 EU/ μ g to less than or equal to 0.1 EU/ μ g of plasmid DNA using Norgen's Endotoxin Removal Kit (Mini), with high DNA recovery also (see Figure 2).

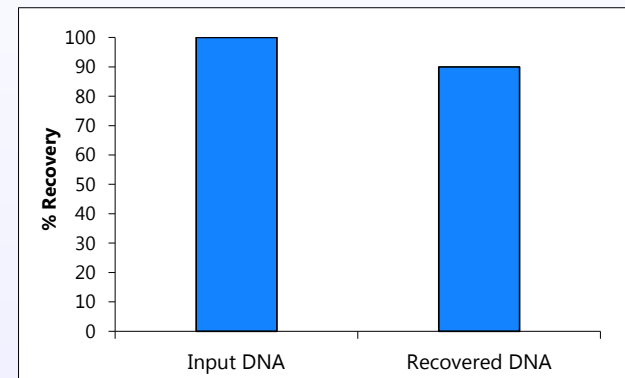


Figure 2. High DNA Recovery. An input of 11 μ g of a plasmid in a 50 μ L volume with an endotoxin level of over 8 EU/ μ g was subjected to clean-up by Norgen's Endotoxin Removal Kit in triplicate. The 50 μ L DNA elution was quantified by spectrophotometry. There is very little loss of DNA associated with using Norgen's Endotoxin Removal Kit (Mini). Recoveries of plasmid DNA are greater than 90% of the input amount when using this kit with efficient endotoxin removal (see Figure 1.)

Ordering information

Description	Cat #	Size
Endotoxin Removal Kit (Mini) - For DNA	22700	20 prep

DNA Sample Preparation

Endotoxin Removal Kit (Midi) - For DNA

Cat. # 52200

For the rapid removal of endotoxins from up to 0.2 mg of previously purified DNA

This kit is designed for the rapid spin column removal of endotoxins from up to 200 μg of previously purified DNA. Norgen's spin columns bind DNA while endotoxins, salts and other contaminants are washed away. This kit reduces endotoxins to 0.1 EU/mg DNA or less providing plasmid DNA that is immediately ready for transfections or other endotoxin-sensitive applications. The convenient spin column procedure can be completed in approximately 30 minutes and typical recovery of DNA is >90% of the starting sample.

About Endotoxins

Endotoxins (also called lipopolysaccharides), are cell-membrane components of Gram-negative bacteria such as *E. coli*. Endotoxins are released during the lysis step of plasmid purification and significantly reduce transfection efficiencies in endotoxin sensitive cell lines. Therefore, the removal of endotoxins from plasmid preparations is often necessary prior to the use of the DNA in such downstream applications.

Features and Benefits

- Reduce endotoxin levels to 0.1 EU/ μg DNA or less
- Effectively remove endotoxins in as little as 30 minutes
- Remove endotoxins from up to 200 μg of DNA
- Rapid spin-column format

Feature	Specifications
Maximum DNA Input	0.2 mg
Final Endotoxin Level	≤ 0.1 EU/ μg DNA
Size of DNA Purified	Up to 13,000 bp
Maximum DNA Volume Input	0.75 mL
Average Recovery	> 90%
Time to Complete 10 Purifications	30 minutes

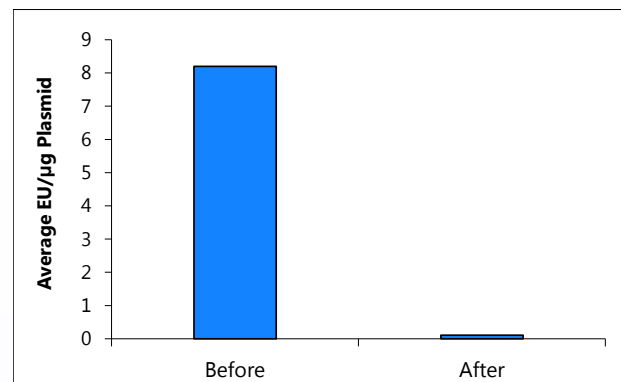


Figure 1. Efficiently Remove Endotoxins. An input of 11 μg of a plasmid in a 50 μL volume with an endotoxin level of over 8 EU/ μg was subjected to clean-up by Norgen's Endotoxin Removal Kit. One microliter of the input and the 50 μL eluted DNA was diluted 1000-fold or 10 fold, respectively for a 100 μL end-point Limulus Amebocyte Lysate test for endotoxin level. The endotoxin levels of the plasmid DNA sample were reduced from over 8 EU/ μg to less than or equal to 0.1 EU/ μg of plasmid DNA using Norgen's Endotoxin Removal Kit (Mini), with high DNA recovery also (see Figure 2).

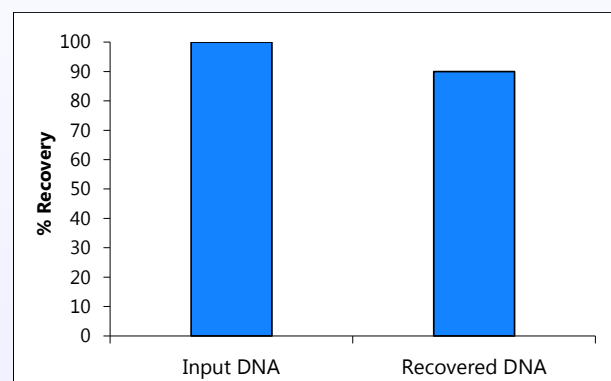


Figure 2. High DNA Recovery. An input of 11 μg of a plasmid in a 50 μL volume with an endotoxin level of over 8 EU/ μg was subjected to clean-up by Norgen's Endotoxin Removal Kit in triplicate. The 50 μL DNA elution was quantified by spectrophotometry. There is very little loss of DNA associated with using Norgen's Endotoxin Removal Kit (Mini). Recoveries of plasmid DNA are greater than 90% of the input amount when using this kit with efficient endotoxin removal (see Figure 1.)

Ordering information

Description	Cat #	Size
Endotoxin Removal Kit (Midi) - For DNA	52200	10 prep

DNA Sample Preparation

Endotoxin Removal Kit (Maxi) - For DNA

Cat. # 21900



For the rapid removal of endotoxins from up to 1 mg of previously purified DNA

This kit is designed for the rapid spin column removal of endotoxins from up to 1 mg of previously purified DNA. Norgen's spin columns bind DNA while endotoxins, salts and other contaminants are washed away. This kit reduces endotoxins to 0.1 EU/mg DNA or less providing plasmid DNA that is immediately ready for transfections or other endotoxin-sensitive applications. The convenient spin column procedure can be completed in approximately 30 minutes and typical recovery of DNA is >90% of the starting sample.

Features and Benefits

- Reduce endotoxin levels to 0.1 EU/ μ g DNA or less
- Effectively remove endotoxins in as little as 30 minutes
- Remove endotoxins from up to 1 mg of DNA
- Rapid spin-column format

Feature	Specifications
Maximum DNA Input	1 mg
Final Endotoxin Level	≤ 0.1 EU/ μ g DNA
Size of DNA Purified	Up to 13,000 bp
Maximum DNA Volume Input	3 mL
Average Recovery	> 90%
Time to Complete 10 Purifications	30 minutes

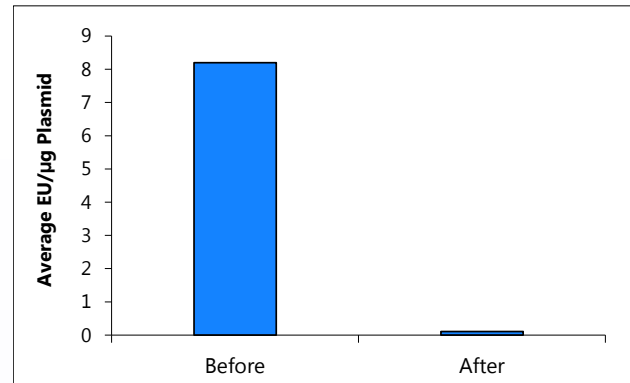


Figure 1. Efficiently Remove Endotoxins. An input of 11 μ g of a plasmid in a 50 μ L volume with an endotoxin level of over 8 EU/ μ g was subjected to clean-up by Norgen's Endotoxin Removal Kit. One microliter of the input and the 50 μ L eluted DNA was diluted 1000-fold or 10 fold, respectively for a 100 μ L end-point Limulus Amebocyte Lysate test for endotoxin level. The endotoxin levels of the plasmid DNA sample were reduced from over 8 EU/ μ g to less than or equal to 0.1 EU/ μ g of plasmid DNA using Norgen's Endotoxin Removal Kit (Mini), with high DNA recovery also (see Figure 2).

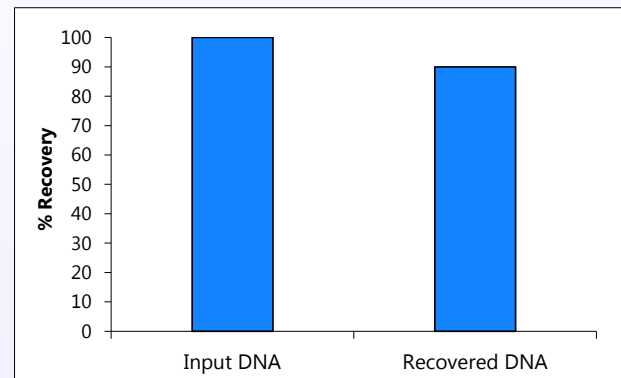


Figure 2. High DNA Recovery. An input of 11 μ g of a plasmid in a 50 μ L volume with an endotoxin level of over 8 EU/ μ g was subjected to clean-up by Norgen's Endotoxin Removal Kit in triplicate. The 50 μ L DNA elution was quantified by spectrophotometry. There is very little loss of DNA associated with using Norgen's Endotoxin Removal Kit (Mini). Recoveries of plasmid DNA are greater than 90% of the input amount when using this kit with efficient endotoxin removal (see Figure 1.)

Ordering information

Description	Cat #	Size
Endotoxin Removal Kit (Maxi) - For DNA	21900	4 prep

DNA Sample Preparation

Plasmid MiniPrep DNA Kit

Cat. # 13300, 46400, 25900



For rapid and convenient plasmid DNA preparations

This kit is designed for the rapid preparation of plasmid DNA from small cultures of *Escherichia coli* using convenient spin columns. The plasmid DNA is preferentially purified from other cellular components such as genomic DNA and RNA. This kit is able to purify plasmids up to 13,000 bp in size, and the typical purification yield is up to 20 µg from 1.5 mL of bacterial culture. Purified DNA is of excellent quality for transformation, restriction enzyme digestion, sequencing and more. Also available in a 96-well format.

Features and Benefits

- High yield of plasmid DNA
- Purify plasmids up to 13 kb
- Plasmid DNA is ready for restriction digestion, bacterial transformation, sequencing and more
- Rapid spin-column format and 96-well format available

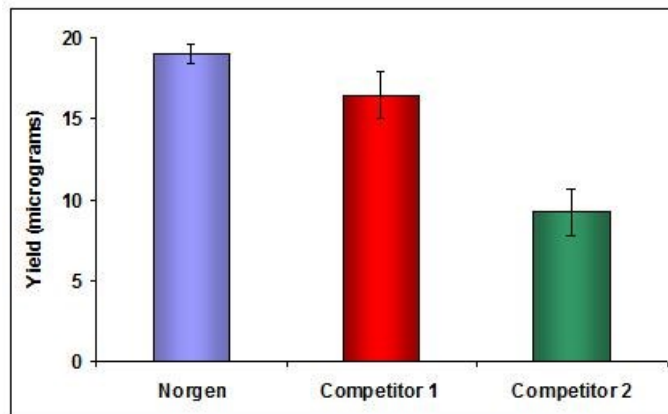


Figure 1. High DNA Yield from Small Cultures. Plasmid DNA from 1 mL overnight bacterial cultures was prepared with Norgens Plasmid MiniPrep Kit and compared with two other commercial kits. The purifications were performed in triplicate, and the average yield for each kit is shown in the graph. The quantification of the DNA yield was performed by resolving 5 µL of the 50 µL of eluted DNA on a 1X TAE, 0.9% agarose gel followed by densitometry. Norgen shows a significantly higher average yield than the other 2 competitors kits.

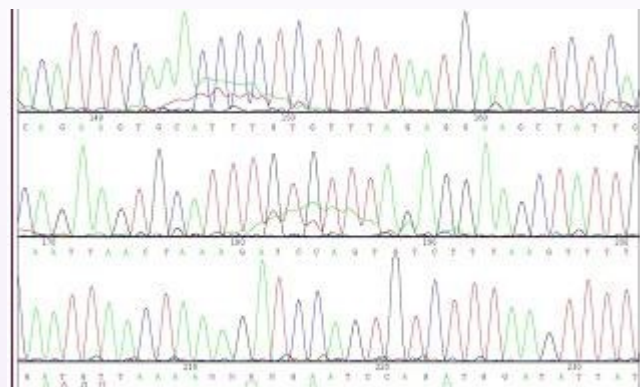


Figure 2. High-Accuracy Sequencing. One microgram of plasmid DNA purified by Norgens Plasmid MiniPrep DNA Kit was used as a template in an Applied Biosystem DNA Sequencer. The result showed an accuracy of >99% over a 950 bp contiguous sequence.

Feature	Specifications
Column Binding Capacity	25 µg
Size of Plasmids Purified	Up to 13,000 bp
Average Yield from 1.5 mL of Culture	Up to 20 µg
Time to Complete 10 Purifications	30 minutes

Ordering information

Description	Cat #	Size
Plasmid MiniPrep Kit	13300	50 prep
Plasmid MiniPrep Kit	46400	250 prep
Plasmid MiniPrep 96-well Kit	25900	1 x 96-well

DNA Sample Preparation

Plasmid DNA MaxiPrep Kit

Cat. # 46500, 46600

For the rapid preparation of high yields of plasmid DNA

This kit is designed for the rapid spin column preparation of plasmid DNA from up to 100 mL of *Escherichia coli* cultures. The kit allows for the isolation of plasmid DNA with final endotoxin levels of 0.1 EU/ μ g of DNA or less. The kit is able to purify plasmids up to 13,000 bp in size, and typical yields from a 100 mL culture for a high copy number plasmid are between 0.4 and 1.0 mg. The purified DNA is fully digestible with all restriction enzymes tested, and is completely compatible with manual or automated sequencing to achieve 95-100% accuracy, bacterial transformation, transfections and more.

Features and Benefits

- Isolate up to 1.5 mg of plasmid DNA from 150 mL bacterial cultures
- Fast and efficient spin column procedure
- Purified DNA is of excellent yield and quality for restriction digestion, bacterial transformation, sequencing and more

Feature	Specifications
Column Binding Capacity	1.5 mg
Average Yield from 100 mL Culture	0.4 - 1.0 mg
Final Endotoxin Levels	< 0.1 EU/ μ g DNA
Time to Complete 4 Purifications	1.5 hours
Size of Plasmids Purified	Up to 13,000 bp

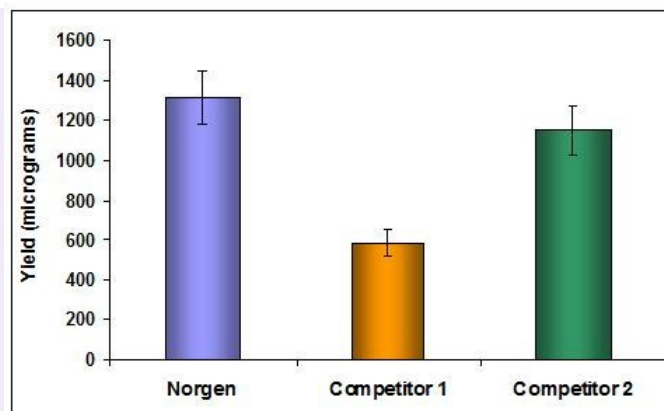
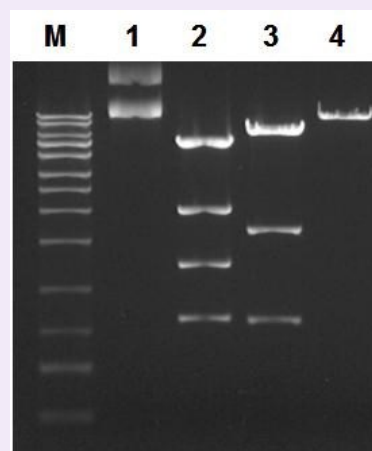


Figure 1. High DNA Yield from 150 mL Cultures. Plasmid DNA from 150 mL bacterial cultures grown overnight was prepared with Norgen's Plasmid DNA MaxiPrep Kit and compared with two other commercial kits. The purifications were performed in triplicate, and the average yield for each kit is shown in the graph. The quantification of the DNA yield was performed by resolving 5 μ L of the 2 mL of eluted DNA on a 1X TAE, 0.9% agarose gel followed by densitometry. Norgen's kit shows a significantly higher average yield than the other 2 competitors



kits.

Figure 2. Full Compatibility with Digests. DNA isolated with Norgen's Plasmid DNA MaxiPrep Kit is easily digestible, often requiring less than 1 hour for full digestion. One microgram of a 9,309 bp plasmid purified by Norgen's DNA MaxiPrep Kit was digested for one hour at 37°C in a 20 μ L reaction with 2 units of *Bam*HI (Lane 2), *Hind*III (Lane 3), and *Sma*I (Lane 4). The entire reaction was loaded on a 1X TAE, 0.9% agarose gel. Lane 1 is uncut plasmid, and Lane M is the Norgen UltraRanger 1kb DNA Ladder

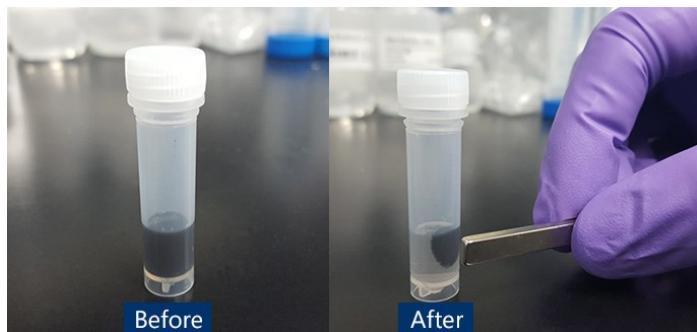
Ordering information

Description	Cat #	Size
Plasmid MaxiPrep Kit	46500	4 prep
Plasmid MaxiPrep Kit	46600	20 prep

DNA Sample Preparation

Plasmid MiniPrep Kit (Magnetic Bead System)

Cat. # 60300



For the rapid preparation of high yields of plasmid DNA

Norgen's Plasmid MiniPrep Kit (Magnetic Bead System) is designed for the rapid preparation of plasmid DNA from small batch cultures of *Escherichia coli*. Norgen's magnetic beads bind DNA under optimized salt concentrations and release the bound DNA under low salt and slightly alkali conditions. The plasmid DNA is preferentially purified from other cellular components such as genomic DNA and RNA. The purified plasmids are fully digestible with all restriction enzymes tested, and are completely compatible with real-time PCR and NGS.

Features and Benefits

- Fast, reproducible and easy processing using a magnetic bead system
- Isolate high quality plasmid DNA
- Recovered plasmid DNA is compatible with various downstream applications

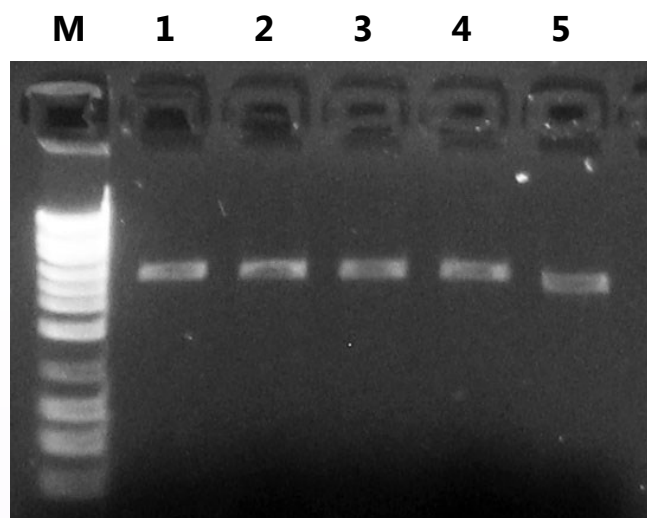


Figure 1. High Quality of Plasmid DNA. Resolution of plasmid DNA isolated from *E. coli* (1 mL) using Norgen's Plasmid MiniPrep Kit (Magnetic Bead System). For evaluation, 10 μ L from 50 μ L of elution were digested with the restriction enzyme, *EcoRI* and run on 1X TAE 1.3% agarose gel. All plasmid DNA isolated were digestible, indicating the high quality of plasmid DNA. Marker = Norgen's HighRanger DNA Ladder.

Feature	Specifications
Size of Plasmids Purified	Up to 13,000 bp
Average Yield from 1.5 mL of Culture	Up to 20 μ g
Time to Complete 10 Purifications	30 minutes

Ordering information

Description	Cat #	Size
Plasmid MiniPrep Kit (Magnetic Bead System)	60300	50 prep

DNA Sample Preparation

BAC DNA Miniprep Kit

Cat. # 18050



For the rapid preparation of BAC DNA

This kit is designed for the rapid preparation of BACs (bacterial artificial chromosomes) and other large DNA constructs from small batch cultures of *Escherichia coli*. Purification of constructs up to 130 kb in size have been verified. Rapid alcohol precipitation or spin-column purification allows for the processing of multiple samples in 1 hour. The DNA is preferentially purified from other cellular components such as genomic DNA and RNA. Typical DNA recoveries range between 0.6 µg and 1 µg from 3.0 mL of bacterial cultures. The purified DNA is fully digestible with all restriction enzymes tested, and is fully compatible with bacterial transformation and sequencing to achieve 95-100% accuracy.

Features and Benefits

- Fast and easy processing using alcohol precipitation or a rapid spin-column format
- High yield of plasmid DNA – up to 1 µg from 3 mL of culture
- Versatile protocol that allows different volume of input to be processed

Feature	Specifications
Input Culture Volume	Alcohol Precipitation: Up to 100 mL / Column Purification: Up to 5 mL
Column Binding Capacity	25 µg
Size of Plasmids Purified	Up to 130 kbp
Average Yield from 3 mL of Culture	0.6 - 1 µg
Time to Complete 10 Purifications	1 hour

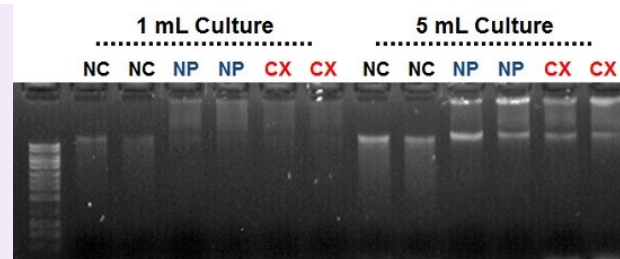


Figure 1. High Yield of BAC DNA by Alcohol Precipitation or Column Purification. Norgen's BAC DNA Isolation Kit isolates high yields of BAC DNA using either the classic alcohol precipitation protocol or the column-based purification procedure that is best suited for sensitive applications such as PCR or sequencing. DNA was isolated from BAC cultures of 1 and 5 mL by both alcohol precipitation and column purification using Norgen's BAC DNA Isolation Kit and compared to a competitor's kit that uses alcohol precipitation. Ten micro-liter of 100 µL DNA was loaded on a 1X TAE 0.6% Agarose DNA gel with 2.5 µL of Norgen HighRanger as MW Marker. DNA isolated by Norgen's alcohol precipitation protocol (NP) yielded better amounts of high MW intact BAC DNA, compared to that isolated with competitor's product (CX). Norgen's alternative column-based procedure (NC) also isolated high yields of DNA. NC = Norgen's column purified DNA, NP = Norgen's alcohol precipitation DNA and CX = competitor purified DNA.

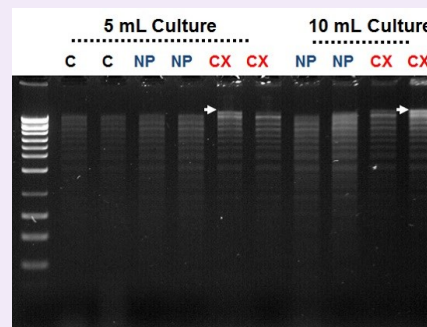


Figure 2. High Quality of BAC DNA by Alcohol Precipitation or Column Purification. Norgen's BAC DNA Isolation Kit isolates high quality BAC DNA using either a classic alcohol precipitation protocol or column-based purification. DNA was isolated from BAC cultures of 5 or 10 mL using Norgen's BAC DNA Isolation Kit and compared to a competitor's kit that uses alcohol precipitation. Ten micro-liter was digested with *Hind III* at 37°C overnight and loaded on a 1X TAE 0.6% Agarose DNA gel with 2.5 µL of Norgen HighRanger as MW Marker. Digested DNA that was isolated by either Norgen's alcohol precipitation or column-based protocol showed complete *Hind III* digestion. In contrast, DNA isolated with a competitor's kit showed some evidence of incomplete *Hind III* digestion (depicted by arrows). NC = Norgen's column purified DNA, NP = Norgen's alcohol precipitation DNA and CX = competitor purified DNA.

Ordering information

Description	Cat #	Size
BAC DNA MiniPrep Kit	18050	50 preps (1.5 mL)

DNA Sample Preparation

Food DNA Isolation Kit

Cat. # 54500

For the isolation of DNA directly from food or from enriched microorganisms

This kit provides a rapid spin column method for the isolation and purification of total DNA from a wide range of food samples originating from animals or plants. The kit is designed for identification of GMO-DNA or animal components in food and feed and can be used for a wide range of starting materials including raw or processed food, meat, liquids, sauces and dairy products including milk, cheese and yogurt.

This kit also provides a convenient method for the detection of food-related pathogens and will isolate such DNA (enriched or as is) including Gram-positive bacteria, Gram-negative bacteria, yeast and fungi which may contaminate food sources. A number of pathogens have been tested including *E. coli* O157:H7, *Staphylococcus*, *Listeria monocytogenes*, *Salmonella enterica* & *Campylobacter jejuni*. The purified DNA is of the highest integrity, and can be used in a number of downstream applications including PCR based detection, sequencing and genotyping.

Features and Benefits

- Isolate DNA from a wide range of food materials. (e.g. boiled, fluid, processed or raw food products)
- No hazardous chemicals required (e.g. phenol or chloroform)
- Effective lysis with Proteinase K and optional lysozyme treatment
- Fast (less than 15 minutes hands-on time) and convenient processing using a rapid spin-column format
- Wide compatibility with a variety of food products for GMO-DNA isolation
- Universal protocol for food related pathogen DNA isolation (Gram positive and Gram negative)

Feature	Specifications
Maximum Column Binding Capacity	50 µg
Maximum Column Loading Volume	650 µL
Maximum Amount of Starting Material:	
Solid food material	200 mg
Liquid sample (e.g. milk or concentrated juice)	1 mL to 1.5 mL
Time to Complete 10 Purifications	45 minutes

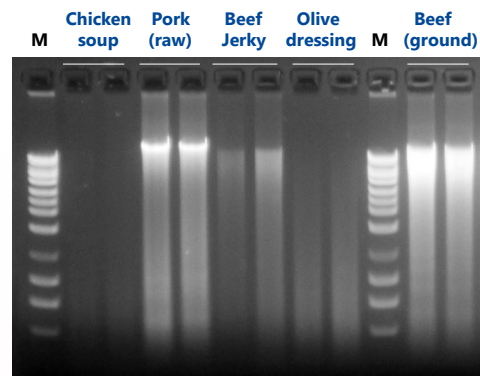


Figure 1. Isolate DNA from a Wide Range of Food Samples. Total genomic DNA was isolated from 200 mg of processed (chicken soup, beef jerky) or non-processed (raw pork, olive dressing, ground beef) food materials using Norgen's Food DNA Isolation kit. Following isolation, 10 µL from each 100 µL elution was loaded on 1% TAE agarose gel. Lane M: Norgen's HighRanger 1kb DNA Ladder.

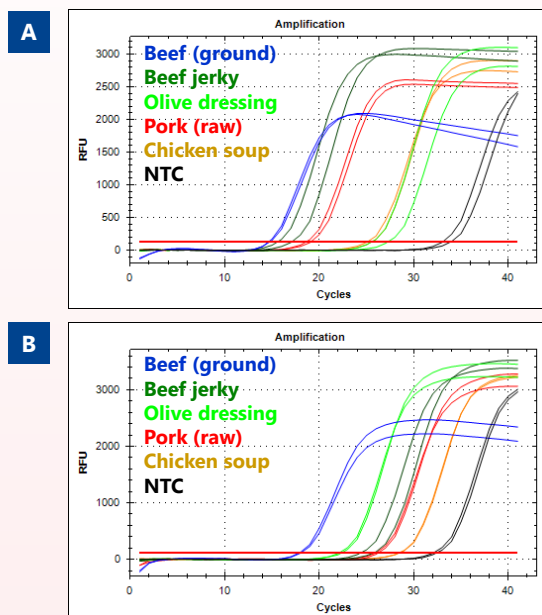


Figure 2. High Quality DNA free from PCR Inhibitors - Superior Quality to detect two house keeping genes (5S rDNA and 16S rDNA) representing GMO gene and food related pathogen detection. Total DNA was isolated from 200 mg samples of different food materials (processed and non-processed) using Norgen's Food DNA Isolation Kit. Next, 4 µL of the elution was then used as the template in 20 µL PCR reactions using universal 5s rDNA primers (A) and prokaryotic 16s rDNA primers (B) in real-time PCR (SYBR Green). Norgen's DNA was successfully amplified, indicating the high quality of the inhibitor-free DNA for GMO and pathogen detection from diversified food materials.

Ordering information

Description	Cat #	Size
Food DNA Isolation Kit	54500	50 prep

DNA Sample Preparation

Microm DNA Isolation Kit

Cat. # 55300, 55350, 55900

For the rapid preparation of DNA from air filters

Norgen's Microm DNA Isolation Kit is designed for the rapid preparation of genomic DNA from filters used for air sample collection. Various air-borne microorganisms may be trapped on the filter, including bacteria, fungi and viruses. Genomic DNA is efficiently extracted from the filter by a combination of heat treatment and a unique lysis buffer. PCR inhibitors are effectively removed during the washing steps and the purified genomic DNA is ready to use for downstream applications such as PCR and microarray analysis. The option of bead beating is also provided in order to allow for improved DNA yields for certain fungal and yeast species captured on the filter. Preparation time for ten samples is less than 30 minutes, and each kit contains sufficient materials for 50 or 100 preparations.

Features and Benefits

- Isolate high quality total DNA from a variety of air filter types
- Fast and easy processing using rapid spin-column format
- Small elution volume of 20 μ L
- Isolate total DNA without compromising total yield
- No phenol or chloroform extractions

Feature	Specifications
Sample Type	Dried or preserved filter
Maximum Column Binding Capacity	10 μ L
Maximum Column Loading Volume	650 μ g
Minimum Elution Volume	20 μ L
Size of DNA Purified	All sizes
Time to Complete Purification	20 minutes

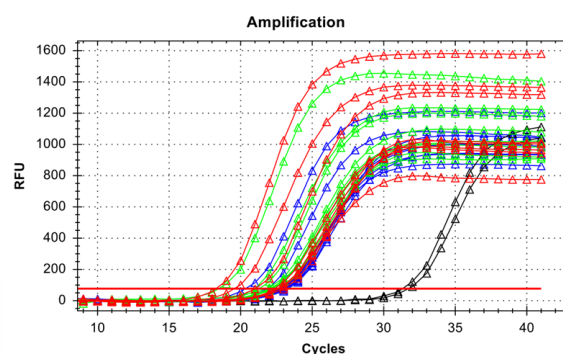


Figure 1. Excellent DNA Quality Confirmed by Real-time PCR. DNA was isolated from air filters using Norgen's Microm DNA Isolation Kit (Cat. 55300) and up to 8 μ L of DNA from the 20 μ L elution was used as the template in a TaqMan real-time PCR (total 20 μ L reaction volume) to detect 16s rDNA. The PCR results indicated PCR inhibitor-free DNA was purified from the air filters using Norgen's kit. Blue: 2 μ L, green: 4 μ L and red: 8 μ L of DNA was used as the PCR template. Black: negative control.

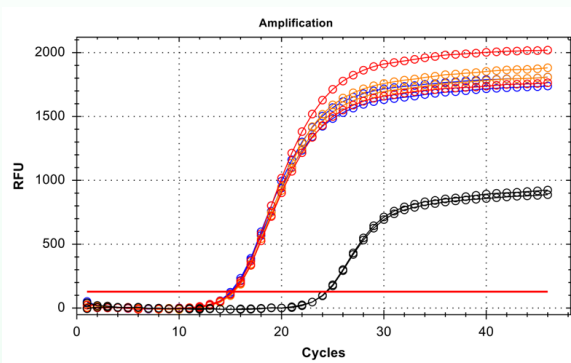
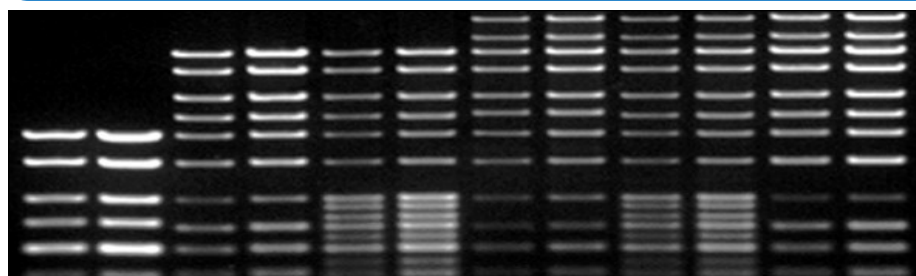


Figure 2. Consistent DNA Quality. DNA was isolated from air filters using Norgen's Microm DNA Isolation Kit, and was eluted in either 40 μ L or 200 μ L. For analysis, the purified DNA was used as the template for 16s rDNA detection using real-time PCR. It was found that equivalent amounts of PCR template (1 μ L from 40 μ L elution and 5 μ L from 200 μ L elution) retained the same Ct value for the 16s rDNA detection, indicating the consistency of the kit's performance with different elution volumes without compromising the detection sensitivity. Blue: from 40 μ L elution, Red: from 200 μ L elution, Black: negative control.

Ordering information

Description	Cat #	Size
Microm DNA Isolation Kit	55300	50 prep
Microm DNA Isolation Kit	55350	100 prep
Microm DNA Isolation 96-well Kit	55900	2 x 96-well

Best-in-Class Molecular Weight Ladders



DNA Ladders

11200	Mini Sizer 50bp DNA ladder	25bp to 650bp
13525	50bp DNA Ladder	50bp to 500bp
11300	PCR Ranger 100bp DNA ladder	50bp to 1,000bp
11400	PCR Sizer 100bp DNA ladder	100bp to 1,000bp
12800	FastRunner DNA Ladder	50bp to 2,000bp
11500	LowRanger 100bp DNA Ladder	100bp to 2,000bp
11600	Clone Sizer 100bp DNA Ladder	100bp to 2,000bp
11700	MidRanger 1kb DNA Ladder	300bp to 5,000bp
11800	FullRanger 100bp DNA Ladder	100bp to 5,000bp
11900	HighRanger 1kb DNA Ladder	300bp to 10,000bp
12000	HighRanger Plus 100bp DNA Ladder	100bp to 10,000bp
12100	UltraRanger 1kb DNA Ladder	300bp to 24,000bp

RNA Ladders

15002	100 b RNA Ladder	100b to 1,000b
15003	1kb RNA Ladder	200b to 4,000b
15006	200 b to 4000 b RNA Ladder (Lyophilized)	200b to 4,000b

Protein Ladders

12310	ProteoLadder 100	14.7 kDa - 100 kDa
12510	ProteoLadder 125	14.7 kDa - 125 kDa
12710	ProteoLadder 150	14.7 kDa - 150 kDa

Commitment to Quality



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