Product/Services

CATALOGUE

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www.lubio.ch

25 YEAR ANNIVERSARY

NORGEN BIOTEK CORP.

A Master Guide

To Norgen's products and services with the latest data and infomation that you need to know.

NORGEN BIOTEK CORP.

Our capabilities will meet every step of your workflow.

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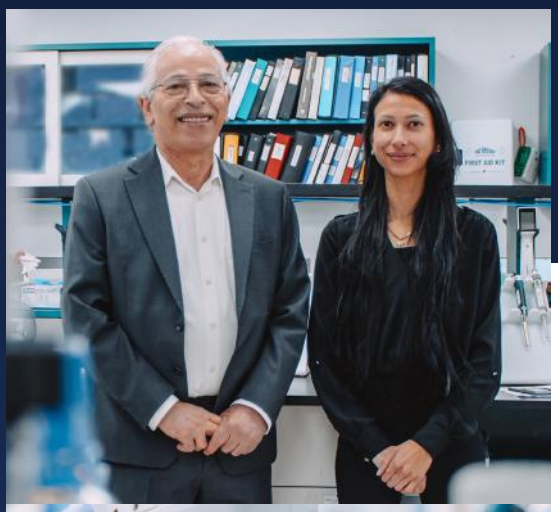
v 1.0



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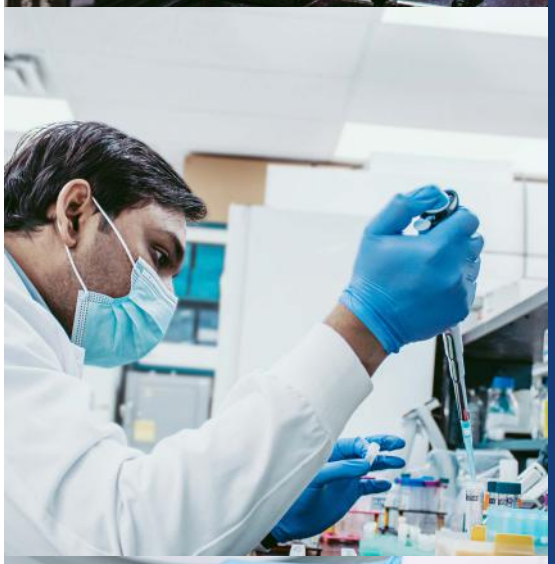


ABOUT **NORGEN**

Norgen Biotek was founded in 1998 by Dr. Yousef Haj-Ahmad. The company is located in a 24,000 square foot state-of-the-art facility in Thorold, Ontario, Canada a few blocks from Brock University. Norgen is an ISO 9001, ISO 13485 and ISO 15189 fully-integrated Canadian biotechnology company focusing on developing products for sample collection, sample preparation and sample detection, as well as providing comprehensive research services to the scientific community. Norgen's ISO 9001, ISO 13485 and ISO 15189 certifications indicate our commitment to manufacturing and selling high quality products, as well as our commitment to continually improving our company, our products and our quality management system.

President & CEO
Dr. Yousef Haj-Ahmad, M.Sc, Ph.D

OUR **MISSION**

Norgen Biotek Corp. is committed to creating customized research experiences for our clients by providing innovative solutions that inspire new discoveries. By ensuring the highest quality products and services, from sample collection and preservation to extraction and detection, our team of experts and global partners can support you every step of the way.

OUR **FOCUS**

Our team is always working to expand our product and service portfolio for RNA, DNA, exosome, and protein extraction. Our core focus is working with challenging sample types with ultra-low input, but we are passionate about RNA and use our patented Silicon Carbide (SiC) technology to extract the highest quality RNA. Our SiC technology is also used to enhance our clean-up and concentration kits for use in research applications and diagnostics. Apart from sample collection, preservation, extraction, and detection, we are dedicated to providing high quality Next Generation Sequencing Services with an expertise in handling ultra-low concentration samples types, such as liquid biopsies and exosomes.

ISO **CERTIFIED**

Norgen is an ISO 9001:2015 ISO 13485:2016 and ISO 15189:2012 certified fully-integrated Canadian biotechnology company focusing on sample collection, preservation and purification for research and diagnostic applications. Norgen's ISO 9001 and ISO 13485 certifications indicate our commitment to design, develop, manufacture and market high quality products, as well as our commitment to continually improve our company, our products and our quality management system.

OUR TECHNOLOGY

Norgen holds more than thirty-five issued and pending patents. Norgen has developed a unique platform technology based on a proprietary resin/matrix with many applications including the purification, concentration and clean-up of DNA, RNA, microRNA, proteins and exosomes from various specimen types. The efficient purification of these macromolecules is often the first step in diagnostics and in hundreds of molecular biological applications fueling discovery for genomics and proteomics. The novelty of this technology has been recognized by the National Research Council by awarding Norgen the prestigious "Innovation Leader Award for 2003".

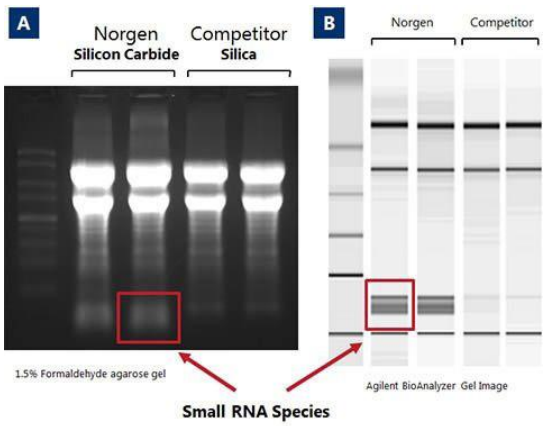
BENEFITS OF OUR PROPRIETARY SILICON-CARBIDE

- **Broad-Spectrum RNA Capture**
  Traditional silica binding technology exhibits a bias towards capturing RNA with high GC content
  Norgen's Silicon-carbide technology readily binds all RNAs regardless of nucleotide sequence
  Helps researchers gain a more complete understanding of their sample's RNA profile by providing unbiased results

- **No Molecular Weight Bias**
  Norgen's Silicon-carbide technology demonstrates a uniform binding affinity for all RNA species of any size (even below 200 nucleotides!)
  Ideal for applications requiring examination of microRNAs and fragmented nucleic acids (i.e. degraded or liquid biopsy samples)

- **Carrier RNA-Free Extraction**
  Silica-based technology relies on poly(a) carrier RNA to enhance RNA binding efficiency for low concentrations
  The presence of carrier RNA can severely impact sensitive downstream applications such as next-generation sequencing
  Norgen's Silicon-carbide technology does not require the use of carrier RNA, and is suitable for all molecular-based downstream applications

- **Phenol-Chloroform-Free Extraction**
  Norgen's SiC technology does not utilize phenol/chloroform or any hazardous organic chemicals, and the high-quality eluted RNA is ready for any sensitive downstream application.



CF-DNA/CF-RNA PRESERVATIVE TUBES
(CAT. 63950, Dx63950)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx63950)
- Preservation and isolation of both cf-DNA and cf-RNA from a single tube
- Fixative-free preservative, no cross-linking of DNA
- Preserve cf-DNA/ct-DNA for 30 days at ambient temperature and for up to 8 days at 37°C
- Preserve Circulating Tumour Cells (CTCs) for 14 days at ambient temperature
- No plasma volume loss after shipping/transportation
- Prevent hemolysis allowing better separation of plasma

FOR **WHOLE BLOOD COLLECTION** AND **PRESERVATION OF CELL-FREE CIRCULATING DNA AND RNA**

Figure 1. No plasma volume loss after shipping/transportation. Blood was drawn from 6 different donors in duplicate. One set was kept in the lab at room temperature and the other was packed in an insulated box and shipped from Thorold, ON via overnight air freight to Winnipeg, MB and then back to Thorold ON (elapsed time 72 h). Upon return, preserved samples were stored at room temperature for 7 days before plasma was separated. The plasma volume recovered from Norgen's cf-DNA/cf-RNA Preservative Tubes did not change before shipping or after shipping (6-7 mL recovered plasma). For both Competitor tubes and EDTA tubes the plasma volume recovered before shipping was ~ 4 mL and after shipping was ~ 2.5 mL.

Ordering Information

cf-DNA/cf-RNA Collection and Preservation Tubes	
50 Tubes	Cat. 63950
50 Tubes	Cat. Dx63950 CE

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Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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SALIVA RNA COLLECTION AND PRESERVATION DEVICES (CAT. RU53800, 53800)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (53800)
- Authorized for sale by Health Canada (53800)
- Ideal for use in *in vitro* diagnostic workflows
- Render samples non-infectious for safe shipping and handling
- Preserved RNA is suitable for a variety of downstream molecular applications, including PCR and qPCR
- Preserved RNA is stable for up to 2 months at room temperature
- Inactivates viruses including SARS-CoV-2 upon mixing
- Non-invasive, user-friendly sample collection
- Suitable for self-collection of saliva samples supervised by a trained individual in the collection procedure by watching the training video and reading over the collection instructions.

PRESERVE **HIGH QUALITY RNA**, INCLUDING **VIRAL RNA**, FOR UP TO **2 MONTHS**

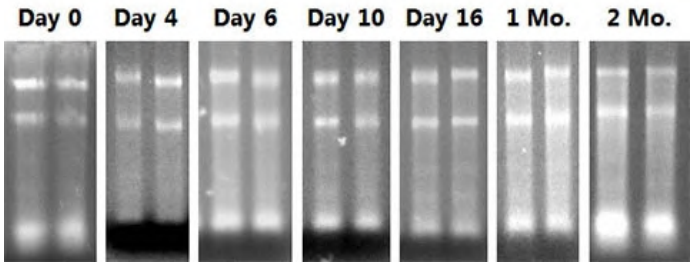

Figure 1. Stability of RNA Preserved in Norgen's Saliva RNA Preservative at room temperature for up to 2 months. Saliva samples were collected from numerous donors and mixed, and then an equal volume of Norgen's Saliva RNA Preservative was added to the saliva. The preserved saliva was then stored at room temperature for up to 2 months. Saliva RNA was subsequently isolated at day 0, day 4, day 6, day 16, 1 month and 2 months from 0.25 mL of the saliva/preservative sample using the supplementary protocol associated withNorgen's Total RNA Purification Kit (Cat. 17200). For visual analysis, 7.5 µL from 50 µL elution was mixed with RNA loading dye and was run on a 1x MOPS agarose gel. RNA integrity was maintained after the saliva samples were stored for up to 2 months at ambient temperatures in Norgens Saliva RNA Preservative**.**

Ordering Information

Saliva RNA Collection and Preservation Devices	
50 Devices	Cat. RU53800
50 Devices	Cat. 53800 CE

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Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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SALIVA DNA COLLECTION AND PRESERVATION DEVICES (CAT. RU49000, 49000)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (49000)
- Ideal for use in *in vitro* diagnostic workflows
- Samples are non-infectious and can be handled and shipped safely
- Preserved DNA is stable for 2 years at ambient temperature
- High quality DNA is suitable for sensitive downstream applications including PCR, qPCR, sequencing, SNP analysis, microarrays, RFLP and Southern Blot Analysis

FOR **SIMPLE** AND **NON-INVASIVE SALIVA COLLECTION** AND **PRESERVATION OF DNA** IN SALIVA SAMPLES AT AN **AMBIENT TEMPERATURE**

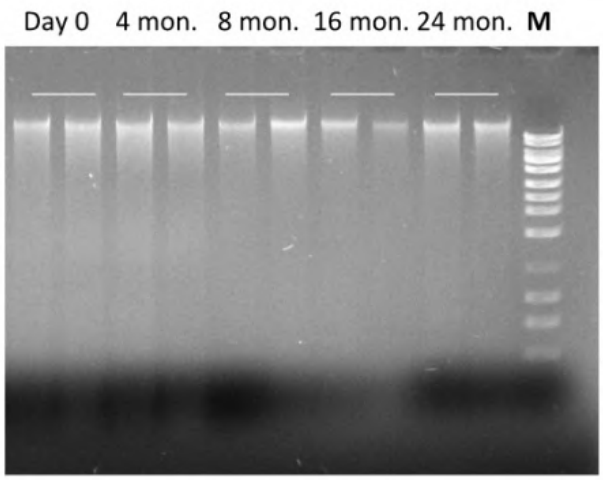

Figure 1. Stability of DNA Preserved in Norgen's Saliva DNA Preservative at Room Temperature for over 2 Years. Saliva samples were collected from numerous donors and mixed, and then an equal volume of Norgen's Saliva DNA Preservative was added to the saliva. The preserved saliva was then stored at room temperature for up to 24 months. Saliva DNA was subsequently isolated at 4 months, 8 months, 16 months and 24 months from 0.5 mL of the saliva/preservative sample using Norgen's Saliva DNA Isolation Kit (Cat. RU45400). For visual analysis, 100 µL of the purified DNA was run on an agarose TAE gel. As it can be seen, there is no evidence of DNA degradation after the saliva samples are stored for 24 months at ambient temperatures in Norgen's Saliva DNA Preservative.

Ordering Information

Saliva DNA Collection and Preservation Devices	
50 Devices	Cat. RU49000
50 Devices	Cat. 49000 CE

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SALIVA EXOSOME COLLECTION AND PRESERVATION KIT (CAT. 65400)

- Reliable and cost-effective
- Non-invasive, user-friendly sample collection
- Samples are non-infectious and can be handled and shipped safely
- Preserved exosomes are stable for 2 years at ambient temperature
- Compatible with Norgen's Saliva Exosome Purification Kit (Cat. 65300)
- RNA can be isolated from the purified exosomes using Norgen's Exosome RNA Purification kit (Cat. 58000)

PRESERVE **HIGH QUALITY EXOSOMES,** FOR UP TO **2 YEARS AT ROOM TEMPERATURE**

Norgen's Saliva Exosome Collection and Preservation Kit is an all-in-one solution designed for 1) simple and non-invasive saliva collection; 2) preservation of exosomes in saliva samples at ambient temperature; and 3) isolation of high quality intact exosomes and exosomal RNA within a laboratory setting. The Saliva Exosome Collection, Preservation and Isolation Kit contains 50 Individual Saliva Exosome Collection and Preservation Devices, as well as the required reagents for the subsequent laboratory purification of intact exosomes and the isolation of the exosomal RNA from the preserved samples.

Ordering Information

Saliva Exosome Collection and Preservation Kit	
50 Devices	Cat. 65400

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URINE COLLECTION AND PRESERVATION TUBES
(CAT. 18116, 18120, 18111, 18129)

- RNA/microRNA/DNA/Proteins are preserved for more than 2 years at room temperature in Norgen's Urine Preservative
- Compatible with most DNA, Total RNA, microRNA and protein isolation methods
- Preservative is available in a single dose liquid format (ampule)
- Preservative is also available in a dried format in tubes - Urine Collection and Preservation Tubes
- Urine Collection and Preservation Tubes are available in 4 convenient sizes: 5 cc tubes, 15 cc tubes, 50 cc tubes and 120 cc cups

FOR **RAPID** AND **SIMPLE PRESERVATION** OF **URINE SAMPLES**

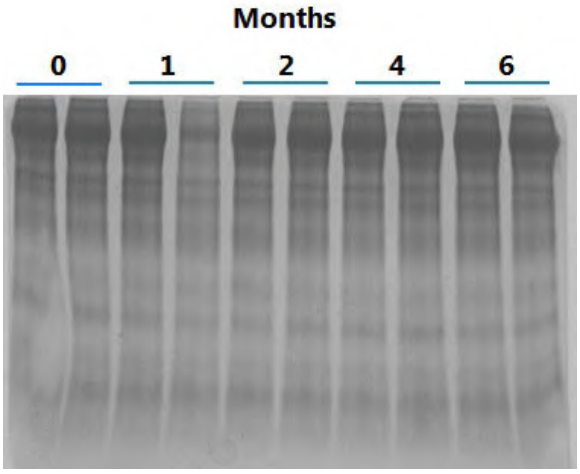

Figure 2. Stability of Proteins in Norgen's Urine Preservative. Norgen's Urine Collection and Preservation Tubes contain Norgen's Urine Preservative in a dried form. A 50 mL urine sample was collected into the Urine Collection and Preservation Tube (50 cc) and was mixed well with the dried preservative. The preserved urine was stored at -20°C, 4°C, room temperature and 55°C for up to 6 months. Urine proteins were subsequently isolated at time 0, 1 month, 2 months, 4 months and 6 months from the preserved urine sample. The proteins isolated from the preserved urine samples stored at -20°C, 4°C, room temperature and 55°C at the various time points were qualitatively analyzed on 12% SDS-PAGE gel. As it can be seen, all the preserved...

...urinary proteins showed no degradation. The urine samples stored at 55°C can allow us to extrapolate results based on accelerated-aging, and therefore the samples stored at 55°C for 6 months show equal stability to concentrated urine preserved for 2.5 years at room temperature (24°C). Therefore, the proteins in urine samples stored in Norgen's Urine Preservative are stable at room temperature for up to 2.5 years.

Ordering Information

Urine Collection and Preservation Tubes	
1 Tube, 50 Tubes	Cat. 18116, 18118 (5 cc)
1 Tube, 50 Tubes	Cat. 18120, 18122 (15 cc)
1 Tube, 50 Tubes	Cat. 18111, 18113 (50 cc)
1 Cup	Cat. 18129 (120 cc)
1 unit, 50 units	Cat. 18124, 18126 (Preservative)

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

STOOL NUCLEIC ACID COLLECTION AND PRESERVATION TUBES (CAT. 45630, 45660, Dx45660)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx45660)
- The preservative provides sample homogeneity eliminating sample variability
- Preserve and transport DNA & RNA safely at ambient temperature
- No cold shipping/storage needed - hassle-free and cost effective
- Isolate nucleic acids for any application including 16s NGS
- Robust preservation over a range of temperatures
- Customizable with various accessories for easy and safe collection
- Eliminates odor and renders samples safe and non-infectious

A RAPID AND SIMPLE METHOD FOR THE COLLECTION, PRESERVATION AND ROOM TEMPERATURE SHIPPING OF STOOL SAMPLES

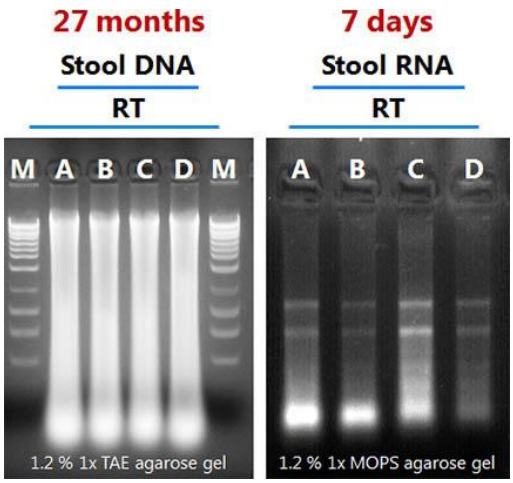

Figure 2. Integrity of Total Stool DNA and RNA Isolated from Preserved Stool Samples. DNA and RNA were isolated from 200 µL of preserved stool from 4 different donors (lanes A to D) stored at room temperature at the indicated time points (DNA at 27 months and RNA at 7 days) using Norgen's Stool Nucleic Acid Isolation Kit (Cat# 45600). Next, 10 µL from the 75 µL eluted nucleic acid was loaded onto a gel for visual analysis. High integrity stool DNA was isolated from preserved stool samples that were stored at room temperature for 27 months, and high integrity RNA was isolated from stool samples stored for 7 days at ambient temperature. Lane M is Norgen's HighRanger 1 kb DNA Ladder (Cat. 11900).

Ordering Information

Stool Nucleic Acid Collection and Preservation Tubes	
1 Tube, 50 Tubes	Cat. 45630, 45660
50 Devices	Cat. Dx45660 CE

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STOOL NUCLEIC ACID COLLECTION AND PRESERVATION SYSTEM (CAT. 63700)

- Each clamshell contains nitrile gloves, alcohol swabs, Fe-Col® Collection Paper, and Norgen's Stool Nucleic Acid Collection and Preservation Tube containing Norgen's Stool Preservative
- The preservative provides sample homogeneity eliminating sample variability
- Preserve and transport safely DNA & RNA at ambient temperature
- No cold shipping/storage needed - hassle-free and cost effective
- Isolate nucleic acids for any application including 16s NGS
- Robust preservation over a range of temperatures
- Eliminates odor and renders samples safe and non-infectious

ALL-IN-ONE SYSTEM FOR THE RAPID AND SIMPLE COLLECTION, PRESERVATION, AND ROOM TEMPERATURE STORAGE AND SHIPPING OF STOOL SAMPLES

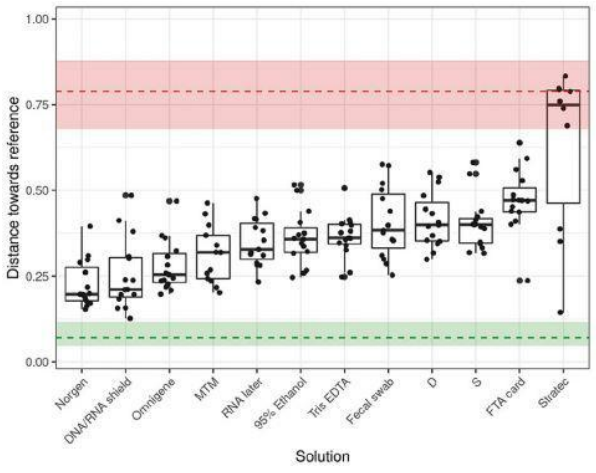

Figure 1. Norgen's Best-In-Class Preservation. Summary of community shifts in response to stabilizing solutions over a 14-day storage period. Bray-Curtis distance towards the reference for each patient grouped by stabilizing solution. Median and 5th-to-95th percentile ranges are shown for both interaliquot and interpatient variability (adapted from Plauzolles et al, 2022). Norgen is the most similar to frozen stool samples, over 11 other sample collection and storage methods.

Ordering Information

Stool Nucleic Acid Collection and Preservation System	
50 Devices	Cat. 63700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FECAL DNA COLLECTION & PRESERVATION MINI TUBES (CAT. 27650)

- No need to immediately process samples
- Includes pre-loaded beads for effective sample homogenization by bead beating (tubes are fully compatible with commercially available bead beating systems)
- DNA preservation at room temperature over 2 years
- Ship fecal samples at room temperature safely
- Compatible with most DNA isolation methods

A **RAPID** AND **SIMPLE** METHOD FOR THE **PRESERVATION** OF **DNA** FROM **FRESH FECAL SAMPLES**

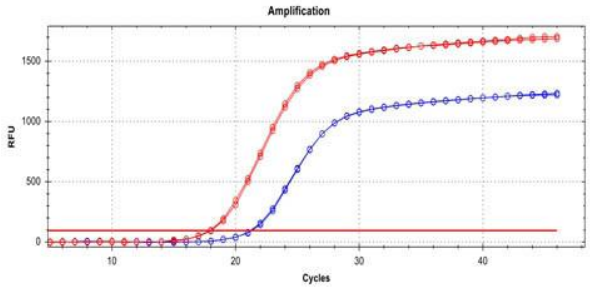

Figure 4. Quality of Mouse Fecal DNA was Evaluated by 16s rDNA Amplification using Real-Time PCR. Two mouse fecal samples (red and blue) were collected and preserved using Norgens Fecal DNA Collection and Preservation Mini Tubes, and then 3 µL of DNA was used in 20 µL PCR reaction to detect 16s rDNA. No PCR inhibition was observed, indicating the high quality of DNA from mouse fecal samples for use in downstream applications.

Ordering Information

Fecal DNA Collection & Preservation Mini Tubes	
12 Tubes	Cat. 27650

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FECAL SWAB COLLECTION AND PRESERVATION SYSTEM (CAT. 45670-B)

- No need to immediately process samples
- Nucleic acid preservation at room temperature over 2 years for DNA and up to 7 days for RNA
- Ship fecal samples at room temperature safely
- Compatible with most DNA/RNA isolation methods
- Optimized isolation procedure using Norgen's Microbiome DNA Isolation Kit

A **RAPID** AND **SIMPLE METHOD** FOR THE **COLLECTION, PRESERVATION** AND **SHIPPING** OF **STOOL SAMPLES**

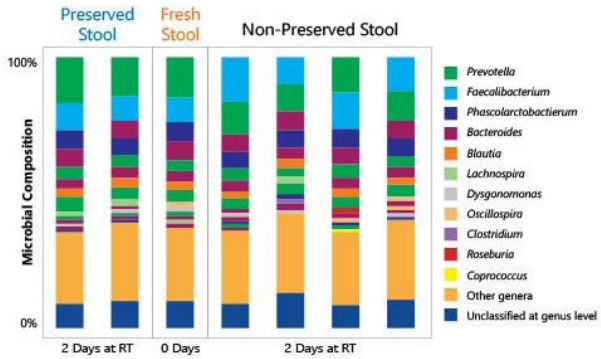

Figure 4. Hierarchical Clustering of Stool Samples at Phylum Level Under Different Storage Conditions. The microbial composition from the stool samples preserved in Norgens Stool Nucleic Acid Preservative did not differ significantly to that of controls (fresh stool from Day 0 at RT) over a 2 day period, while non-preserved stool samples showed a greater difference in the dendrogram from the original stool profile.

Ordering Information

Fecal Swab Collection and Preservation System	
50 Units	Cat. 45670-B

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL NUCLEIC ACID PRESERVATION TUBES
(CAT.69200, Dx69200)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx69200)
- Authorized for sale by Health Canada (Dx69200)
- Ideal for use in *in vitro* diagnostic workflows
- No need to immediately process samples
- Total DNA, including viral DNA, preserved at room temperature over 4 months
- Total RNA, including viral RNA, preserved at room temperature over 2 months
- Inactivate microorganisms including bacteria, fungi, yeast and viruses
- Inactivates SARS-CoV-2 virus
- Ship swab samples at room temperature safely
- Compatible with most DNA and RNA isolation methods

DESIGNED FOR **AMBIENT PRESERVATION** AND **TRANSPORT** OF **TOTAL NUCLEIC ACIDS (DNA AND RNA)** FROM SAMPLES COLLECTED **USING A SWAB**

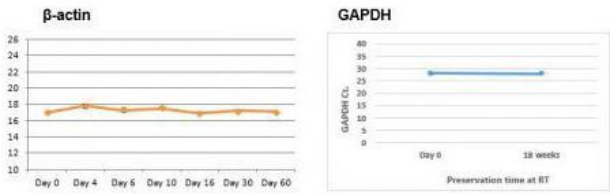

Figure 1. Stability of RNA and DNA stored in Norgen's Total Nucleic Acid Preservative. GAPDH (for DNA) and B-actin (for RNA) were monitored over an 18 week period for DNA and 60 days for RNA from swab samples stored at ambient temperature in Norgens Total Nucleic Acid Preservation Tubes. RNA was isolated from 250 µL of preserved swab samples on day 0, day 4, day 6, day 10, day 16, day 30 and day 60 using Norgens Total RNA Isolation Kit (Cat.# 17200). DNA was isolated from 250 µL of preserved swab samples on day 0 and 18 weeks using Norgens Saliva DNA Isolation Kit (Cat# Dx45400). Next, 4 µL of elution was used in a 20 L real-time PCR reaction using CFX96 Touch™ Real-Time PCR Detection System (Bio-Rad). RNA can be stored in Norgens Total Nucleic Acid Preservative for up to 60 days and DNA can be stored for up to 18 weeks at room temperature with no change in quality and quantity of RNA and DNA.

Ordering Information

Total Nucleic Acid Preservation Tubes	
50 Tubes	Cat. 69200
50 Tubes	Cat. Dx69200 CE

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SWAB COLLECTION AND DNA PRESERVATION SYSTEM (CAT. 45690-B)

- Collect from nasal, buccal, saliva, fecal, skin, surfaces, and more
- Completely stabilize microbiota profiles from the point-of-collection
- Minimize bias in data analysis: NGS (Metagenomics/ Microbiome), PCR and microarrays
- No need to immediately process samples: ship and store at ambient temperatures
- DNA preservation at room temperature over 2 years
- Renders sample non-infectious for safe and easy shipping
- Compatible with DNA isolation kits and protocols: Optimized isolation procedure using Norgen's Microbiome DNA Isolation Kit

DESIGNED FOR **COLLECTION, AMBIENT STORAGE** AND **TRANSPORT OF DNA** FROM SAMPLES COLLECTED **USING A SWAB**

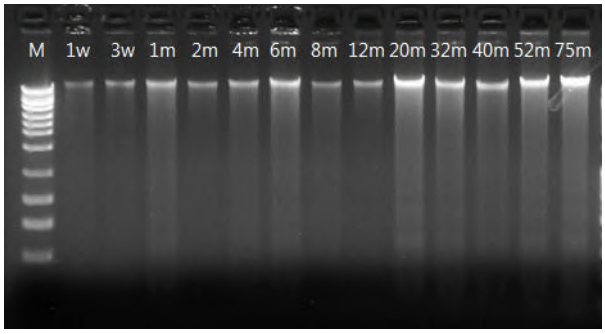

Figure 1. Stability of DNA Preserved in Norgen's Swab DNA Preservative at Room Temperature for up to 75 Months. Saliva samples were collected from numerous donors and mixed, and then an equal volume of Norgen's Swab DNA Preservative was added to the saliva. The preserved saliva was then stored at room temperature for up to 75 months. Saliva DNA was subsequently isolated at 1 week, 3 weeks, 1 month, 2 months, 4 months, 6 months, 8 months, 12 months, 20 months, 32 months, 40 months, 52 months and 75 months from 0.5 mL of the saliva/preservative sample using Norgen's Saliva DNA Isolation Kit (Cat. RU45400). For visual analysis, 100 µL of the purified DNA was run on an agarose TAE gel. As it can be seen, there is no evidence of DNA degradation after the saliva samples are stored for 75 months at ambient temperatures in Norgen's Swab DNA Preservative. Furthermore, the size of the DNA was maintained over 24 kb for the entire 75 month period. M: Norgen's UltraRanger 1 Kb DNA Ladder (Cat. 12100).

Ordering Information

Swab Collection and DNA Preservation System	
50 Units	Cat. 45690-B

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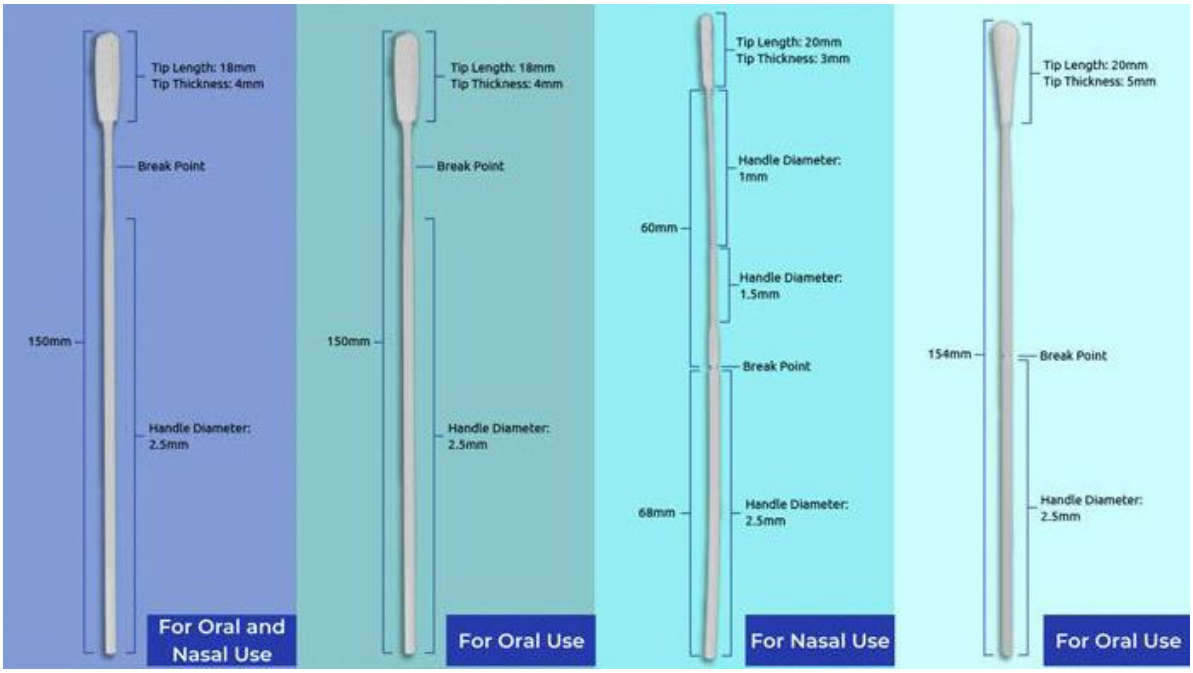
OROPHARYNGEAL AND NASOPHARYNGEAL SWABS
(CAT. 901101, CM-FS913, CY-93050, CY-98000)

- For use with Norgen's Total Nucleic Acid Preservative Tubes (Cat. Dx69200, 69200)
- Optimal for Oropharyngeal and Nasopharyngeal Use

COMPATIBLE WITH **NORGEN'S TOTAL NUCLEIC ACID PRESERVATIVE TUBES**



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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

Ordering Information

Oropharyngeal and Nasopharyngeal Swabs	
1 Unit	Cat. 901101
1 Unit	Cat. CM-FS913
1 Unit	Cat. CY-93050
1 Unit	Cat. CY-98000

RNA PRESERVE (CAT. 17260, 17265)

- Room temperature stablization of tissues, microbes, stool, cells, plants and more
- Inactivates RNases immediately
- Maintain RNA quality and integrity
- Minimizes the need for freezing
- Compatible with RNA extraction kits including Norgen RNA Purification Kits

DESIGNED TO **STABILIZE TOTAL RNA** FOR **2 DAYS UP TO SEVERAL WEEKS** AT **ROOM TEMPERATURE.**

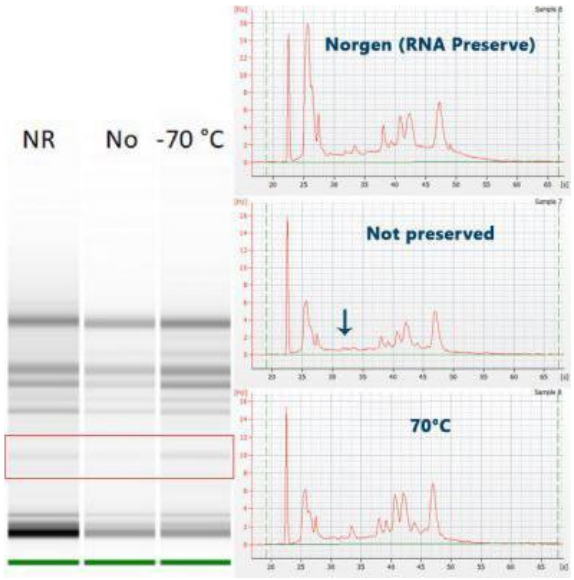

Figure 1. Plant RNA Stability after 2 Days Incubation at Room Temperature using Norgens RNA Preserve. Six leaf disks (0.7 cm diameter) were stored at different storage conditions (in Norgens RNA Preserve, not preserved and stored at room temperature -70°C) for 2 days and total RNA was then purified using Norgens Plant/Fungi Total RNA Purification Kit (Cat. 25800). The purified RNA was loaded onto a NanoRNA chip and analyzed in 2100 Expert (v. B.02.08.SI648, Agilent Technology). The RNA preserved in Norgen's RNA Preserve shows a similar RNA profile with the frozen method, indicating no changes in RNA stability at room temperature for 2 days with Norgen's RNA Preserve, while the unpreserved samples started showing signs of degradation after 2 days (red box and arrow).

Ordering Information

RNA Preservative	
50 mL	Cat. 17260
100 mL	Cat. 17265

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SELECT PUBLICATIONS AND APPLICATION NOTES

cf-DNA/cf-RNA Preservative Tubes (Cat. Dx63950, 63950)

Maass, K. K., Schad, P. S., Finster, A. M. E., Puranachot, P., Rosing, F., Wedig, T., ... Pajtler, K. W. (2021). **From Sampling to Sequencing: A Liquid Biopsy Pre-Analytic Workflow to Maximize Multi-Layer Genomic Information from a Single Tube.** *Cancers, 13*(12), 3002.

https://doi.org/10.3390/cancers13123002

SCAN ME WITH YOUR SMART PHONE

cf-DNA/cf-RNA Preservative Tubes (Cat. Dx63950, 63950)

Ward Gahlawat, A., Lenhardt, J., Witte, T., Keitel, D., Kaufhold, A., Maass, K. K., ... Schott, S. (2019). **Evaluation of Storage Tubes for Combined Analysis of Circulating Nucleic Acids in Liquid Biopsies.** *International Journal of Molecular Sciences, 20*(3), 704-.

https://doi.org/10.3390/ijms20030704

SCAN ME WITH YOUR SMART PHONE

Saliva DNA Collection and Preservation Devices (Cat. RU49000, Dx49000)

Tansirichaiya, S., Rahman, M. A., Antepowicz, A., Mullany, P., & Roberts, A. P. (2016). **Detection of Novel Integrons in the Metagenome of Human Saliva.** *PloS One, 11*(6), e0157605–e0157605.

https://doi.org/10.1371/journal.pone.0157605

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Saliva RNA Collection and Preservation Devices (Cat. RU53800, Dx53800)

Application Note 94:
Inactivation of Coronavirus in Samples using Norgen's Saliva RNA Preservative

https://norgenbiotek.com/sites/default/files/resources/App%20Note%2094.pdf

SCAN ME WITH YOUR SMART PHONE

Saliva Exosome Collection and Preservation Kit (Cat. 65400)

Langevin, S. M., Kuhnell, D., Biesiada, J., Zhang, X., Medvedovic, M., Talaska, G. G., ... Kasper, S. (2020). **Comparability of the small RNA secretome across human biofluids concomitantly collected from healthy adults.** *PloS One, 15*(4), e0229976–.

https://doi.org/10.1371/journal.pone.0229976

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Urine Collection and Preservation Tubes (Cat. 18116, 18120, 18111)

Nepal, R., Houtak, G., Karki, S., Dhungana, G., Vreugde, S., & Malla, R. (2022). **Genomic characterization of three bacteriophages targeting multidrug resistant clinical isolates of Escherichia, Klebsiella and Salmonella.** *Archives of Microbiology, 204(6),* 334–334.

https://doi.org/10.1007/s00203-022-02948-0

SCAN ME WITH YOUR SMART PHONE

Urine Collection and Preservation Tubes (Cat. 18129)

Ward, D. G., Baxter, L., Ott, S., Gordon, N. S., Wang, J., Patel, P., ... Bryan, R. T. (2022). **Highly Sensitive and Specific Detection of Bladder Cancer via Targeted Ultra-deep Sequencing of Urinary DNA.** *European Urology Oncology.*

https://doi.org/10.1016/j.euo.2022.03.005

SCAN ME WITH YOUR SMART PHONE

Stool Nucleic Acid Collection and Preservation Tubes (Cat. 45630, Dx45660)

Plauzolles, A., Toumi, E., Bonnet, M., Pénaranda, G., Bidaut, G., Chiche, L., ... Halfon, P. (2022). **Human Stool Preservation Impacts Taxonomic Profiles in 16S Metagenomics Studies.** *Frontiers in Cellular and Infection Microbiology*, 12, 722886–722886.

https://doi.org/10.3389/fcimb.2022.722886

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TOTAL RNA PURIFICATION KITS
(CAT. 17200, Dx17200, 37500, 17250, 17270)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx17200)
- Authorized for sale by Health Canada (Dx17200)
- Extract high quality & purity total RNA including miRNA
- No phenol step required
- Bind & elute all RNA irrespective of size or GC content, without bias
- Very sensitive & linear down to a few cells without the need for carrier RNA
- Convenient & fast spin column format
- Isolate RNA from a wide variety of specimens
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

GENERATE **SMALL RNA LIBRARIES** TO BE USED FOR **NEXT-GENERATION SEQUENCING**

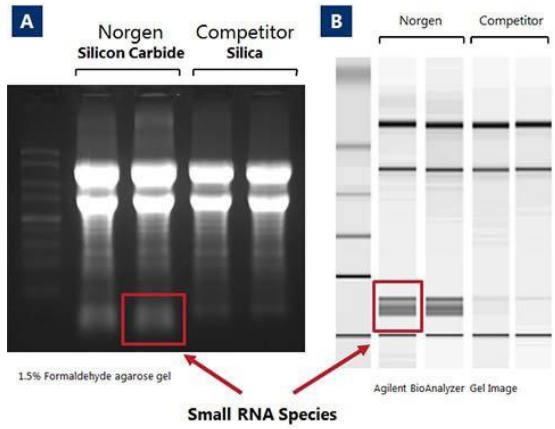

Figure 1. High Quality of Isolated RNA with Complete Size Range. Unlike most competitors' kits, Norgen's Total RNA Purification Kit allows for the isolation of all sizes of RNA, from the very large RNA down to the microRNA, without the use of phenol. Total RNA was isolated from 1 x 10^9 E. coli cells using Norgens Total RNA Purification Kit and a competitors kit. Five microliters and 1 µL of the 50 µL isolated RNA was analyzed on an agarose gel (Panel A) and the Agilent® 2100 BioAnalyzer RNA Nano 6000 chip (Panel B), respectively. Note the presence of small RNA species (red square) in the samples isolated via Norgen's kit and the absence of these RNA species in the competitor RNA preparation.

Ordering Information

Total RNA Purification Kits	
50 Preps	Cat. 17200
50 Preps	Cat. Dx17200 CE
100 Preps	Cat. 37500
250 Preps	Cat. 17250
500 Preps	Cat. 17270

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL RNA PURIFICATION PLUS KITS
(CAT. 48300, 48400)

- Extract high quality & purity total RNA including miRNA
- No phenol step required; isolate all RNA in one fraction
- Genomic DNA Removal Column for efficient elimination of gDNA
- Bind & elute all RNA irrespective of size or GC content, without bias
- Efficiently extract small RNA irrespective of GC content
- Very sensitive & linear down to a few cells without the need for carrier RNA
- Convenient & fast spin column format
- Isolate from a wide variety of specimens
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **PURIFICATION OF TOTAL RNA** - INCLUDING MICRORNA - WITH RAPID GDNA REMOVAL

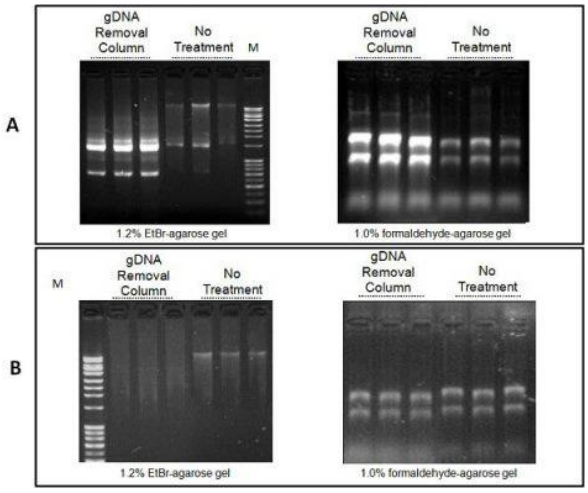

Figure 1. Genomic DNA Removal from HeLa cells. Norgen's Total RNA Purification Plus Kit is unique in that it contains a Genomic DNA Removal Column, allowing for gDNA removal without the use of enzymes. HeLa cells were either passed through the gDNA Removal Column, or received no gDNA removal treatment. The Genomic DNA Removal Column successfully removed gDNA from both 1 million HeLa cells (Panel A) and $1x10^5$ HeLa cells (Panel B). For both Panels A and B, the left image displays the RNA run on a 1.2% EtBR-agarose gel, to better visualize any gDNA contamination. The right image displays a 1.0% formaldehyde-agarose gel to allow for better denaturation of RNA in the sample. For higher inputs, as in image A, the Genomic DNA Removal Column also resulted in higher RNA yields than the non-treated samples.

Ordering Information

Total RNA Purification Plus Kits	
50 Preps	Cat. 48300
100 Preps	Cat. 48400

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL RNA PURIFICATION MICRO KITS
(CAT. 35300, 35350)

- Extract high quality & purity total RNA including miRNA
- No phenol step required - isolate all RNA in one fraction
- Elute extracted total RNA in small volume (20 µL)
- Bind & elute all RNA irrespective of size or GC content, without bias.
- Efficiently extract small RNA irrespective of GC content
- Very sensitive & linear down to a few cells without the need for carrier RNA
- Convenient & fast spin column format
- Isolate from a wide variety of specimens
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF TOTAL RNA - INCLUDING MICRORNA - FROM SMALL INPUT AMOUNTS

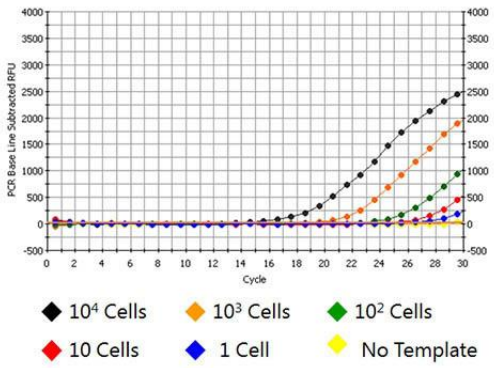

Figure 1. Great Isolation Sensitivity. Norgen's Total RNA Purification Micro Kit allows sensitive RNA extraction from as little as a single cell. Total RNA was extracted from a decreasing number of HeLa cells. 5 µL of the eluted RNA was used as the template in a 20 µL RT-qPCR reaction to detect the human S14 transcript. The S14 was detected from as little as a single cell.

Ordering Information

Total RNA Purification Micro Kits	
50 Preps	Cat.35300
250 Preps	Cat. 35350

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL RNA PURIFICATION PLUS MICRO KIT (CAT. 48500)

- Extract high quality & purity total RNA including miRNA
- Elute extracted total RNA in smaller volume (20 µL)
- No phenol step required - isolate all RNA in one fraction
- Genomic DNA Removal Column for efficient elimination of gDNA
- Bind & elute all RNA irrespective of size or GC content, without bias.
- Efficiently extract small RNA irrespective of GC content
- Very sensitive & linear down to a few cells without the need for carrier RNA
- Convenient & fast spin column format
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF TOTAL RNA - INCLUDING MICRORNA - FROM SMALL INPUT AMOUNTS

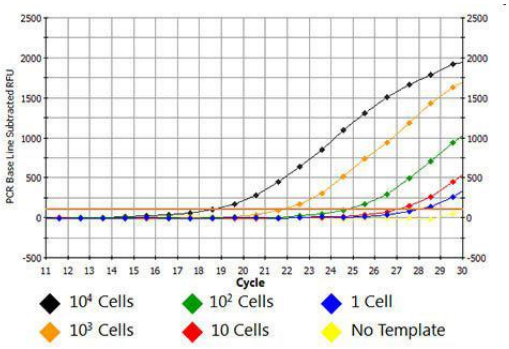

Figure 1. Great Isolation Sensitivity. Norgen's Total RNA Purification Plus Micro Kit allows sensitive RNA extraction from as little as a single cell. Total RNA was extracted from a decreasing number of HeLa cells followed by RT-qPCR to detect the human S14 transcript in the isolated RNA. PCR product of S14 was detected from as little as a single cell.

Ordering Information

Total RNA Purification Plus Micro Kit	
50 Preps	Cat. 48500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL RNA PURIFICATION MAXI KIT
(CAT. 26800)

- Extract high quality & purity total RNA including miRNA
- No phenol step required - isolate all RNA in one fraction
- Rapid processing in under 40 minutes
- Isolate total RNA from a wide variety of specimens
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

EXTRACT **HIGH QUALITY & PURITY TOTAL RNA** INCLUDING MICRORNA

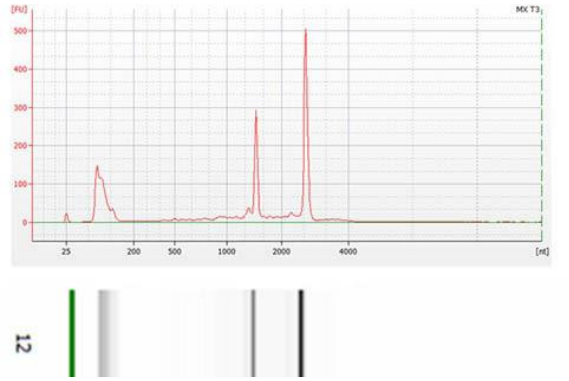

Figure 1. Isolate a Diversity of RNA Species Total RNA was isolated from 10 mL of an overnight E. coli culture using Norgen's Total RNA Purification Maxi Kit. One microliter of the 2 mL elution was analyzed on an Agilent® 2100 BioAnalyzer RNA Nano 6000 chip. As it can be seen, high-quality total RNA was isolated with minimal degradation. As well, a large amount of small RNA (< 200 nt) was recovered, indicating that the kit is able to isolate a diversity of RNA species

Ordering Information

Total RNA Purification Maxi Kit	
8 Preps	Cat.26800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

TOTAL RNA PURIFICATION 96-WELL KITS
(CAT. 24300, Dx24300, 24350, Dx24350, 24370, 24380, Dx24380)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx24300, Dx24350, Dx24380)
- Authorized for sale by Health Canada (Dx24300, Dx24350, Dx24380)
- Extract high quality & purity total RNA including miRNA
- Convenient high throughput format for vacuum, centrifuge, or automated system
- Very consistent well-to-well RNA isolation
- No phenol step required - isolate all RNA in one fraction
- Bind & elute all RNA irrespective of size or GC content, without bias
- Isolate from a wide variety of specimens
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR RAPID **HIGH-THROUGHPUT PURIFICATION** OF TOTAL **RNA** INCLUDING **MICRORNA**

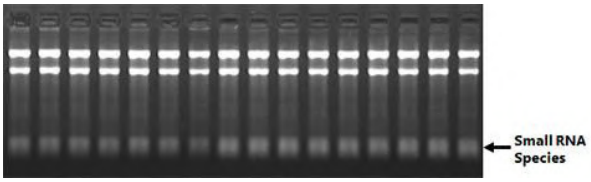

Figure 1. Great Isolation Sensitivity. Norgen's Total RNA Purification Kit allows for sensitive RNA extraction from even less than 10 cells. RT-qPCR was used to detect mRNA isolated from various input amounts of HeLa cells, from 10^5 down to a single cell, using Norgen's Total RNA Purification 96-Well Kit. Ten microliters of the 75 µL isolated RNA were then subjected to a 20 µL reverse transcription using oligo dT primers. Three microliters of the reverse transcription were used in a 20 µL real-time PCR reaction with primers to detect the human S15 transcripts. The resulting Ct values were plotted against the input cell number. Total RNA was isolated and detected linearly from as little as a single HeLa cell.

Ordering Information

Total RNA Purification 96-Well Kits	
2 x 96-well plates	Cat. 24300
2 x 96-well plates	Cat. DX24300 CE
2 x 96-well plates (Deep Well)	Cat. 24350
2 x 96-well plates (Deep Well)	Cat. DX24350 CE
6 x 96-well plates	Cat. 24370
6 x 96-well plates (Deep Well)	Cat. 24380
6 x 96-Well Plates (Deep Well)	Cat. Dx24380 CE

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SINGLE CELL RNA PURIFICATION KIT (CAT. 51800)

- Fast and easy processing using rapid micro spin column format
- Small elution volume of 8 µL ready for direct utilization in qRT-PCR reactions
- Isolate total RNA including microRNA in a concentrated ready-to-use format
- Isolate high quality total RNA from a variety of sources
- RNA can be isolated from a single cell to 10^5 cells
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF TOTAL RNA - INCLUDING MICRORNA - FROM SMALL INPUT AMOUNTS

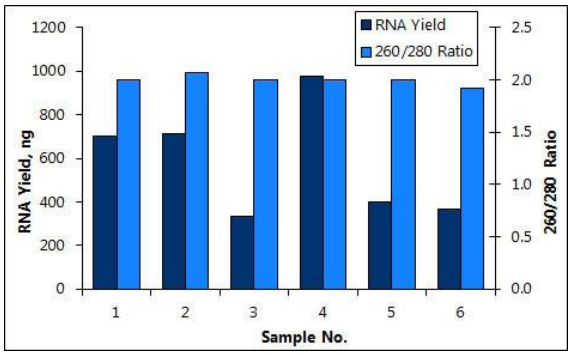

Figure 1. High Quality RNA Isolated from Laser-Captured Microdissection (LCM). Norgens Single Cell RNA Purification Kit allows sensitive but high-quality RNA extraction from small inputs such as Laser-Captured Microdissection (LCM). Total RNA was isolated from 6 different LCM samples. RNA yield and quality (260/280 ratio) were assessed by NanoVue spectrophotometry. Norgens Single Cell RNA Purification Kit recovered good amounts of RNA with an excellent 260/280 ratio.

Ordering Information

Single Cell RNA Purification Kit	
50 Preps	Cat.51800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

microRNA PURIFICATION KIT (CAT. 21300)

- Extract high quality & purity miRNA in 30 minutes
- Two column kit- eliminate large RNA on the first column and capture microRNA on a second column
- Elute microRNA in 25 µL ready for miRNA profiling
- Process a wide range of samples- cell, tissue, bacteria, bodily fluids, etc.
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF MICRORNA WITHOUT PHENOL; ISOLATION AND EXTRACTION OF MICRORNA

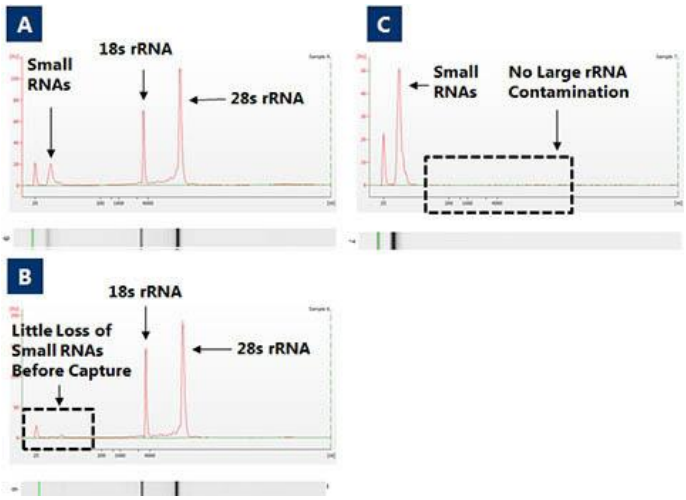

Figure 1. Efficient Removal of Large RNA Species Different RNA species were isolated from 10^6 HeLa cells, resolved on an Agilent® Lab-On-A-Chip, and electropherograms were generated. Panel A contains all the RNA species present in 10^6 HeLa cells as isolated with Norgen's Total RNA Purification Kit and acts as a control. Panel B and C contain RNA that was isolated from 10^6 HeLa cells using Norgens microRNA Purification Kit. One microliter of the 50 µL purified RNA for each fraction was loaded. Panel B shows the large RNA species removed using the Large RNA Removal Columns, and no small RNA can be detected. Panel C shows the small RNA that is isolated using the microRNA Enrichment Columns and shows that there is no contamination of the small RNA with any large RNA species above 200 nt. This demonstrates the effective separation of the small RNA from the large RNA species using Norgen's microRNA Purification Kit.

Ordering Information

microRNA Purification Kit	
25 Preps	Cat. 21300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

ANIMAL TISSUE RNA PURIFICATION KIT (CAT. 25700)

- Extract high quality & purity total RNA including miRNA
- Isolate from a wide variety of animal tissues
- No phenol step required - isolate all RNA in one fraction
- Compatible with tissues stored in RNAlater® or Trizol®
- Convenient & fast spin column format
- Purification is based on spin column chromatography that uses Norgen's resin separation matrix

FOR **PURIFICATION** OF **TOTAL RNA (INCLUDING MICRORNA)** FROM **ALL TYPES OF TISSUES** INCLUDING **FIBER-RICH TISSUES**

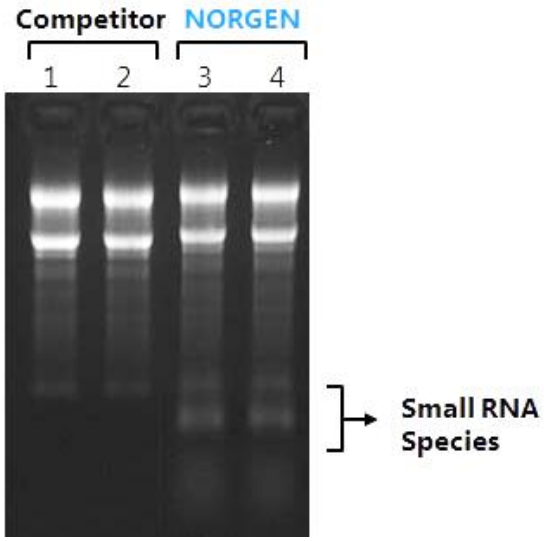

Figure 1. High Quality of Isolated RNA with Complete Size Range. Unlike most competitors kits, Norgen's Animal Tissue RNA Purification Kit allows for the isolation of all sizes of RNA, from very large RNA down to microRNA without the use of phenol. Total RNA was isolated from 25 mg samples of rat muscle using Norgens Animal Tissue RNA Purification Kit and a leading competitor's kit. Five microliters of the 50 µL RNA eluted from each kit were then resolved on a 1.2% formaldehyde-agarose gel. As it can be seen, only Norgens kit was able to isolate the full diversity of RNA species, including all the small RNA species.

Ordering Information

Animal Tissue RNA Purification Kit	
50 Preps	Cat.25700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FATTY TISSUE RNA PURIFICATION KIT
(CAT. 36200)

- Isolate high quality total RNA from hard to extract fatty tissues
- Isolate total RNA, including microRNA (miRNA)
- No phenol or chloroform extractions
- Fast and easy processing using rapid spin-column format
- Genomic DNA removal without the use of nucleases
- Purification is based on spin column chromatography that uses Norgen's resin separation matrix

FOR **PURIFICATION** OF **TOTAL RNA (INCLUDING MICRORNA)** FROM **ANIMAL TISSUES** WITH HIGH LIPID CONTENT

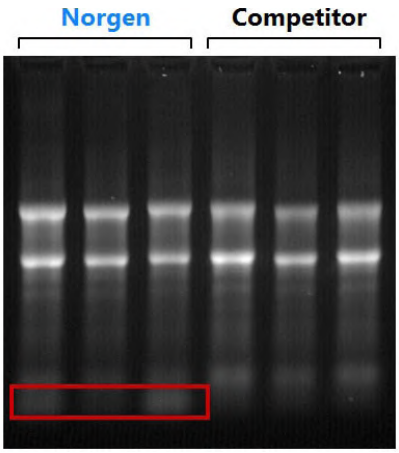

Figure 1. Isolation of High Quality Brain Total RNA including microRNA without the use of Phenol. Norgen's Fatty Tissue RNA Purification Kit isolates high quality total RNA from fatty tissues such as brain without the use of phenol. Total RNA was isolated from equal amounts of brain tissue using Norgens Fatty Tissue RNA Purification Kit and a leading competitors kit that involves a phenol:chloroform extraction step. The purified RNA was then resolved on a 1.2% formaldehyde-agarose gel. As it can be seen, Norgen not only isolated high and consistent yields of total RNA, but the RNA was also of high quality as evidenced by intactness of the major 28S and 18S rRNA. Importantly, only Norgen's Fatty Tissue RNA Purification Kit was able to recover the small RNA fraction, including the microRNA (red-boxed).

Ordering Information

Fatty Tissue RNA Purification Kit	
25 Preps	Cat. 36200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SALIVA / SWAB RNA PURIFICATION KITS
(CAT. 69100, Dx69100, 69300, Dx69300)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx69100,Dx69300)
- Authorized for sale by Health Canada
- Fits into in vitro diagnostic workflows
- Isolate high-quality total RNA, including viral RNA, from fresh and preserved saliva and swab samples
- Fast and easy processing using rapid spin column format Isolate total RNA, from large rRNA down to microRNA (miRNA)
- No phenol or chloroform extractions
- Very sensitive & linear down to a few cells/viral copies without the need for carrier RNA
- Buffer chemistry inactivates viruses including SARS-CoV-2
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

THE PURIFIED RNA IS INTENDED FOR ***IN VITRO*** **DIAGNOSTIC USE** FOR **MEDICAL PURPOSES**.

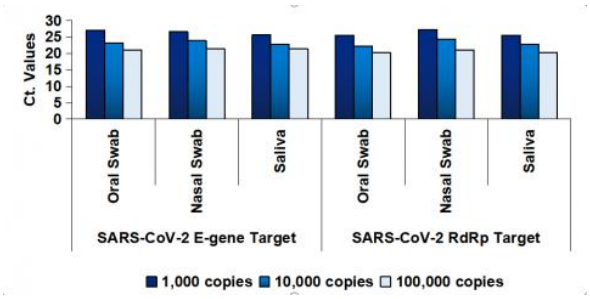

Figure 1. SARS-CoV-2 E-gene and RdRP Amplification from Preserved Swabs and Saliva RNA isolated by Norgens Saliva/Swab RNA Purification Kit (Cat. #69100). Duplicate Nasopharyngeal swabs, Oropharyngeal Swabs, and Saliva samples were collected from different donors. Nasopharyngeal and Oropharyngeal swab samples were collected into Norgens Total Nucleic Acid Preservative Tubes (Cat. 69200). Saliva samples were collected into Norgens Saliva RNA Collection and Preservation Devices (Cat. RU53800). All collected samples were spiked with 3 different concentrations from Norgens E/RdRP/RP Positive Control (included in Norgens COVID-19 TaqMan RT-PCR Kit (E/RdRP genes TM67200) and processed for RNA isolation using Norgens Saliva/Swab RNA Purification Kit (Cat. #69100), using an input of 0.25 mL from each preserved sample.

Ordering Information

Total RNA Purification 96-Well Kits Dx	
50 Preps	Cat. 69100
50 Preps	Cat. Dx69100 CE
2 x 96-well plates	Cat. 69300
2 x 96-well plates	Cat. Dx69300 CE

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746
Authorized for sale by Health Canada

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE EXFOLIATED CELL RNA PURIFICATION KIT (CAT. 22550)

- Purify all sizes of RNA (including microRNA) without the need for phenol
- Isolate and detect total RNA from 1 mL and up to 50 mL urine
- Provides high-quality RNA for sensitive applications - isolate RNA from as little as 100 cells
- Rapid processing time from sampling to downstream testing
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF MICRORNA WITHOUT PHENOL; ISOLATION AND EXTRACTION OF MICRORNA

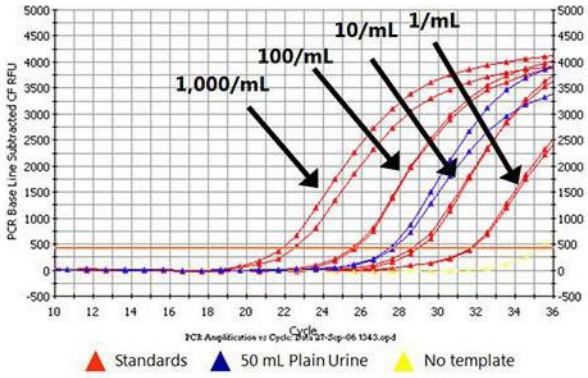

Figure 1. Isolation and Detection of RNA from the Exfoliated Cells in 50 mL of Urine. RNA was isolated from the exfoliated cells in a 50 mL urine sample obtained from a healthy male without any spiking using Norgen's Urine (Exfoliated Cell) RNA Purification Kit. The bind, wash, and elute procedure was followed, and the purified RNA was recovered in 20 µL of the Elution Buffer. A dilution series of HeLa cells with known concentration (from 1 cell per mL to 1,000 cells per mL) was isolated in parallel as standards. Seven microliters of the 20 µL eluted RNA were then subjected to a 20 µL reverse transcription. One microliter of the reverse transcription was used in a 20 µL real-time PCR reaction with primers to detect the ribosomal S14 transcript. The red lines in the PCR baseline graph above correspond to the HeLa RNA standards, while the blue lines correspond to the successful PCR results when RNA isolated from the exfoliated cells in 50 mL of non-spike urine was used as the template.

Ordering Information

Urine Exfoliated Cell RNA Purification Kit	
25 Preps	Cat. 22550

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE MICRORNA PURIFICATION KIT (CAT. 29000)

- Isolate high quality total RNA (including small RNA and microRNA) and all sizes of circulating and exosomal RNA, including microRNA from urine and cerebrospinal fluid (CSF) samples
- Small urine and CSF input ranging from as low as 0.5 mL to 1 mL
- No phenol extractions
- Very sensitive and linear down to a few cells without the need for carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Rapid and convenient spin column protocol
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF MICRORNA FROM URINE WITHOUT PHENOL

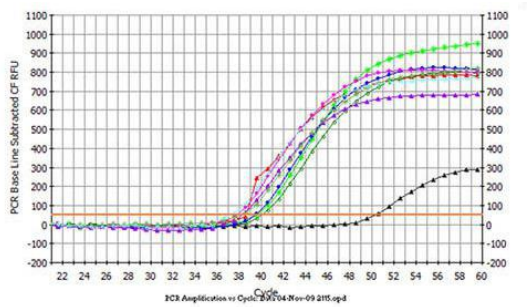

Figure 1. Isolation and Detection of microRNA from Urine Samples. Norgen's Urine microRNA Purification Kit was used to isolate microRNA from 8 different 1.5 mL urine samples. The purified microRNA was then used as the template in an RT-qPCR reaction to detect the human miR-21 gene. Five microlitres of the isolated RNA were used as the template in the RT step, and 5 µL from the RT step was used in the qPCR reaction. As it can be seen, the qPCR was able to successfully detect and amplify the miR-21 gene in all cases, indicating the high quality of the isolated urine microRNA. The black line in the graph above corresponds to the No Template Control.

Ordering Information

Urine microRNA Purification Kit	
25 Preps	Cat. 29000

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE TOTAL RNA PURIFICATION MAXI KITS (SLURRY FORMAT)(CAT. 29600, Dx29600,29650)

- Isolate high quality total RNA and all sizes of circulating and exosomal RNA, including microRNA
- No phenol extractions
- Very sensitive and linear without the need for carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Isolate inhibitor-free urinary RNA
- Slurry/Spin column and Slurry/96-well format available
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID PURIFICATION OF TOTAL RNA FROM 5 ML - 10 ML URINE WITHOUT PHENOL

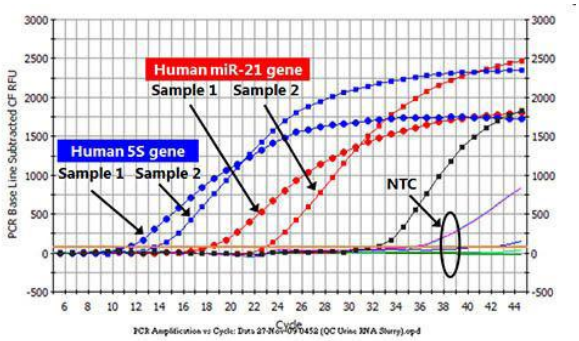

Figure 1. Isolation and Detection of Total RNA from 10 mL Urine Samples. Norgen's Urine Total RNA Purification Maxi Kit (Slurry Format) was used to isolate total RNA from two 10 mL urine samples. The purified total RNA was then used as the template in an RT-qPCR reaction to detect the human miR-21 gene (Red line) and the human 5S gene (Blue line). Five microlitres of the isolated RNA was used as the template in the RT step, and 5 µL from the RT step was used in the qPCR reaction. As it can be seen, the qPCR was able to successfully detect and amplify both the 5S gene and the miR-21 gene in all cases, indicating the high quality of the isolated urine total RNA. The purple line in the graph above corresponds to the No Template Control.

Ordering Information

Total RNA Purification 96-Well Kits Dx	
50 Preps	Cat. 29600
50 Preps	Cat. Dx29600 CE
1 x 96-well Plate	Cat. 29650

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Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE EXOSOME RNA ISOLATION KIT
(CAT. 47200)

- Isolation of exosomal RNA molecules from urine samples
- Rapid and convenient spin-column protocol
- Isolate inhibitor-free urinary microRNA for any application
- Purification of exosomal proteins for western blot analysis
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)

A RAPID PROCEDURE FOR **THE ISOLATION OF EXOSOMAL RNA** FROM **URINE SAMPLE**

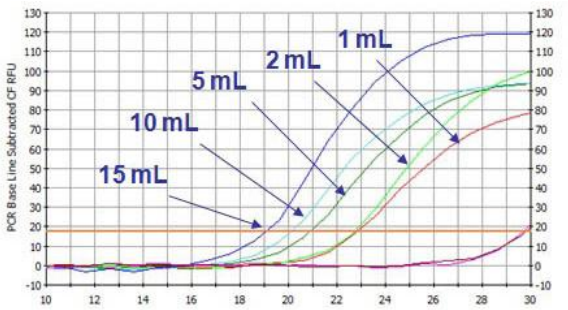

Figure 1. Detection of Urine Exosomal RNA Isolated from Different Urine Volumes. Norgen's Urine Exosome RNA Isolation Kit was used to isolate urine exosomal RNA from different urine volumes ranging from 1 to 15 mL. The purified urine exosomal RNA was then used as the template in an RT-qPCR reaction to detect the human 5S gene. 3 µL of the isolated urine exosomal RNA was used as the template in the RT step, and 3 µL from the RT step was used in the qPCR reaction. As it can be seen, the qPCR was able to successfully detect and amplify the 5S gene from RNA isolated from different urine volumes, indicating the high quality of the isolated urine exosomal RNA.

Ordering Information

Urine Exosome RNA Isolation Kit	
50 Preps	Cat. 47200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

LEUKOCYTE RNA PURIFICATION KITS
(CAT. 21200, 21250, 37800)

- Fractionate leukocytes from whole blood in minutes with provided RBC Lysis Buffer
- Isolate total RNA, including microRNA, without phenol
- Rapid and convenient spin-column format
- Also available in high-throughput 96-well format
- Purified RNA is ready for any downstream application including RT-PCR, qRT-PCR, NGS, arrays and more
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID EXTRACTION** AND **PURIFICATION** OF **TOTAL RNA** FROM **LEUKOCYTES**

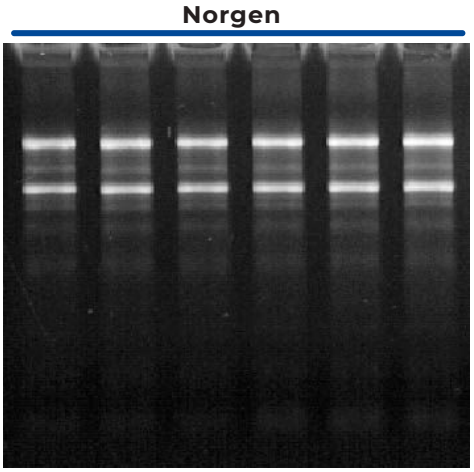

Figure 1. Consistent Isolation of High Quality Leukocyte RNA. Norgen's Leukocyte RNA Purification Kit isolates leukocyte RNA of high quality with great consistency. Total leukocyte RNA was isolated from 100 µL of hamster blood using Norgen's Leukocyte RNA Purification Kit. A total of 6 replicates were performed, and 7µLof the 50 µL purified RNA was then resolved on a 1.2% formaldehyde-agarose gel. As can be seen, Norgen's kit not only isolated high and consistent yields of total RNA, but the RNA was also of high quality as evidenced by intactness of the major 28S and 18S rRNA

Ordering Information

Leukocyte RNA Purification Kits	
50 Preps	Cat. 21200
50 Preps	Cat. 21250
2 x 96-well plates	Cat. 37800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PRESERVED BLOOD RNA PURIFICATION KIT I (FOR USE WITH TEMPUS BLOOD RNA TUBES) (CAT. 43400)

- Compatible with Tempus™ Blood RNA Tubes
- Isolate true total RNA including siRNA and microRNA
- No phenol extractions
- Purify high-quality RNA in 30 minutes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID ISOLATION AND PURIFICATION OF TOTAL RNA FROM BLOOD THAT HAS BEEN PRESERVED USING TEMPUS™ BLOOD RNA TUBES

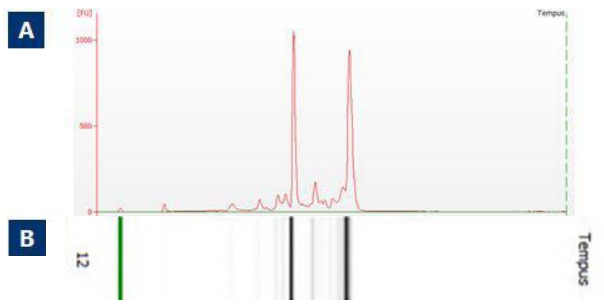

Figure 1. Isolation of High Quality Total RNA. Total RNA was isolated in duplicate from 3 mL hamster blood samples collected into Tempus™RNA Blood Tubes using Norgen's Preserved Blood RNA Purification Kit I and was subsequently analyzed using an Agilent BioAnalzyer. Panel A shows the electropherogram from the Agilent Bioanalyzer, where the y axis represents fluorescence units and the x axis represents the runtime (s). The bands of the 18S and 28S rRNA fragments are clearly visible and the RNA integrity number score is 9.0. Panel B demonstrates the gel banding pattern of the RNA species purified from hamster blood.

Ordering Information

Preserved Blood RNA Purification Kit	
50 Preps	Cat. 43400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PRESERVED BLOOD RNA PURIFICATION KIT II (FOR USE WITH PAXGENE BLOOD RNA TUBES) (CAT. 43500)

- Compatible with PAXgene Blood RNA Tubes
- Isolate true total RNA including siRNA and microRNA
- No phenol extractions
- Purify high-quality RNA in 30 minutes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

RAPID ISOLATION AND PURIFICATION OF TOTAL RNA FROM BLOOD THAT HAS BEEN PRESERVED USING PAXGENE BLOOD RNA TUBES

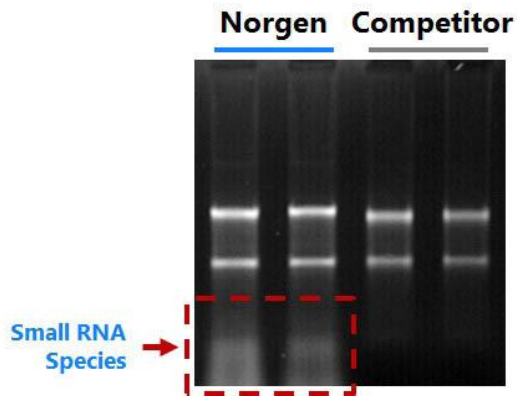

Figure 1. High Quality of Isolated RNA with Complete Size Range. Unlike most competitors kits, Norgen's Preserved Blood RNA Purification Kit II (for use with Paxgene Blood RNA Tubes) allows for the isolation of all sizes of RNA, from the very large RNA down to the microRNA without the use of phenol. Total RNA was isolated from preserved blood using Norgen's Preserved Blood RNA Purification Kit II(for use with PAXgeneBlood RNATubes) and a leading competitors kit. The purified RNA was then resolved on a 1.2% formaldehyde-agarose gel. As it can be seen, only Norgen's kit was able to isolate the full diversity of RNA species, including all the small RNA species.

Ordering Information

Preserved Blood RNA Purification Kit	
50 Preps	Cat. 43500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FFPE RNA PURIFICATION KITS
(CAT. 25300, Dx25300, 25400)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx25300)
- Extract total RNA (including microRNA) from FFPE samples
- No phenol extraction step
- Includes DNase for optional on-column DNA removal
- Isolated RNA is of the highest quality and integrity
- Isolate a diversity of RNA species
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID** AND **EFFICIENT EXTRACTION** AND **PURIFICATION** OF **RNA (INCLUDING MICRORNA)** FROM FORMALIN-FIXED PARAFFIN-EMBEDDED (FFPE) SAMPLES

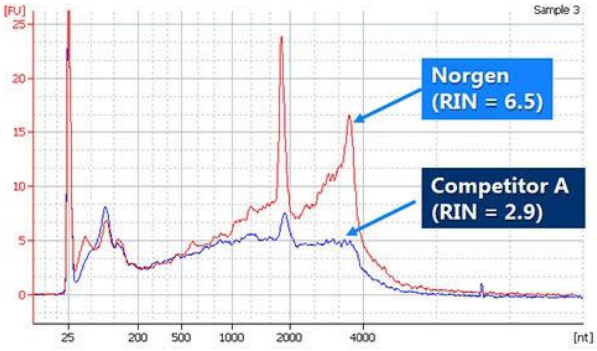

Figure 1. High Quality and Yield of Total RNA. Norgen's FFPE RNA Purification Kit isolates FFPE RNA that exceeds both yield and quality of competitors. Total RNA was isolated from one slice of hamster FFPE kidney section (20 micron thickness) using Norgen's FFPE RNA Purification Kit and a leading competitors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

Ordering Information

FFPE RNA Purification Kits	
50 Preps	Cat. 25300
50 Preps	Cat. Dx25300 CE
2 x 96-well plates	Cat. 25400

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PLANT MICRORNA PURIFICATION KIT (CAT.54700)

- Fast and easy processing using a rapid spin-column format
- No phenol or chloroform extractions
- Isolate all small RNA molecules (<200 nt)
- Minimal contamination from large RNA molecules and genomic DNA
- High quality small RNA can be used in various downstream applications
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID PURIFICATION** OF **MICRORNA** FROM **PLANTS.**

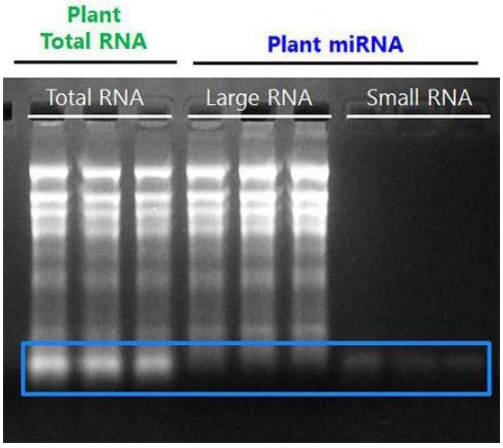

Figure 1. Fractionation of Large and Small RNA. Large RNA and small RNA were sequentially purified using Norgen's Plant miRNA Purification Kit from 50 mg of raspberry leaf tissue and the RNA profile was compared with the RNA isolated using Norgen's Plant/Fungi Total RNA Purification Kit (Cat. #25800). For visualization, 10 µL of RNA from 50 µL of RNA elution was loaded on 2% 1x MOPS agarose gel. Norgen's kit was able to isolate both the large and small RNA fractions, and the small RNA fraction does not contain any of the large RNA species.

Ordering Information

Plant microRNA Purification Kit	
25 Preps	Cat. 54700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SOIL TOTAL RNA PURIFICATION KIT
(CAT. 27750)

- Isolate high quality total RNA from a variety of soil samples
- Process all types of soil, including common soil, compost and manure
- Remove all traces of humic acids and other inhibitors of PCR
- Isolates all sizes of RNA, including microRNA, without phenol
- Complete kit including bead tubes and humic acid removal columns (HAR)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID PREPARATION** OF **INHIBITOR-FREE TOTAL RNA** FROM **SOIL.**

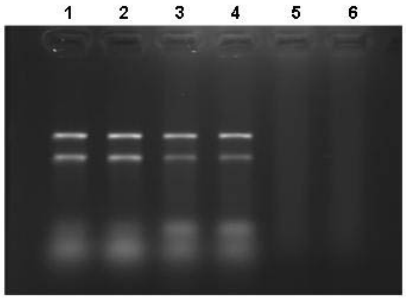

Figure 1. Isolation of Total RNA from Bacteria in Soil. Pseudomonas fluorescens was spiked into 250 mg samples of autoclaved soil and total RNA was isolated using Norgen's Soil Total RNA Purification Kit. RNA was visualized by running 7.5 µL of each 75 µL elution on a 1.2% agarose-formaldehyde RNA gel. Total RNA (large and small) of Pseudomonas fluorescens was recovered from the autoclaved spiked soil without any significant degradation, indicating that high integrity RNA can be purified from the microorganisms in the soil. Lanes 1 and 2 contain total RNA from Pseudomonas fluorescens, Lanes 3 and 4 contain total RNA purified from the autoclaved soil spiked with Pseudomonas fluorescens, and Lanes 5 and 6 contain RNA purified from the autoclaved soil (no RNA was found).

Ordering Information

Soil Total RNA Purification Kit	
50 Preps	Cat. 27750

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

STOOL TOTAL RNA PURIFICATION KITS
(CAT.49500, DX49500)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx49500)
- Simultaneous isolation of both host RNA and microbial RNA (universal protocol)
- Isolate full diversity of RNA from large RNA down to small and microRNAs
- Eliminates PCR inhibitors including humic acids
- High quality RNA for sensitive downstream application
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **CONVENIENT** AND **RAPID** METHOD TO PURIFY **TOTAL RNA** FROM **SMALL AMOUNTS** OF **STOOL** SAMPLES.

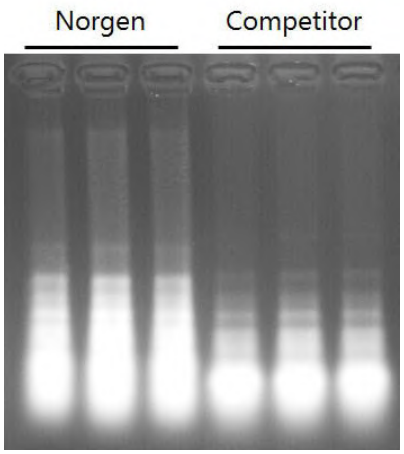

Figure 1. High yields of stool total RNA were purified from 200 mg of human stool using Norgen's Stool RNA Purification Kit and a leading competitor's kit, in triplicate. For analysis, 7.5 µL of each 75 µL elution was loaded on a 1.2 % 1x MOPS formaldehyde-agarose gel. Norgen's kit was found to have a higher yield of RNA, isolated from 200 mg of human infant stool.

Ordering Information

Stool Total RNA Purification Kits	
50 Preps	Cat. 49500
50 Preps	Cat. DX49500 CE

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM CFC-RNA ADVANCED PURIFICATION KIT (CAT. 68200)

- Versatile plasma/serum input ranging from 1 mL to 6 mL
- No phenol extractions
- No carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA and exosomal RNA into a flexible elution volume ranging from 25 µL to 50 µL
- Purify superior-quality and superior quantity RNA in 45 minutes
- Fully automated purification procedure on Hamilton MicroLab Nimbus
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE **ALL SIZES** OF **CIRCULATING** AND **EXOSOMAL RNA, INCLUDING MICRORNA.**

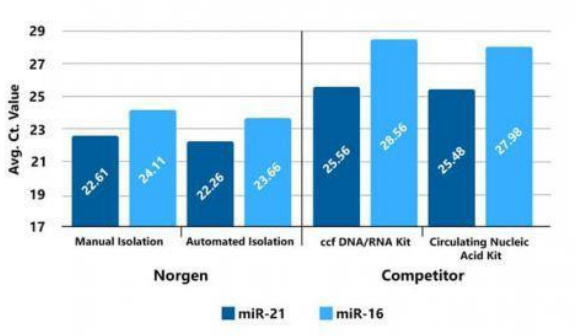

Figure 1. RT-qPCR amplification of miR-21 and miR-16 from RNA purified from K_2EDTA plasma using different cfc-RNA purification methods.. Norgens SiC technology, manual and automated procedure, was superior as compared to the amplification of the same miRNA targets amplified from RNA purified from K_2EDTA plasma using the Silica-based technology represented by Qiagens purification kits.

Ordering Information

Plasma/Serum cfc-RNA Advanced Purification Kit	
50 Preps	Cat. 68200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM RNA PURIFICATION KITS (CAT. 55000, 56100, 56200)

- Isolate all sizes of circulating and exosomal RNA, including microRNA
- Versatile plasma/serum input ranging from 50 µL to 200 µL
- No phenol extractions
- No carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA and exosomal RNA into a flexible elution volume ranging from 10 µL to 100 µL
- Purify high-quality RNA in 15-20 minutes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Compatible with Streck Cell-Free RNA BCT® Tubes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR RAPID AND SIMPLE PURIFICATION OF CIRCULATING RNA AND EXOSOMAL RNA FROM PLASMA/SERUM SAMPLES

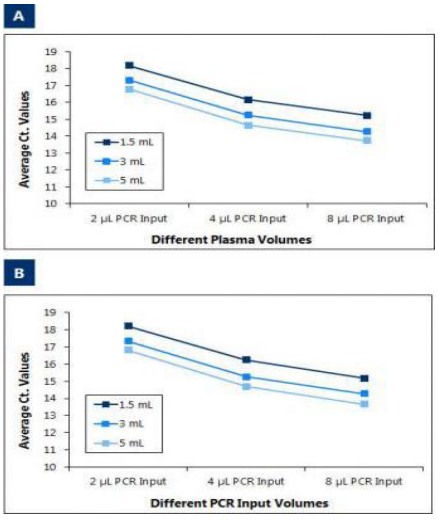

Figure 1. Determination of the amount of inhibition present in plasma RNA samples when detecting the human 5S transcript and miR-21. DNA was isolated from 1.5 mL, 3 mL and 5 mL plasma using Norgen's Plasma/Serum RNA Purification Maxi Kit (Cat# 56200). Increasing volumes of the elution (2, 4 and 8 µL) were used in a 20 µL reverse transcription reaction followed by qPCR amplification reaction to observe any decrease in Ct value. An increase in Ct values with increasing amount of template would be a clear indication of PCR inhibitors present in the sample. An increase in the PCR input volume used as a template in the reverse transcription reaction did not affect the Ct value generated from the qPCR amplification for both (A) 5S rRNA transcript and (B) miR-21. In fact the Ct. values tend to decrease with increasing the PCR input volume indicating that RNA purified from plasma using Norgen's kit is free of the common inhibitors usually present in plasma.

Ordering Information

Plasma/Serum RNA Purification Kits	
50 Preps (Mini)	Cat. 55000
20 Preps (Midi)	Cat. 56100
10 Preps (Maxi)	Cat. 56200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM CIRCULATING AND EXOSOMAL RNA PURIFICATION KITS (SLURRY FORMAT)
(CAT. 42800, Dx42800, 50900, 29500)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx42800)
- Isolate all sizes of circulating and exosomal RNA, including microRNA
- Versatile plasma and serum input volumes (0.25 mL to 5 mL)
- Concentrate circulating and exosomal RNA into small elution volumes
- Isolate inhibitor-free circulating and exosomal RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Available in Spin Column or 96-well plate formats
- Process 96-well plates using vacuum or centrifugation
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Compatible with Streck Cell-Free RNA BCT® Tubes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **SIMPLE ISOLATION** OF **CIRCULATING RNA INCLUDING EXOSOMAL RNA** FROM **PLASMA/SERUM SAMPLES**

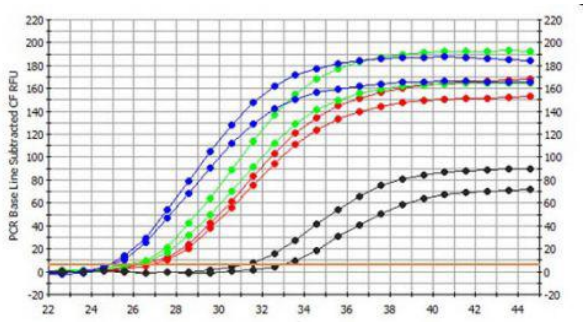

Figure 1. Isolation and Detection of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating RNA Purification Mini Kit (Slurry Format) was used to isolate circulating RNA from 0.5 mL, 1 mL and 2 mL plasma. 3 µL of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume. RNA isolated from 0.5 mL plasma are represented by the Red lines, RNA isolated from 1 mL plasma are represented by the Green lines whereas RNA isolated from 2 mL plasma are represented by the Blue lines. The black lines correspond to the no template control.

Ordering Information

Plasma/Serum Circulating and Exosomal RNA Purification Kits (Slurry Format)	
50 Preps (Mini)	Cat. 51000
50 Preps	Cat. 42800
50 Preps	Cat. Dx42800 CE
25 Preps (Maxi)	Cat. 50900
1 x 96-Well Plate	Cat. 29500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE CELL-FREE CIRCULATING RNA PURIFICATION KITS (CAT. 56900, 57000, 57100)

- Versatile urine input ranging from 250 µL to 30 mL
- No phenol extractions
- No carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA and exosomal RNA into a flexible elution volume ranging from 50 µL to 100 µL
- Purify high-quality RNA in 25 - 30 minutes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on **Norgen's NGS services (pg. 188)**
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE **ALL SIZES** OF **CIRCULATING** AND **EXOSOMAL RNA, INCLUDING MICRORNA**

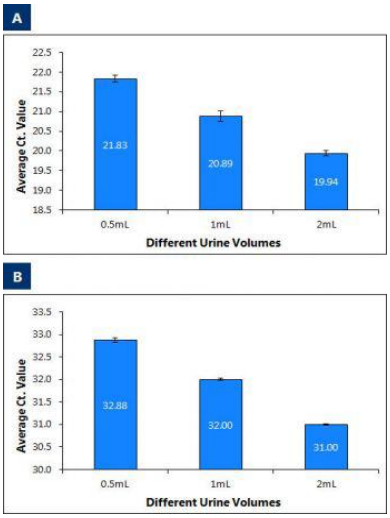

Figure 1. Purification of cell-free circulating RNA and exosomal RNA from different urine volumes. Norgen's Urine Cell-Free Circulating RNA Purification Mini Kit (Cat# 56900) was used to purify cell-free circulating and exosomal RNA from 0.5 mL, 1 mL and 2 mL urine samples. Two microlilitres of the purified RNA was then used as the template in RT-qPCR reactions to assess the amplification of (A) the housekeeping 5S rRNA transcript and (B) miR-21. The average Ct value for both (A) 5S rRNA transcript and (B) miR-21 is linearly decreasing with increasing the sample input volume.

Ordering Information

Urine Cell-Free Circulating RNA Purification Kits	
50 Preps (Mini)	Cat. 56900
20 Preps (Midi)	Cat. 57000
10 Preps (Maxi)	Cat. 57100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

LOW ABUNDANCE RNA QUANTIFICATION KIT (CAT. 58900)

- Quantify RNA of a wide spectrum of concentrations, including the lower ng per µL and pg per µL range
- RNA is accurately quantified using a standard curve constructed from the provided RNA standard

COMPATIBLE WITH **ANY REAL-TIME PCR SYSTEM.**

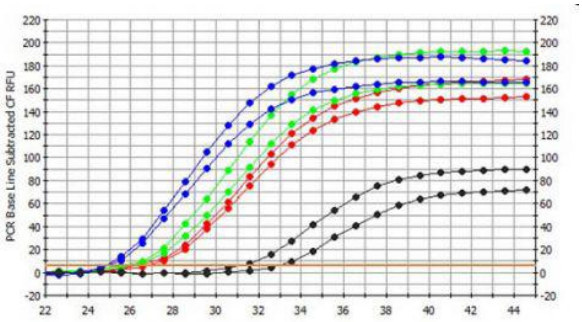

Figure 1. Sensitivity of RNA Quantification from Small Volumes of Human Plasma using the Low Abundance RNA Quantification Kit. A representative qPCR Baseline Graph showing the amplification of total plasma RNA isolated from either 50 or 200 µL of human plasma using Norgen's Plasma/Serum RNA Purification Mini Kit (Cat. 55000). The Low Abundance RNA Quantification Kit could quantify purified RNA from such low abundance samples (and others such as urine, exosomes etc) with purified RNA concentrations that are 100 pg per µL or less.

Ordering Information

Low Abundance RNA Quantification Kit	
48 Reactions	Cat. 58900

SHIPS ON DRY ICE

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA CLEAN-UP AND CONCENTRATION KITS
(CAT. 23600, 43200, 25100)

- Clean-up & concentrate total RNA (including miRNA) in minutes
- Clean-up & concentrate RNA from TRIzol®, TRI Reagent®, etc
- Clean-up RNA from contaminants including enzymes, primers, nucleotides
- Rapid spin-column protocol, elute in 20 µL
- 96-well format for high throughput processing & small spin column formats for 8 µL are available
- Purified RNA is fully compatible with all downstream applications
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID AND EFFICIENT CLEAN-UP** AND **CONCENTRATION** OF **TOTAL RNA**, INCLUDING **MICRORNA, WITHOUT PHENOL.**

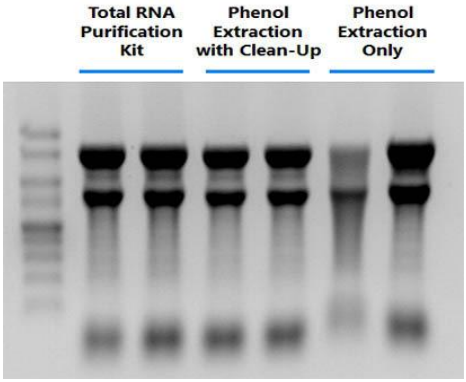

Figure 1. Effective Clean-Up to Produce High Quality Total RNA with Complete Size Diversity. Norgen's RNA Clean-Up and Concentration Kit effectively cleans up RNA isolated from phenol-based extractions without the loss of RNA diversity by retaining all RNA species including small RNAs. Total RNA was isolated from 5 x 10^8 E. coli using a competitor's phenol-based RNA extraction reagent. The resulting RNA was then purified using Norgens RNA Clean-Up and Concentration Kit. As controls, total RNA was extracted using both Norgen's Total RNA Purification Kit (#17200, no phenol required) and the phenol-based RNA extraction reagent only without any clean-up. Resolution of 7 µL of the 50 µL purified RNA on a 1X MOPS, 1.5% formaldehyde-agarose gel showed the RNA extracted with phenol was successfully cleaned-up by Norgen's RNA Clean-Up and Concentration Kit without the loss of small RNA species.

Ordering Information

RNA Clean-Up and Concentration Kits	
50 Preps	Cat. 23600
100 Preps	Cat. 43200
2 x 96-Well Plates	Cat. 25100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA CLEAN-UP AND CONCENTRATION MICRO-ELUTE KIT (CAT. 61000)

- Concentration of small amounts of RNA into 8 µL
- Ideal for concentrating RNA samples prior to NGS library preparation
- Concentrate from larger elution volumes to more manageable elution volumes
- Ideal for concentrating RNA purified from exosomes, plasma, serum, urine, and other bodily fluids, and any RNA samples initially purified in large volumes
- Efficient RNA cleanup from enzymatic reactions – labeling, DNase treatment and in vitro transcription
- Cleanup of RNA isolated using different methods, including phenol/chloroform extractions
- Fast and easy processing using rapid spin-column format in 15 minutes
- Suitable for all sizes of RNA, including microRNA (miRNA) without bias
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **EFFICIENT CLEAN-UP** AND **CONCENTRATION** OF **TOTAL RNA**, INCLUDING **MICRORNA**, **WITHOUT PHENOL** FROM **SMALL INPUT VOLUMES.**

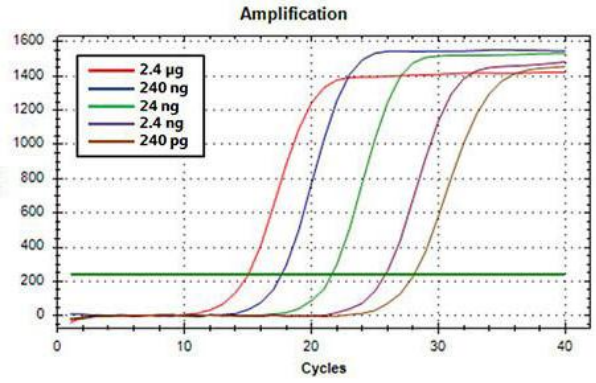

Figure 4. Concentration of miRNA. The indicated amounts of HeLa RNA were concentrated using the RNA Clean-Up and Concentration Micro-Elute Kit. Three microliters of each 8 µL eluate were used in 10 µL RT reactions with the miR-21-SLR primer, followed by real-time PCR using 3 µL of the resulting cDNA and the forward primer specific for miR-21.

Ordering Information

RNA Clean-Up and Concentration Micro-Elute Kit	
50 Preps	Cat. 61000

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SELECT PUBLICATIONS AND APPLICATION NOTES

Total RNA Purification Kits (Cat. 17200, Dx17200, 37500, 17250, 17270), Total RNA Purification Plus Kits (Cat. 48300, 48400), Total RNA Purification Micro Kit (Cat. 35300, 35350), Total RNA Purification Plus Micro Kit (Cat. 48500), Total RNA Purification Maxi Kit (Cat. 26800), Total RNA Purification 96-Well Kits Dx (Cat. 24300, Dx24300, 24350, Dx24350, 24370, 24380, Dx24380)

Paoli, D., Pallotti, F., Nigro, G., Mazzuti, L., Hirsch, M. N., Valli, M. B., ... Lombardo, F. (2021). **Molecular diagnosis of SARS-CoV-2 in seminal fluid.** *Journal of Endocrinological Investigation, 44*(12), 2675–2684.

https://doi.org/10.1007/s40618-021-01580-x

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Single Cell RNA Purification Kit (Cat. 51800)

Li, B. B., Scott, E. Y., Chamberlain, M. D., Duong, B. T., Zhang, S., Done, S. J., & Wheeler, A. R. (2020). **Cell invasion in digital microfluidic microgel systems.** *Science Advances, 6*(29), eaba9589–eaba9589.

https://doi.org/10.1126/sciadv.aba9589

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microRNA Purification Kit (Cat. 21300)

Delfour, O., Michot, B. (2016, April 21). **Methods of detecting lung cancer.** *United States Patent Application 20160108478* Retrieved July 7, 2022.

https://www.freepatentsonline.com/y2016/0108478.html

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Animal Tissue RNA Purification Kit (Cat. 25700)

Alves, G. F., Aimaretti, E., Einaudi, G., Mastrocola, R., de Oliveira, J. G., Collotta, D., ... Collino, M. (2022). **Pharmacological Inhibition of FAK-Pyk2 Pathway Protects Against Organ Damage and Prolongs the Survival of Septic Mice.** *Frontiers in Immunology, 13,* 837180–837180.

https://doi.org/10.3389/fimmu.2022.837180

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Fatty Tissue RNA Purification Kit (Cat. 36200)

Saul, M. ., Zhao, C., Driessen, T. ., Eisinger, B. ., & Gammie, S. . (2015). **MicroRNA expression is altered in lateral septum across reproductive stages.** *Neuroscience, 312,* 130–140.

https://doi.org/10.1016/j.neuroscience.2015.11.019

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Urine Exfoliated Cell RNA Purification Kit (Cat. 22550)

Guelfi, G., Cochetti, G., Stefanetti, V., Zampini, D., Diverio, S., Boni, A., & Mearini, E. (2018). **Next Generation Sequencing of urine exfoliated cells: an approach of prostate cancer microRNAs research.** *Scientific Reports, 8*(1), 7111–7118.

https://doi.org/10.1038/s41598-018-24236-y

SCAN ME WITH YOUR SMART PHONE

Urine microRNA Purification Kit (Cat. 29000)

Pospisilova, S., Pazourkova, E., Horinek, A., Brisuda, A., Svobodova, I., Soukup, V., Hrbacek, J., Capoun, O., Hanus, T., Mares, J., Korabecna, M., Babjuk, M., (2016). **MicroRNAs in urine supernatant as potential non-invasive markers for bladder cancer detection.** *Neoplasma, 63*(05), 799–808.

https://doi.org/10.4149/neo_2016_518

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Urine Total RNA Purification Maxi Kit (Slurry Format) (Cat. 29600, Dx29600, 29650)

Hutchins, E., Reiman, R., Winarta, J., Beecroft, T., Richholt, R., De Both, M., ... Van Keuren-Jensen, K. (2021). **Extracellular circular RNA profiles in plasma and urine of healthy, male college athletes.** *Scientific Data, 8*(1), 276–276.

https://doi.org/10.1038/s41597-021-01056-w

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Microbiome DNA Isolation Kit (Cat. 64100)

Christian, K., Shine, R., Day, K. A., Kaestli, M., Gibb, K., Shilton, C. M., & Brown, G. P. (2021). **First line of defence: Skin microbiota may protect anurans from infective larval lungworms.** *International Journal for Parasitology. Parasites and Wildlife, 14*, 185–189.

https://doi.org/10.1016/j.ijppaw.2021.02.014

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Biofilm DNA Isolation Kit (Cat. 62300)

Rodríguez, J., Mais, L., Campana, R., Piroddi, L., Mascia, M., Gurauskis, J., ... Palmas, S. (2021). **Comprehensive characterization of a cost-effective microbial fuel cell with Pt-free catalyst cathode and slip-casted ceramic membrane.** *International Journal of Hydrogen Energy, 46(51)*, 26205–26223.

https://doi.org/10.1016/j.ijhydene.2021.01.066

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Fungi/Yeast Genomic DNA Isolation Kit (Cat. 27300, 27350)

Sikandar, S., Ujor, V. C., Ezeji, T. C., Rossington, J. L., Michel, F. C., McMahan, C. M., ... Cornish, K. (2017). **Thermomyces lanuginosus STm: A source of thermostable hydrolytic enzymes for novel application in extraction of high-quality natural rubber from Taraxacum kok-saghyz (Rubber dandelion).** *Industrial Crops and Products, 103*, 161–168.

https://doi.org/10.1016/j.indcrop.2017.03.044

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Bacterial Genomic DNA Isolation Kit (Cat. 17900, 17950)

Tao, X., Franasiak, J. M., Zhan, Y., Scott, R. T., Rajchel, J., Bedard, J., ... Chu, T. (2017). **Characterizing the endometrial microbiome by analyzing the ultra-low bacteria from embryo transfer catheter tips in IVF cycles: Next generation sequencing (NGS) analysis of the 16S ribosomal gene.** *Human Microbiome Journal, 3*, 15–21.

https://doi.org/10.1016/j.humic.2017.01.004

SCAN ME WITH YOUR SMART PHONE

Phage DNA Isolation Kit (Cat. 46800, 46850)

Nepal, R., Houtak, G., Karki, S., Dhungana, G., Vreugde, S., & Malla, R. (2022). **Genomic characterization of three bacteriophages targeting multidrug resistant clinical isolates of Escherichia, Klebsiella and Salmonella.** *Archives of Microbiology, 204(6)*, 334–334.

https://doi.org/10.1007/s00203-022-02948-0

SCAN ME WITH YOUR SMART PHONE

Milk DNA Preservation And Isolation Kit (Cat. 44800)

Lackey, K. A., Williams, J. E., Price, W. J., Carrothers, J. M., Brooker, S. L., Shafii, B., ... McGuire, M. K. (2017). **Comparison of commercially-available preservatives for maintaining the integrity of bacterial DNA in human milk.** *Journal of Microbiological Methods, 141*, 73–81.

https://doi.org/10.1016/j.mimet.2017.08.002

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Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format) (Cat. 50900)

Tritten, L., Burkman, E., Moorhead, A., Satti, M., Geary, J., Mackenzie, C., & Geary, T. (2014). **Detection of circulating parasite-derived microRNAs in filarial infections.** *PLoS Neglected Tropical Diseases, 8*(7), e2971–e2971.

https://doi.org/10.1371/journal.pntd.0002971

SCAN ME WITH YOUR SMART PHONE

Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format) (Cat. 29500)

Moufarrej, M. N., Vorperian, S. K., Wong, R. J., Campos, A. A., Quaintance, C. C., Sit, R. V., ... Quake, S. R. (2022). **Early prediction of preeclampsia in pregnancy with cell-free RNA.** *Nature (London), 602*(7898), 689–694.

https://doi.org/10.1038/s41586-022-04410-z

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GENOMIC DNA ISOLATION KITS
(CAT. 24700, 24750, 24770)

- 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

FOR THE **ISOLATION** OF **GENOMIC DNA** FROM ANIMAL TISSUES, CELLS, BODILY FLUIDS, VIRUS AND SWABS

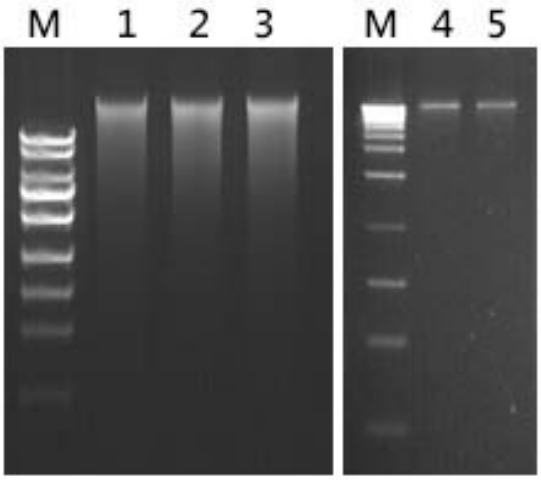

Figure 1. Isolation of High Quality Genomic DNA. Genomic DNA was isolated from various sample types using Norgen's Genomic DNA Isolation Kit. Lanes 1-3 contain genomic DNA that was isolated from four different samples containing 5 x 10^5 HeLa cells, while lanes 4 and 5 contain genomic DNA that was isolated from 5 mg of heart tissue. All the purified genomic DNA 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.

Ordering Information

Genomic DNA Isolation Kits	
50 Preps	Cat. 24700
100 Preps	Cat. 24750
250 Preps	Cat. 24770

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELLS AND TISSUE DNA ISOLATION KIT
(CAT. 53100)

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

FOR THE **RAPID PREPARATION** OF **GENOMIC DNA** FROM CULTURED CELLS AS WELL AS VARIOUS TISSUE SAMPLE

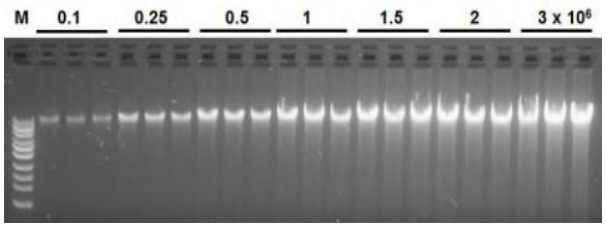

Figure 1. Isolation of High Quality Genomic DNA from 0.1 up to 3 million mammalian cells. Genomic DNA was isolated from 0.1 x 10^6 to up to 3 million HeLa cells using Norgen's Cells and Tissue DNA Isolation Kit. Triplicate samples were used from each cell input and yielded genomic DNA of the highest quality and integrity with linear increase in yield with increasing cell input. Lane M is the Norgen UltraRanger 1kb DNA Ladder. For all purified DNA, 15 µL of each 200 µL elution were resolved on a 1X TAE, 1% agarose DNA gel.

Ordering Information

Cells and Tissue DNA Isolation Kit	
50 Preps	Cat. 53100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELLS AND TISSUE DNA ISOLATION MICRO KIT (CAT. 57300)

- DNA is eluted in small elution volumes (20 – 40 µL)
- Fast and easy processing using a rapid spin-column format
- Isolate high quality genomic DNA

OPTIMIZED FOR **SMALL INPUTS OF CELLS AND TISSUES**, SUCH AS LASER-CAPTURED MICRODISSECTION (LCM)

Kit Specifications

Cells and Tissue DNA Isolation Micro Kit	
Maximum Tissue Input	3 mg animal tissue Up to 150 µL of viral suspension 5 x 10^5 cells
Column Loading Capacity	> 750 µL
Elution Volume	20 - 40 µL
Analyte Purified	Genomic DNA, mito-chondrial DNA, viral DNA
Time to Complete Purification	60 minutes

Ordering Information

Cells and Tissue DNA Isolation Micro Kit	
50 Preps (Micro)	Cat. 57300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELLS AND TISSUE DNA ISOLATION KITS (MAGNETIC BEAD SYSTEM) (CAT. 59100, 62500)

- Fast, reproducible and easy processing using a magnetic bead system
- Isolate high quality genomic DNA
- Recovered genomic DNA is compatible with various downstream applications
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid high throughput method to isolate genomic DNA

ISOLATE **GENOMIC DNA** FROM **CULTURED CELLS** AS WELL AS VARIOUS TISSUE TYPES

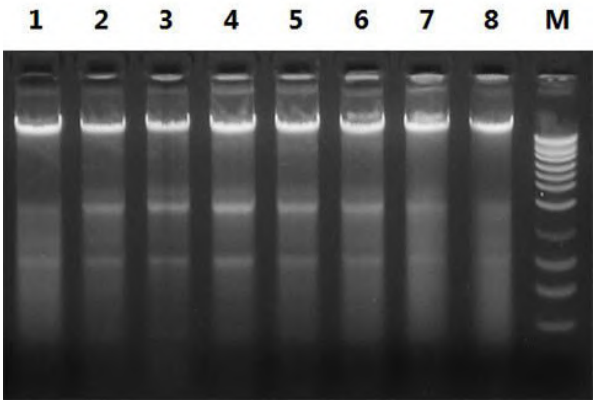

Figure 1. DNA was Isolated from 1 x 10^6 HeLa Cells Using Norgen's Cells and Tissue DNA Isolation 96-Well Kit (Magnetic Bead System). For evaluation, 10 µL from each 100 µL of elution were run on 1X TAE 1.2% agarose gel. As it can be seen, Norgen's Cells and Tissue DNA Isolation 96-Well Kit (Magnetic Bead System) was able to isolate consistent and high yields of DNA from HeLa cells. M = Norgen's HighRanger DNA Ladder (Cat. 11900).

Ordering Information

Cells and Tissue DNA Isolation Kits (Magnetic Bead System)	
50 Preps	Cat. 59100
2 x 96-Well Plates	Cat. 62500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FFPE DNA PURIFICATION KITS
(CAT. 47400, Dx47400)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx47400)
- Intended for *in vitro* diagnostic use
- 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

FOR THE **RAPID AND EFFICIENT** EXTRACTION AND PURIFICATION OF **DNA** FROM **FFPE SAMPLES**

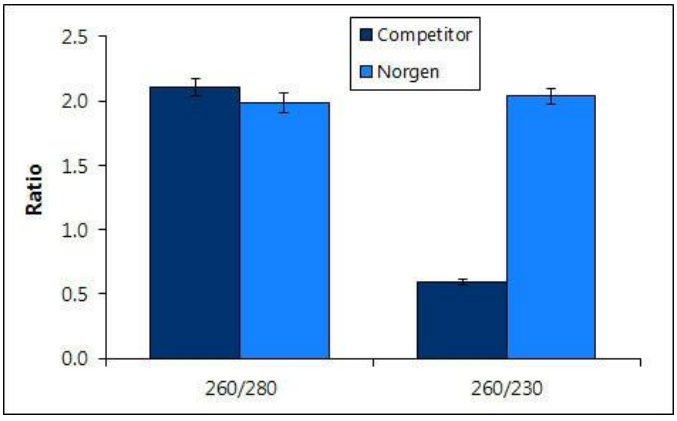

Figure 1. Comparison of DNA Quality Isolated by Norgen's FFPE DNA Kit and a Leading Competitor's FFPE DNA Purification Kit. DNA was isolated from 10 mg of FFPE kidney blocks. Quality was assessed using A260:A280 and A260:A230 ratios generated from the NanoVue spectrophotometer (GE Healthcare). While 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

FFPE DNA Purification Kits	
50 Preps	Cat. 47400
50 Preps	Cat. Dx47400 CE

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

MICROBIOME DNA ISOLATION KIT
(CAT. 64100)

- For use with samples collected using a swab - fresh, frozen or preserved in Norgen's **Swab Collection and DNA Preservation System** or Norgen's **Fecal Swab Collection and Preservation System**
- Rapid and convenient spin-column format
- Remove all PCR inhibitors from DNA samples
- Isolate high quality total DNA for PCR and NGS applications (Microbiome/Metagenomic sequencing)
- Optimized to isolate from the full preservative volume of the **Swab Collection and DNA Preservation System** for maximum yield

UNIVERSAL **METHOD TO ISOLATE AND DETECT** MICROORGANISMS AND HOST CELLS SIMULTANEOUSLY

Kit Specifications

Microbiome DNA Isolation Kit	
Maximum Sample Input	1 mL of preserved swab sample* or up to 0.5 mL preserved samples**
Swab Samples Tested	Fecal, saliva, buccal, food, nasal, blood, surface, skin
Maximum Column Binding Capacity	50 µg
Maximum Column Loading Volume	650 µL
Time to Complete 10 Purifications	30 minutes

Ordering Information

Microbiome DNA Isolation Kit	
50 Preps	Cat. 64100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

BIOFILM DNA ISOLATION KIT
(CAT. 62300)

- Rapid and convenient method to isolate genomic DNA from different types of biofilm and biofilm forming-bacteria
- Yields high quality DNA that is ready for PCR and other downstream applications

NO **PHENOL** OR **CHLOROFORM EXTRACTIONS**

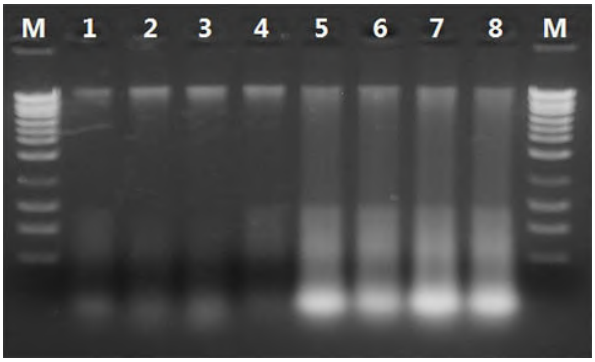

Figure 1. High quality and yield of DNA from biofilm formed by two different species, Komagataeibacter xylinus (1-4), Komagataeibacter hansenii (5-8). Total DNA was isolated from 200 mg of biofilm using Norgen's Biofilm DNA Isolation Kit. For evaluation, 10 µL of each 100 µL DNA elution was run on a 1.2 % agarose gel. Note the high yield and quality of the DNA in all lanes. Lane M: Norgen's HighRanger 1 kb DNA Ladder (Cat. 11900).

Ordering Information

Biofilm DNA Isolation Kit	
50 Preps	Cat. 62300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FUNGI/YEAST GENOMIC DNA ISOLATION KITS
(CAT. 27300, 27350)

- Rapid spin column purification of genomic DNA from viable yeast cells, fungal spores or mycelium, and bacteria including Gram-positive
- Bead tubes (provided) allow for effective mechanical homogenization
- Purified DNA is of high quality and integrity and compatible with any sensitive downstream applications such as PCR, qPCR, RFLP and more
- Available in spin column format and 96-well format for rapid high throughput applications

FOR **THE RAPID PURIFICATION OF DNA** FROM YEAST CELLS AND FUNGAL SPORES OR MYCELIUM

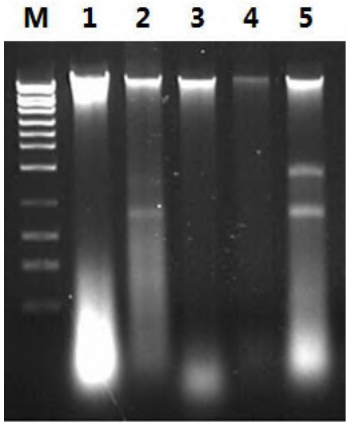

Figure 1. DNA Isolation from Different Fungi Species and Yeast. To demonstrate the purification of DNA from different fungal species, 30 mg of fungi were collected from plate cultures of Pichia sp, Aspergillus niger, Cladosporium cladasporioides, Botrytis cinerea and Mucor racemosus, and the DNA was extracted using Norgen's Fungi/Yeast Genomic DNA Isolation Kit. The bead system efficiently lysed the fungal cell walls with the provided Lysis Solution, and total DNA was eluted in 100 µL. For analysis, 10 µL from each elution was loaded in 1% 1xTAE agarose gel. Lane 1: Yeast (Pichia sp.), Lane 2: Aspergillus Niger; Lane 3: Cladosporium cladosporioides; Lane 4: Botrytis cinerea; Lane 5: Mucor racemosus; Lane M: Norgen's HighRanger 1kb DNA Ladder. The optional RNase treatment was not performed during the process.

Ordering Information

Fungi/Yeast Genomic DNA Isolation Kits	
50 Preps	Cat. 27300
2 x 96-Well Plates	Cat. 27350

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLANT/FUNGI DNA ISOLATION KITS
(CAT. 26200, 26250, 26900)

- Rapid and simple procedure
- Excellent quality and yield of DNA
- Process a broad spectrum of plant species and filamentous fungi
- Isolate total DNA including pathogen DNA without phenol
- Available in spin column format and 96-well format for high throughput applications

FOR **RAPID ISOLATION OF TOTAL DNA FROM PLANTS AND FUNGI**

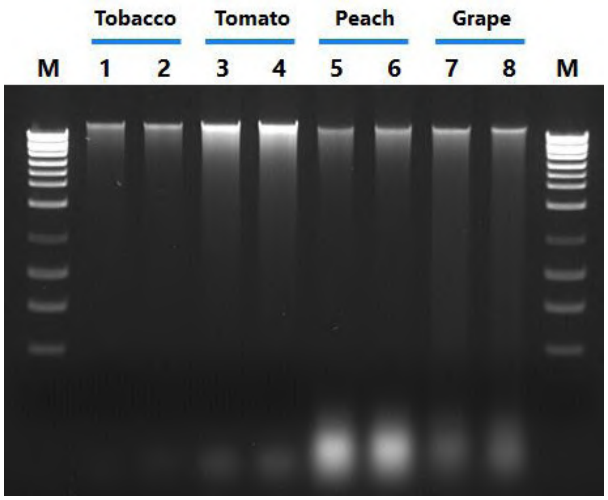

Figure 1. Isolate DNA from a Wide Range of Plants. DNA was isolated from 50 mg samples of tobacco leaves (Lanes 1 and 2), tomato leaves (lanes 3 and 4), peach leaves (Lanes 5 and 6) and grape leaves (lanes 7 and 8) using Norgen's Plant/Fungi DNA Isolation Kit, and 5 µL aliquots of the 100µL elutions were run on a 1x TAE 1% agarose gel. As it can be seen, high quality DNA was isolated in all cases. The M lanes contain Norgen's HighRanger 1Kb DNA Ladder.

Ordering Information

Plant/Fungi DNA Isolation Kits	
50 Preps	Cat. 26200
250 Preps	Cat. 26250
2 x 96-Well Plates	Cat. 26900

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLANT DNA ISOLATION KITS (MAGNETIC BEAD SYSTEM) (CAT. 58200, 62400)

- Robust lysis system (chemical lysis combined with a mechanical homogenization)
- High yields - Consistent, high yields of inhibitor-free DNA up to 50 kb plus
- Isolate high quality total DNA from a variety of plant species, including any pathogen DNA
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid, high throughput method to isolate genomic DNA

FAST AND EASY PROCESSING USING A MAGNETIC BEAD SYSTEM

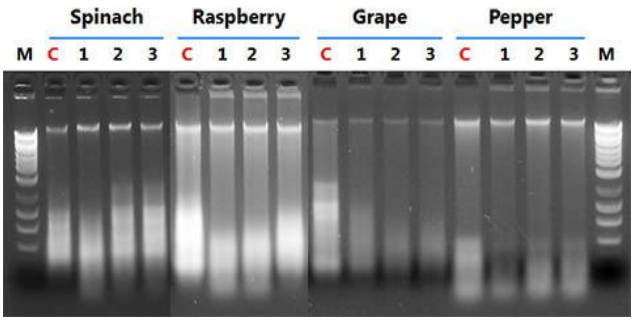

Figure 1. Resolution of DNA isolated from four different plant species. DNA was isolated from four different plant species using Norgen's Plant DNA Isolation Kit (Magnetic Bead System) and Norgen's Plant/Fungi DNA Isolation Kit (column format, Cat. 26200). For evaluation, 10 µL from 75 µL of elution were run on 1X TAE 1.2% agarose gel. Excellent DNA integrity and yield were observed from the Plant DNA Isolation Kit (Magnetic Bead System) (Lanes 1 to 3), indicating the robust performance comparable to the column based method (Red C). Marker = Norgen's HighRanger DNA Ladder.

Ordering Information

Plant DNA Isolation Kit (Magnetic Bead System) Kits	
50 Preps	Cat. 58200
2 x 96-Well Plates	Cat. 62400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

OLIVE OIL DNA ISOLATION KIT
(CAT. 61700)

- Isolate total DNA without compromising total yield
- No phenol or chloroform extractions
- Isolate high quality total DNA from a variety of oil samples

FAST AND EASY PROCESSING USING A RAPID SPIN-COLUMN FORMAT

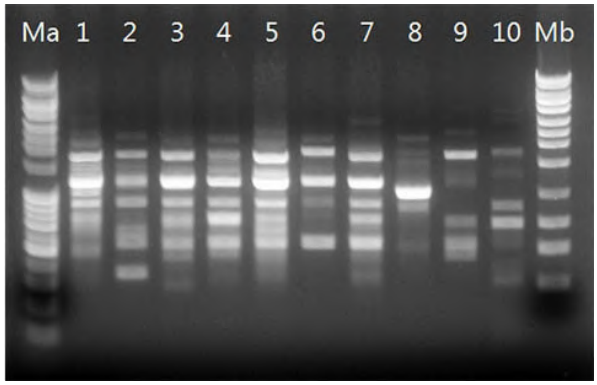

Figure 1. Random Amplified Polymorphic DNA (RAPD) Analysis of 10 Food Oil Products. Inputs of 0.5 mL of oil were processed using Norgen's Olive Oil DNA Isolation Kit,and 5 µL of the 40 µL eluted DNA was used in 20 µL of RAPD reaction. The RAPD pattern indicates successful RAPD amplification with high DNA quality. Ma: Norgen's UltraRanger 1 kb DNA Ladder (Cat. 12100), Mb: HighRanger 1 kb DNA Ladder (Cat. 11900).

Ordering Information

Olive Oil DNA Isolation Kit	
50 Preps	Cat. 61700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SOIL DNA ISOLATION PLUS KITS
(CAT. 64000, 64060, 62000, 26560)

- Process all soil types including clay, loam, sandy soils and high humic content soils such as peat, compost and manure
- Rapid and convenient method to detect microorganisms in up to 10 g of soil samples
- Remove all humic acid from DNA samples using the Maxi Humic Acid Removal Columns
- Remove organic substances using the OSR Solution
- Fast and easy processing using a rapid spin-column format
- Isolate high quality total DNA from a variety of microorganisms including bacteria, fungi and algae
- Isolate high quality total DNA from all soil types - ready for any downstream PCR, qPCR
- Available in spin column format and 96-well format for high throughput applications
- Also available in fast and easy high throughput processing using either a vacuum manifold or centrifugation
- Excellent DNA for metagenomic studies
- No phenol or chloroform extractions

RAPID AND CONVENIENT METHOD TO DETECT MICROORGANISMS IN SOIL SAMPLES

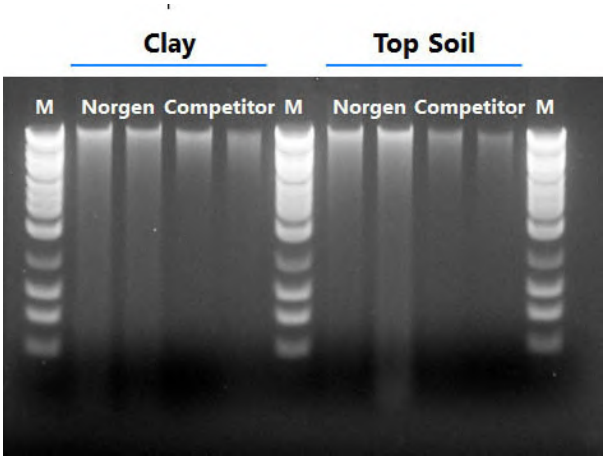

Figure 1. Comparison of DNA Yield from Top Soil and Clay Samples. Norgen's Soil DNA Isolation Plus Kit (Cat. 64000) and Competitor M's kit were used to isolate DNA from 250 mg of top soil and clay samples. Following isolation, 10 µL from each 100 µL elution was loaded on 1% TAE agarose gel. Lane M: Norgen's HighRanger 1kb DNA Ladder.

Ordering Information

Soil DNA Isolation Plus Kits	
50 Preps	Cat. 64000
100 Preps	Cat. 64060
10 Preps (Maxi)	Cat. 62000
2 x 96-well plates	Cat. 26560

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SOIL DNA ISOLATION KITS (MAGNETIC BEAD SYSTEM) (CAT. 58100, 62800)

- Robust lysis system (chemical lysis combined with a mechanical homogenization)
- Isolate high quality genomic DNA
- High yields - Consistent, high yields of inhibitor-free DNA up to 50 kb plus
- Isolate sequencing quality total DNA from a variety of microorganisms including bacteria, fungi and algae
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid, high throughput method to isolate genomic DNA

FAST AND EASY PROCESSING USING A MAGNETIC BEAD SYSTEM

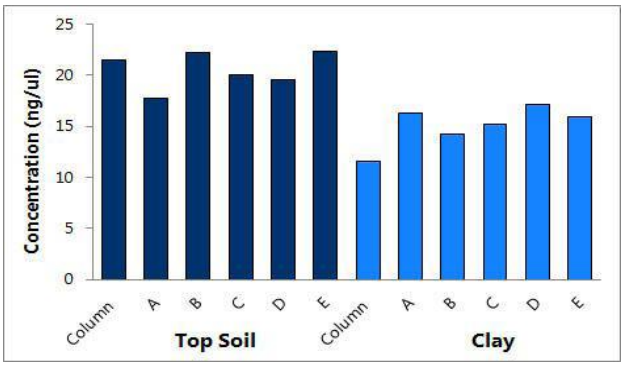

Figure 1. Two of Norgen's soil DNA isolation methods (Column vs Magnetic Bead System) were compared for DNA concentration. All DNA elutions isolated using Norgen's Soil DNA Isolation Kit (Magnetic Bead System) [A to E] showed a comparable DNA concentration to Norgen's Soil DNA Isolation Kit (Column Method; Cat. 26500), indicating the consistent and robust performance of the Soil DNA Isolation Kit (Magnetic Bead System).

Ordering Information

Soil DNA Isolation Kit (Magnetic Bead System) Kits	
50 Preps	Cat. 58100
2 x 96-Well Plates	Cat. 62800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

BACTERIAL GENOMIC DNA ISOLATION KITS
(CAT. 17900, 17950)

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

FOR THE **RAPID PREPARATION** OF **GENOMIC DNA** FROM BACTERIA

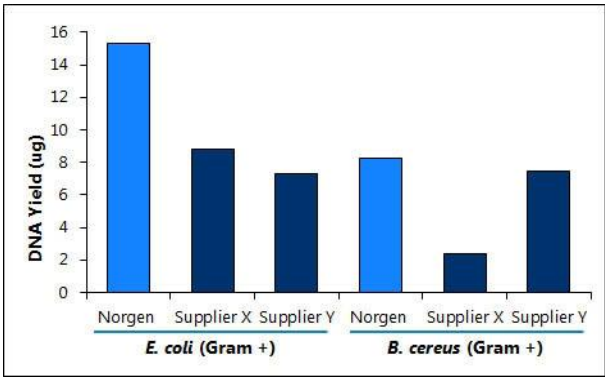

Figure 1. High Yield Purification. The high yield of Norgen's Bacterial Genomic DNA Isolation Kit is illustrated by purifying genomic DNA from 1 mL overnight culture (1 x 10^9 cells) of both a Gram positive (B. cereus) and a Gram negative strain (E. coli), and comparing the yield with two major competitors. The quantification of the DNA yield was performed by resolving 5 µL of the 200 µL 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 competitor's kits.

Ordering Information

Bacterial Genomic DNA Isolation Kits	
50 Preps	Cat. 17900
2 x 96-Well Plates	Cat. 17950

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PHAGE DNA ISOLATION KITS
(CAT. 46800, 46850)

- Isolate high quality DNA from a broad variety of phage strains
- High yields of total DNA
- Fast and easy processing using a rapid spin-column format
- No phenol or chloroform extractions or cesium chloride banding required

FOR THE **RAPID PURIFICATION** OF **TOTAL DNA FROM BACTERIOPHAGES**

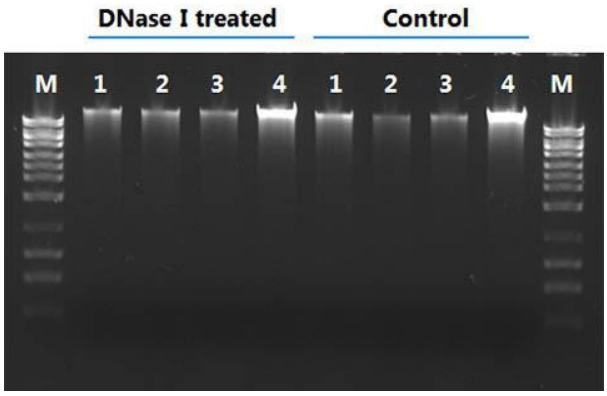

Figure 1. Effective Host Genomic DNA Removal without Reducing Phage DNA Yield. Total DNA was isolated from four enriched phage cultures using Norgen's Phage DNA Isolation Kit. A DNase I pre-treatment was performed prior to adding the provided Lysis Buffer. Briefly, 20 units of DNase I was added to 1 mL of enriched phage culture and the mixture was incubated at room temperature for 20 minutes. After the DNAase 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 µL of each 50 µL 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) from as little as a single HeLa cell.

Ordering Information

Phage DNA Isolation Kits	
50 Preps	Cat. 46800
100 Preps	Cat. 46850

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

DIRECT DNA EXTRACTION KIT (BACTERIA) (CAT. 61500)

- Easy and convenient protocol
- Reproducible
- Rapid procedure

APPLICABLE FOR **HIGH THROUGHPUT DETECTION** PLATFORMS

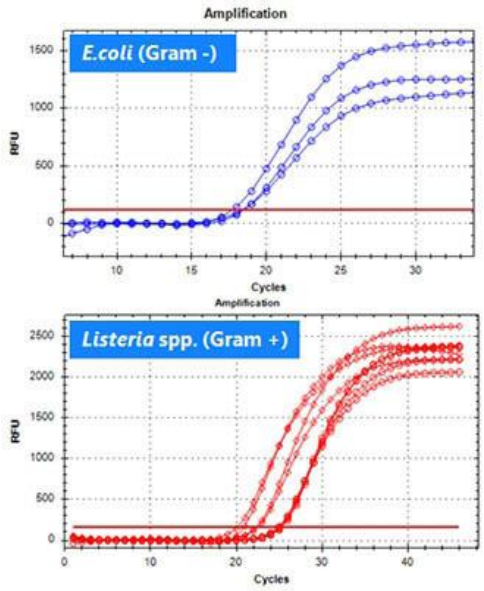

Figure 1. Detection of Gram negative (E.coli) and Gram positive (Listeria spp.) bacteria using Norgen's Direct DNA Extraction Kit (Bacteria) in real-time PCR system. Two microlitres of the clean supernatant was directly added to a PCR reaction (total 20 µL) to detect 16s rRNA target or Listeria spp. 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

Direct DNA Extraction Kit (Bacteria)	
50 Preps	Cat. 61500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SYNOVIAL FLUID BACTERIAL GENOMIC DNA PURIFICATION KIT (CAT. 67900)

- Rapid and convenient spin column protocol
- Purified bacterial gDNA has a minimal host gDNA contamination
- High yield, high quality DNA for sensitive downstream applications including sequencing, PCR, qPCR and more

ISOLATE **GENOMIC DNA** FROM ALL TYPES OF BACTERIA **(BOTH GRAM-POSITIVE AND GRAM-NEGATIVE)**

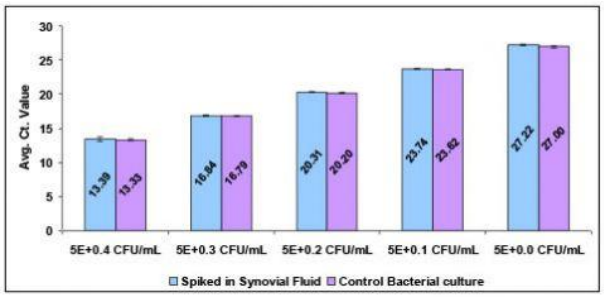

Figure 1. Isolation and Detection of the Gram +Ve *S. Aureus* Bacterial Genomic DNA from 1 mL of spike-in Synovial fluid. Genomic DNA was isolated from 1 mL synovial fluid spiked with a serially diluted Gram +Ve *S. Aureus* using Norgen's Synovial Fluid Bacterial genomic DNA Purification Kit. The efficiency of the purified bacterial gDNA from the spiked-in synovial fluid was evaluated against the gDNA isolation from pure culture containing the same amount of *S. Aureus* spiked in 1mL synovial fluid. The purified gDNA was subsequently detected using quantitative PCR. All serially diluted spiked-in Gram +Ve *S. Aureus* was purified with high efficiency from 1mL synovial fluid as compared to the amplification of *S. aureus* from pure culture. The limit of detection for the Gram +Ve *S. Aureus* was down to 5 CFU/mL.

Ordering Information

Synovial Fluid Bacterial Genomic DNA Purification Kit	
50 Preps	Cat. 67900

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

MILK BACTERIAL DNA ISOLATION KIT (CAT. 21550)

- 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
- Can process challenging samples such as mastitic milk
- Inhibitor-free DNA is ready for PCR, qPCR, Southern Blot, sequencing & more
- Fast and efficient spin-column format

FOR THE **RAPID PURIFICATION** OF **GENOMIC DNA** FROM VARIOUS **BACTERIAL SPECIES FOUND IN MILK**

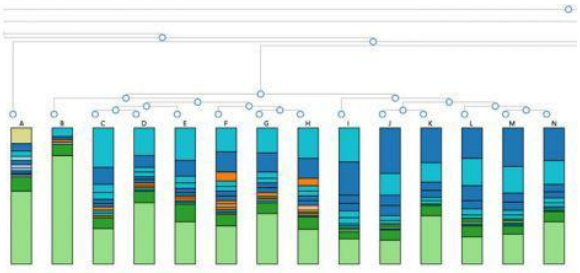

Figure 1. Hierarchial Clustering Dendrogram of Milk Related Microorganisms Found in Milk Samples. DNA was isolated using Norgens Milk Bacterial DNA Isolation Kit and the 16S Metagenomic Sequencing Library was prepared according to the Illumina MiSeq System. This dendogram shows a hierarchial clustering of samples based on genus-level classifications. The barchart beneath each sample shows the relative abundance of its genus-level classifications.

Ordering Information

Milk Bacterial DNA Isolation Kit	
50 Preps	Cat. 21550

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

MILK DNA PRESERVATION AND ISOLATION KIT (CAT. 44800)

- Milk samples are stable for 1 month at room temperature (or 1 week at 37°C) in the Preservation Solution
- Fast and easy processing using a rapid spin-column format
- DNA can be isolated and detected from as little as 100 µL of milk
- Isolate high quality genomic DNA

A **RAPID ALL-IN-ONE PROCEDURE** FOR THE PRESERVATION AND ISOLATION OF MILK DNA AT AMBIENT TEMPERATURES.

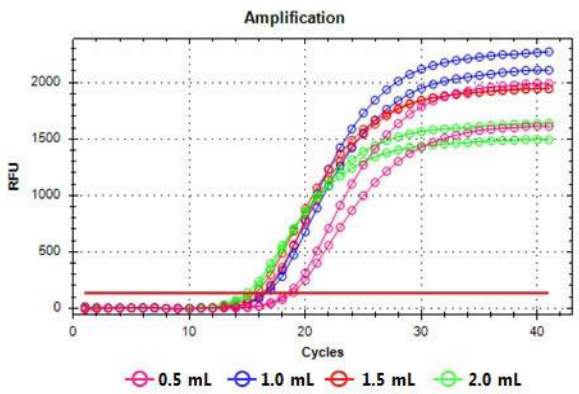

Figure 1. Amplification of 16s rRNA Gene From Different Volumes of Preserved Milk. E.coli was spiked into the preserved milk and the DNA was then isolated using Norgen's Milk DNA Preservation and Isolation Kit (Cat. 44800). Two microlitres of the 100 µL isolated DNA were used in a 20 µL qPCR reaction using TaqMan 16s rRNA qPCR. No PCR inhibition was observed from all milk DNA isolated from the different preserved milk volumes (Pink: 0.5 mL, Blue: 1 mL, Red: 1.5 mL and Green: 2 mL), indicating the high quality of milk DNA.

Ordering Information

Milk DNA Preservation and Isolation Kit	
25 Preps	Cat. 44800

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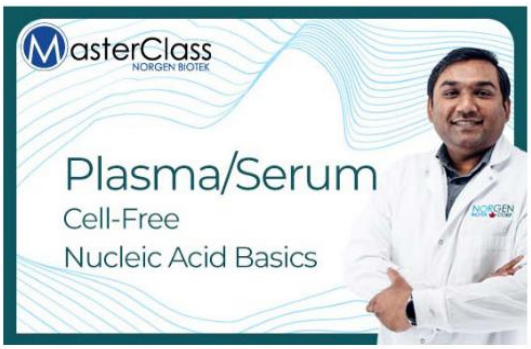
For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

MasterClass
NORGEN BIOTEK

Norgen Biotek's MasterClass Webinars cover a wide variety of topics and sample types. View them anytime on-demand for free.



Learn About:

- Urine Exosomes
- Stool RNA/DNA
- Plasma/Serum Cell-Free Nucleic Acids
- And so much more!

FOOD DNA ISOLATION KIT
(CAT. 54500)

- 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)

FOR **THE ISOLATION OF DNA DIRECTLY FROM FOOD** OR FROM **ENRICHED MICROORGANISMS**

Kit Specifications

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

Ordering Information

Food DNA Isolation Kit	
50 Preps	Cat. 54500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

BLOOD DNA ISOLATION KITS
(CAT. 46300, Dx46300, 46380, 51400, 31200, 46350)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx46300)
- Input volumes from 200 µL to 10 mL
- High yield and high quality DNA ready for any application
- DNA is of excellent yield and quality
- Fast and convenient spin column protocol

FOR THE RAPID PREPARATION OF HIGH QUALITY DNA FROM WHOLE BLOOD

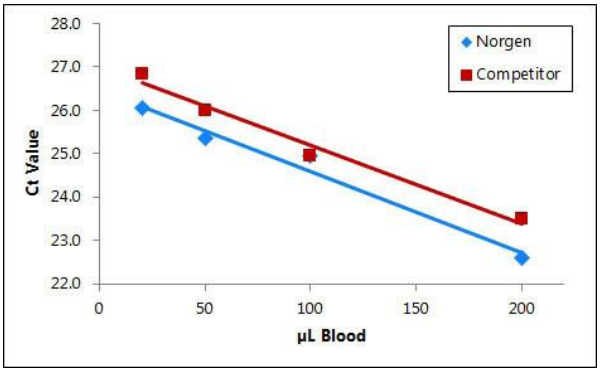

Figure 1. Purified DNA Can be Amplified in a Real-time PCR (TaqMan) Reaction. DNA was isolated from 20, 50, 100 and 200 µL of whole human blood using Norgen's Blood DNA Isolation Mini Kit (Blue) and a leading competitor's kit (Red). Nine µL of the DNA from each 200 µL of elution was used in a real-time PCR reaction (total reaction volume of 20 µL) with GAPDH TaqMan probe and primers. The real-time PCR was successful in amplifying the GAPDH gene, with a linear decrease in Ct value with the increase in blood input volume, indicating that the DNA is of a high quality and can be used in sensitive downstream applications. Furthermore, Norgen-isolated DNA was amplified with a lower Ct value from all DNA isolated from the different blood input volumes, indicating the higher yield and purity of DNA isolated using Norgen's kit.

Ordering Information

Blood DNA Isolation Kits	
50 Preps (Mini)	Cat. 46300
50 Preps (Mini)	Cat. Dx46300 CE
100 Preps (Mini)	Cat. 46380
20 Preps (Midi)	Cat. 51400
12 Preps (Maxi)	Cat. 31200
2 X 96-Well Plates	Cat. 46350

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

BLOOD DNA ISOLATION KITS (MAGNETIC BEAD SYSTEM) (CAT. 59800, 62600)

- High yield and high purity DNA ready for any application
- Available in a variety of formats to properly suit your needs
- Compatible with blood collected on a variety of commercially available tubes

FAST, REPRODUCIBLE AND EASY PROCESSING USING A MAGNETIC BEAD SYSTEM

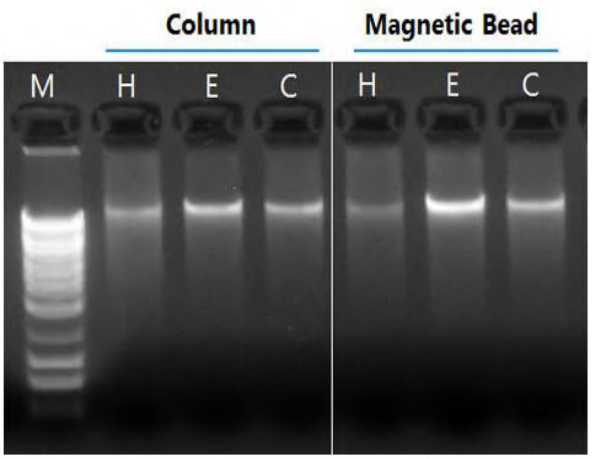

Figure 1. DNA Isolated from Blood Preserved in 3 Different Anticoagulants. DNA was isolated from 200 µL of human whole blood samples preserved in three different anticoagulants (Heparin: H, EDTA: E and Na Citrate: C) using Norgen's Blood DNA Isolation Kit (Magnetic Bead System) and Norgen's Blood DNA Isolation Mini Kit (column format, Cat. 46300). For evaluation, 10 µL from each 200 µL of elution were run on 1X TAE 1.2% agarose gel. Norgen's Blood DNA Isolation Kit (Magnetic Bead System) showed an intact and comparable DNA profile to the column method from all three different anticoagulant mixed blood samples. Marker = Norgen's HighRanger DNA Ladder.

Ordering Information

Blood DNA Isolation Kits	
50 Preps	Cat. 59800
2 x 96-Well Plates	Cat. 62600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

DRIED BLOOD SPOT (DBS) DNA ISOLATION KIT (CAT. 36000)

- High quality DNA, free from RNA contamination
- Isolate genomic DNA from anticoagulated and untreated blood
- Rapid and convenient spin column procedure
- Isolate DNA from inputs as low as 20 µL

RAPID PREPARATION OF TOTAL DNA FROM DRIED BLOOD SPOTS

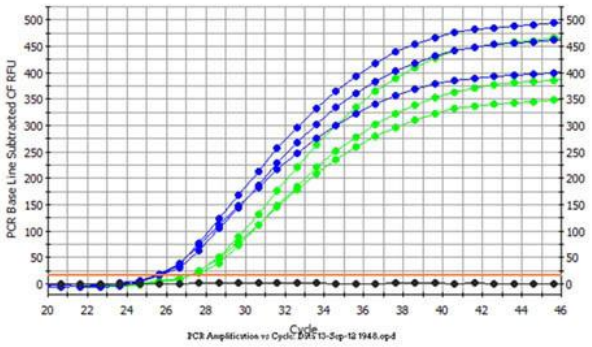

Figure 1. Purified DNA can be Amplified in a Real-time PCR (TaqMan) Reaction. DNA was isolated from 3 x 3 mm diameter circles per sample using Norgen's Dried Blood Spot DNA Isolation Kit. Next, 3 µL (green line) & 9 µL (blue line) of the DNA from each of the 150 µL elutions was used in a real-time PCR reaction (total reaction volume of 20 µL) with GAPDH TaqMan probe and primers. The real-time PCR was successful in amplifying the GAPDH gene, indicating that the DNA is of a high quality and can be used in sensitive downstream applications. The black line is a no-template control.

Ordering Information

Dried Blood Spot (DBS) DNA Isolation Kit	
50 Preps	Cat. 36000

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE DNA ISOLATION KIT (CAT. 18100)

- Rapid isolation of both small and large species of DNA from urine
- Convenient spin column format
- Effective removal of PCR inhibitors
- Purified DNA is highly suited to sensitive downstream applications
- Allows for the purification of viral DNA from urine
- Small urine input ranging from as low as 50 µL to 1.75 mL

FAST AND RELIABLE PURIFICATION OF GENOMIC AND APOPTOTIC DNA FROM URINE

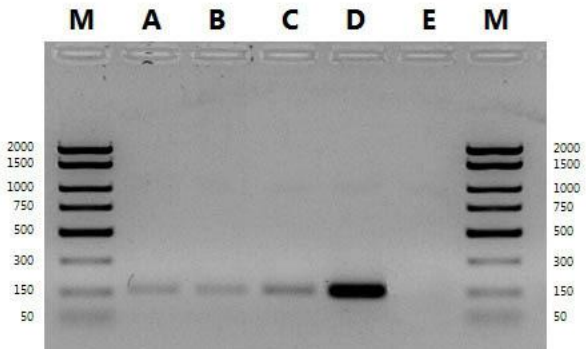

Figure 1. Circulating DNA Isolated from Urine can be used as the Template in PCR Reactions. Total urinary DNA was isolated from three different 1.5 mL urine samples using Norgen's Urine DNA Isolation Kit. The bind, wash and elute procedure was performed, and the purified DNA was eluted into two separate elutions of 100 µL (E1) and 75 µL (E2). Five microliters of each elution was then used as a template in a PCR reaction to amplify the K-ras gene. Lanes A-C contain the expected 157 bp product, and correspond to the first elution from each sample. Lane D is the positive control of 293 HEK DNA and shows the expected 157 bp product, while Lane E is the negative control. Lane M is Norgen's FastRunner DNA Ladder.

Ordering Information

Urine DNA Isolation Micro Kit	
50 Preps	Cat. 18100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE DNA ISOLATION KITS (SLURRY FORMAT)
(CAT. 48800, Dx48800)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx48800)
- Ideal for use in *in vitro* diagnostic workflows
- Unlike other methods, Norgen's Urine DNA Isolation Kit (Slurry Method) does not require any additional urine concentrating devices
- Fast processing time
- Purify both genomic and apoptotic DNA with one protocol
- Isolate DNA from 3 mL to 25 mL of urine
- Allows for purification of viral DNA

FAST, RELIABLE ISOLATION OF URINE DNA FROM **3 ML** TO **25 ML** SAMPLES

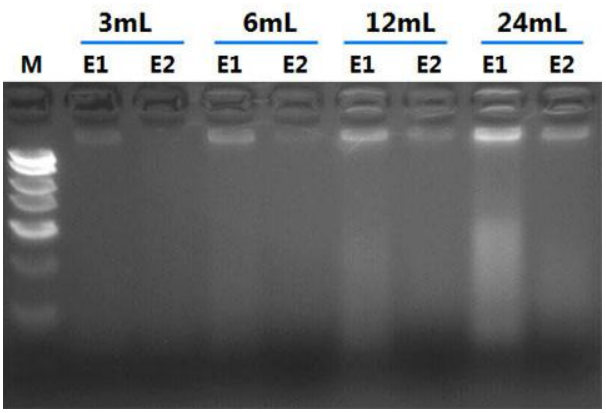

Figure 1. Typical Agarose Gel Showing Total Urinary DNA Isolated from Different Urine Volumes using Norgen's Urine DNA Isolation Kit (Slurry Format). Total urinary DNA was isolated from 3 mL, 6 mL, 12 mL and 24 mL of urine. Total urinary DNA was isolated from each urine sample according to the isolation protocol that is optimized for different sample volumes. The isolated DNA was eluted into two separate elutions (E1 and E2). The purified urine DNA was then loaded onto a 1.5% agarose gel. Each lane shows one tenth from each elution. It can be seen that the first elution contains most of urinary DNA whereas the second elution contains the rest of the urinary DNA isolated. Lane M is 10 µL of Norgen's FastRunner DNA Ladder.

Ordering Information

Urine DNA Isolation Kits (Slurry Format)	
50 Preps	Cat. 48800
50 Preps	Cat. Dx48800 CE

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE DNA ISOLATION MAXI KIT (SLURRY FORMAT) (CAT. 50100)

- Does not require any additional urine concentrating devices
- Fast processing time
- Purify both genomic and apoptotic DNA with one protocol
- Isolate DNA from 25 mL to 80 mL of urine
- Also allows for purification of viral DNA from urine

FAST, RELIABLE ISOLATION OF URINE DNA FROM 25 ML TO 80 ML SAMPLES

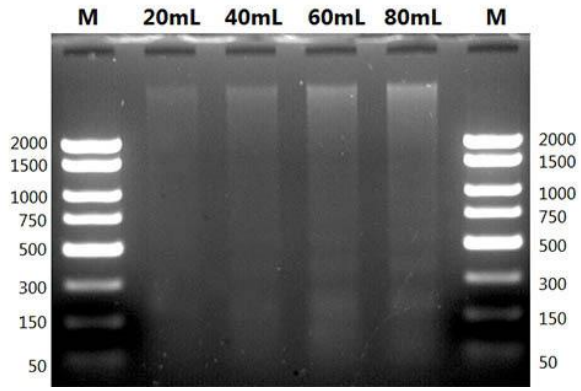

Figure 1. Typical Agarose Gel Showing Total Urinary DNA Isolated from Different Urine Volumes using Norgen's Urine DNA Isolation Maxi Kit (Slurry Format). Total urinary DNA was isolated from 20 mL, 40 mL, 60 mL and 80 mL of urine. Total urinary DNA was isolated from each urine sample according to the isolation protocol that is optimized for different sample volumes. The isolated DNA was eluted, and was then loaded onto a 1.8% agarose gel. Each lane shows 1/10 from each elution. It can be seen that urine DNA is increasing linearly with the urine input volume. It should also be noted that the circulating DNA started to appear in the form of ladder with the increase of the urine sample input. Lane M is 10 µL of Norgen's FastRunner DNA Ladder.

Ordering Information

Urine DNA Isolation Maxi Kit (Slurry Format)	
50 Preps	Cat. 50100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE DNA ISOLATION KIT FOR EXFOLIATED CELLS OR BACTERIA (CAT. 47050)

- Isolate genomic DNA from either exfoliated cells or bacteria found in urine
- Isolate and detect genomic DNA from as little as 1 mL of urine and up to 50 mL urine
- High quality DNA for sensitive applications
- Rapid processing time

FOR THE **RAPID** AND **EFFICIENT PURIFICATION** OF **DNA** FROM **EXFOLIATED CELLS** OR **BACTERIA** IN **URINE**

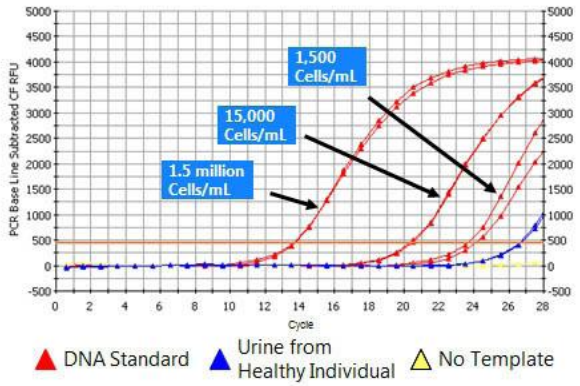

Figure 1. Isolation and Detection of Bacterial Genomic DNA from a 1 mL Urine Sample. Bacterial genomic DNA was isolated from a 1 mL urine sample from a healthy individual using Norgen's Urine DNA Isolation Kit for Exfoliated Cells or Bacteria. The provided protocol was followed, and the purified urinary bacterial DNA was eluted in 100 µL of Elution Buffer. Five microliters of the eluted DNA was then used as a template in a quantitative PCR reaction to detect the bacteria using the iQ SYBR Green Supermix (BioRad, #170-8882). Healthy humans generally have <10,000 CFU per mL of urine, and this kit is sensitive enough to isolate genomic DNA from this small amount of bacteria (blue line in graph above). The red lines in the above graph correspond to DNA standards.

Ordering Information

Urine DNA Isolation Kit For Exfoliated Cells Or Bacteria	
50 Preps	Cat. 47050

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

STOOL DNA ISOLATION KITS
(CAT. 27600, Dx27600, 65600)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx27600)
- Ideal for *in vitro* diagnostic workflows
- 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
- Available in single column and high throughput 96-well format

FOR THE RAPID AND SIMPLE PURIFICATION OF BACTERIAL AND HOST DNA FROM STOOL AND FECAL SAMPLES

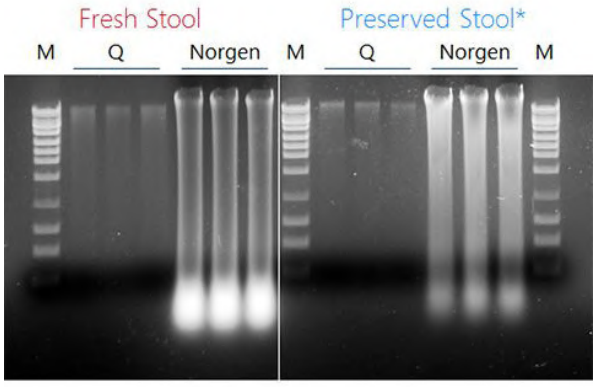

Figure 1. Higher Yields of DNA than Competitor Q. Stool DNA was isolated from 200 mg of fresh or preserved stool samples using Norgen's Stool DNA Isolation Kit and Competitor Q's Kit. For evaluation, 10 µL of DNA from the elution was run on 1X TAE 1.2% agarose gel. Norgen's kit isolated much higher yields of DNA. *Stool was collected using Norgen's Stool Nucleic Acid Collection and Preservation tubes (Cat. 45660). Marker = Norgen's HighRanger DNA Ladder (Cat. 11900).

Ordering Information

Stool DNA Isolation Kits	
50 Preps	Cat. 27600
50 Preps	Cat. Dx27600 CE
2 x 96-Well Plates	Cat. 65600

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Intended for *in vitro* diagnostic use
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STOOL DNA ISOLATION KITS (MAGNETIC BEAD SYSTEM) (CAT. 55700, 63100)

- 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
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid high throughput method to isolate genomic DNA

FOR THE **RAPID, SIMPLE,** AND **AUTOMATION-COMPATIBLE PURIFICATION** OF **BACTERIAL** AND **HOST DNA** FROM **STOOL SAMPLES**

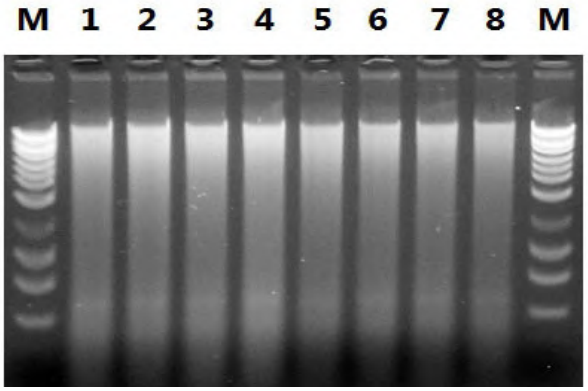

Figure 1. High Quality DNA Isolated from Preserved Stool Samples. DNA was isolated from 200 µL preserved stool samples using Norgen's Stool DNA Isolation 96-Well Kit (Magnetic Bead System). For evaluation, 10 µL from 75 µL of elution were run on 1X TAE 1.2% agarose gel. M = Norgen's HighRanger 1kb DNA Ladder (Cat. 11900).

Ordering Information

Stool DNA Isolation Kits (Magnetic Bead System)	
50 Preps	Cat. 55700
2 x 96-Well Plates	Cat. 63100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SALIVA DNA ISOLATION KITS
(CAT. RU45400, Dx45400, RU35200)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx45400)
- Ideal for use in *in vitro* diagnostic workflows
- Fast and easy processing using a rapid spin-column format or 96-well plates
- 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
- Available in single column and high throughput 96-well format

FOR THE **RAPID PURIFICATION** OF **HIGH-QUALITY DNA** FROM **PRESERVED** AND **FRESH SALIVA** SAMPLES

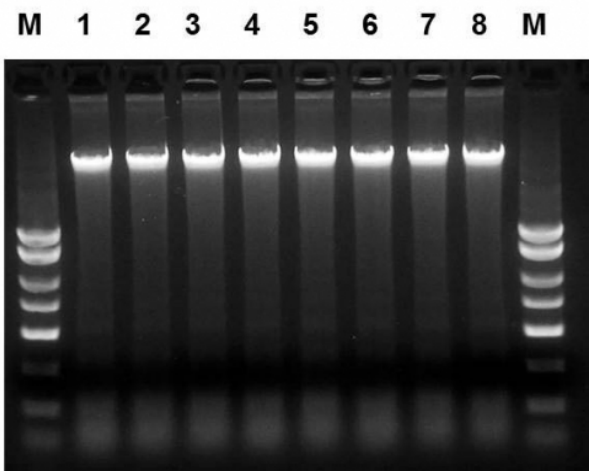

Figure 1. High Quality and Yield of DNA from Saliva Samples. Total DNA was isolated from 250 µL of eight different fresh saliva samples using Norgen's Saliva DNA Isolation Kit (Lanes 1-8). For evaluation, 10 µL of each 100 µL DNA elution was run on a 1.2 % agarose gel. Note the high yield and quality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

Ordering Information

Saliva DNA Isolation Kits	
50 Preps	Cat. RU45400
50 Preps	Cat. Dx45400 CE
2 X 96-Well Plates	Cat. RU35200

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SALIVA DNA ISOLATION KIT (MAGNETIC BEAD SYSTEM) (CAT. RU55400, RU62900)

- Sample collection is non-invasive and painless
- Fast and easy processing using a magnetic bead system
- Isolate high quality genomic DNA
- This kit is also compatible with **Norgen's Saliva DNA Collection and Preservation Devices**
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid high throughput method to isolate genomic DNA

FAST AND EASY PROCESSING USING A MAGNETIC BEAD SYSTEM

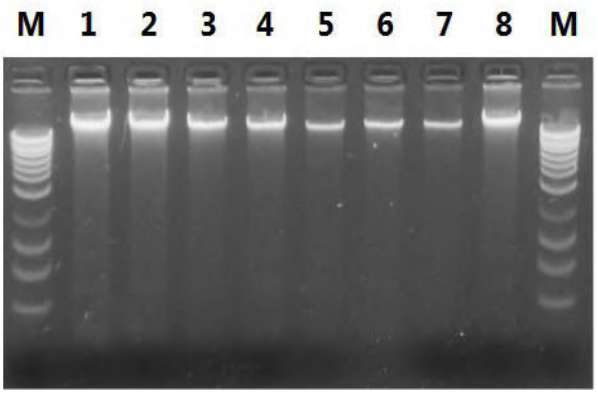

Figure 1. Resolution of DNA Isolated from Preserved Saliva Samples from Different Donors. DNA was isolated from 0.5 mL of preserved saliva samples collected from 8 different healthy donors using Norgen's Saliva DNA Isolation 96-Well Kit (Magnetic Bead System). For evaluation, 10 µL of each 50 µL elution was run on a 1X TAE 1.2% agarose gel. Marker = Norgen's HighRanger 1kb DNA Ladder (Cat. 11900).

Ordering Information

Saliva DNA Isolation Kits (Magnetic Bead System)	
50 Preps	Cat. RU55400
2 x 96-Well Plates	Cat. RU62900

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SALIVA DNA ISOLATION REAGENT KIT (UP TO 4 ML) (CAT. RU35720)

- Cost effective method to isolate DNA from preserved saliva samples collected using Norgen's saliva DNA devices or other preservation methods
- Isolate DNA of high recovery and quality suitable for sensitive downstream applications including PCR, qPCR, sequencing, SNP analysis, microarrays, RFLP and Southern Blot Analysis

ISOLATE DNA FROM A RANGE OF INPUT VOLUMES - **UP TO 4 ML**

Ordering Information

Saliva DNA Isolation Reagent Kit	
50 Preps	Cat. RU35720

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SPUTUM DNA ISOLATION KIT
(CAT. 46200)

- Fast and easy processing using a spin column format
- DNA can be isolated and detected from as little as 100 µL of sputum
- Effective removal of PCR inhibitors

FOR THE RAPID PURIFICATION OF HIGH QUALITY DNA FROM SPUTUM SAMPLES

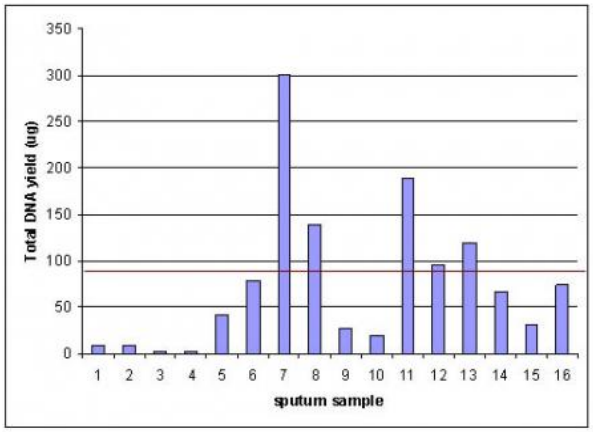

Figure 1. High Yield of Sputum DNA. Sixteen sputum samples were collected and stored at room temperature for 1 day. DNA was subsequently purified using Norgen's Sputum DNA Isolation Kit, and the DNA yield was determined using the NanoVue Plus (GE Healthcare). The total average sputum DNA yield from 1.0 mL of preserved sputum of the 16 samples processed using Norgen's kit was 75.25 µg (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

Sputum DNA Isolation Kit	
25 Preps	Cat. 46200

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SPUTUM LIQUIFICATION BUFFER (CAT. 28289)

- Simple and efficient liquification
- Sputum liquification to allow for the isolation of cells
- Liquify sputum prior to nucleic acid isolation

SIMPLE AND EFFICIENT LIQUIFICATION OF VISCOUS SPUTUM SAMPLES

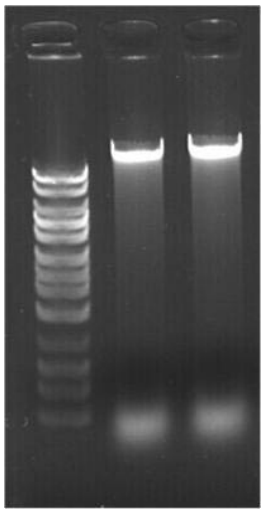

Figure 1. Isolation of Genomic DNA from Sputum Samples Liquefied using Norgen's Sputum Liquification Buffer. Expectorated sputum samples (0.2 mL) were collected and an equal volume of Norgen's Sputum Liquification Buffer (final concentration = 50 µg/mL dithiothreitol) was added to each sample. Samples were then incubated at 37°C with intermittent mixing to allow the samples to be completely homogenized. Genomic DNA was then isolated from the homogenized sputum samples using Norgen's Sputum DNA Isolation Kit (Cat# 46200) according to the kit protocol. For each 100 µL DNA elution, 10 µL was loaded into the wells of a 1X TAE, 1% agarose gel, run at 150 volts for 30 minutes. The gel was then visualized via ethidium bromide staining and photographed.

Ordering Information

Sputum Liquification Buffer	
10 mL	Cat. 28289

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PLASMA/SERUM CFC-DNA ADVANCED PURIFICATION KIT (CAT. 68000)

- Versatile plasma and serum input volumes (0.5 mL - 6 mL)
- Concentrate cfc-DNA and ct-DNA into a flexible elution volume ranging from (25 µL - 50 µL)
- Minimal high molecular weight gDNA contamination in the purified cfc-DNA
- Isolate inhibitor-free cell-free circulating DNA
- Purify superior quantity and quality DNA in 45 minutes
- Compatible with fresh, preserved or frozen serum/plasma prepared from blood collected on either Norgen's cf-DNA/cf-RNA Preservative Tubes (Cat. 63950, Dx63950), Cell-Free DNA BCT ® (Streck), Heparin, EDTA or Citrate
- Fully automated Isolation procedure on Hamilton MicroLab Nimbus
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **SIMPLE PURIFICATION** OF **ALL SIZES** OF **CFC-DNA** AND **CT-DNA** FROM **PLASMA** AND **SERUM SAMPLES**

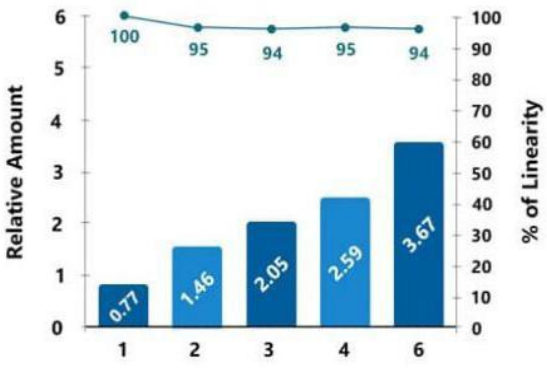

Figure 1. Norgens Plasma/Serum cfc-DNA Advanced Purification Kit was used to purify circulating DNA from 1mL, 2mL, 4 mL and 6mL plasma prepared from blood collected on EDTA as an anticoagulant. 2 microlitres of the purified DNA was then used as the template in qPCR reactions to assess the linearity of the purified cfc-DNA by targeting a short ALU gene target (115 bp) representing the mono-nucleosomal cfc-DNA population. Norgen's Plasma/Serum cfc-DNA Advanced Purification Kit showed an excellent linearity between all plasma volumes with a % of linearity of more than 90% indicating efficient cfc-DNA recovery from all plasma volumes used.

Ordering Information

Plasma/Serum CFC-DNA Advanced Purification Kit	
50 Preps	Cat. 68000

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PLASMA/SERUM CELL-FREE CIRCULATING DNA PURIFICATION KITS (CAT. 55500, Dx55500, 55100, Dx55100, 55600, Dx55600, 55800, Dx55800)

- Isolate viral and bacterial DNA
- Versatile plasma and serum input volumes (10 µL - 10 ml)
- Concentrate circulating DNA into a flexible elution volume ranging from (25 µL - 50 µL)
- Isolate inhibitor-free cell-free circulating DNA
- Purify high-quality DNA in 15-20 minutes
- Compatible with Streck Cell-Free DNA BCT® Tubes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **SIMPLE PURIFICATION** OF **ALL SIZES** OF **CIRCULATING DNA** FROM **PLASMA** AND **SERUM SAMPLES**

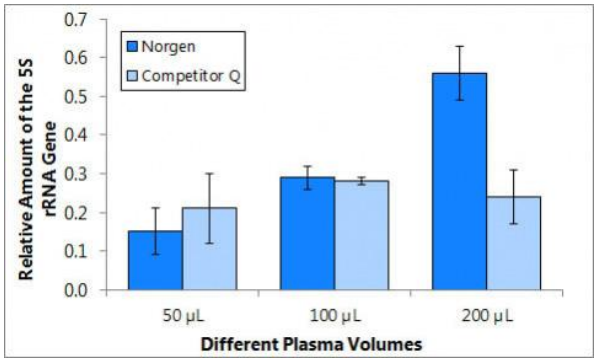

Figure 1. Norgens Plasma/Serum Cell-Free Circulating DNA Purification Micro Kit was used to purify circulating DNA from 50 µL, 100 µL and 200 µL plasma prepared from blood collected on citrate as an anticoagulant, andcomparedto Competitor Q's kit. Two microlitres of the purified DNA was then used as the template in qPCR reactions to assess the relative amount of the purified housekeeping 5S rRNA gene. The relative amount of the 5S rRNA gene increases linearly with increasing the sample input volume. Norgen's kit showed the most consistent and the highest recovery of the housekeeping 5S rRNA gene as compared to the other isolation method.

Ordering Information

Plasma/Serum Cell-Free Circulating DNA Purification Kits	
50 Preps (Micro)	Cat. 55500
50 Preps (Micro)	Cat. Dx55500 CE
50 Preps (Mini)	Cat. 55100
50 Preps (Mini)	Cat. Dx55100 CE
20 Preps (Midi)	Cat. 55600
20 Preps (Midi)	Cat. Dx55600 CE
10 Preps (Maxi)	Cat. 55800
10 Preps (Maxi)	Cat. Dx55800 CE

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PLASMA/SERUM CIRCULATING DNA PURIFICATION KIT (SLURRY FORMAT) (CAT. 50600, 51200, 51300)

- Isolate all sizes of circulating DNA from plasma and serum samples
- Isolate Viral and Bacterial DNA
- Versatile plasma and serum input volumes (50 µL - 10 mL)
- Concentrate circulating DNA into small elution volumes
- Different elution strategies depending on the downstream application
- Isolate inhibitor-free circulating DNA for any application including PCR, qPCR, methylation-sensitive PCR
- Compatible with Streck Cell-Free DNA BCT® Tubes
- Isolate DNA with high quality and quantity from milk
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID** AND **SIMPLE ISOLATION** OF **CIRCULATING DNA** FROM **PLASMA/SERUM** SAMPLES

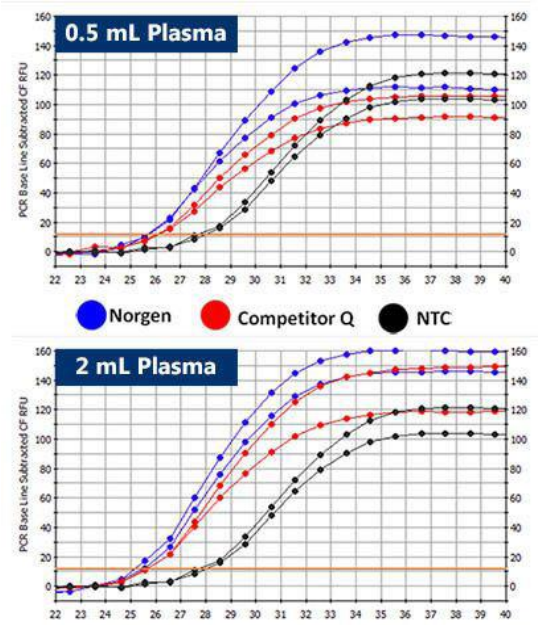

Figure 1. Detection of Human 5S Gene from 0.5 mL and 2 mL of Plasma. Norgen's Plasma/Serum Circulating DNA Purification Midi Kit (Slurry Format) was compared to a leading Competitor's kit for their ability to isolate high quality plasma DNA ready for sensitive downstream applications such as qPCR. Norgen's samples (blue) were found to amplify sooner than competitor Q's samples (red), when both 0.5 mL and 2 mL of plasma were processed, indicating a higher recovery of high quality circulating DNA present in Norgen's samples.

Ordering Information

Plasma/Serum Circulating DNA Purification Kits (Slurry Format)	
50 Preps (Mini)	Cat. 50600
20 Preps (Midi)	Cat. 51200
10 Preps (Maxi)	Cat. 51300

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URINE CELL-FREE CIRCULATING DNA PURIFICATION KITS (CAT. 56600, 56700, 56800)

- Isolate viral DNA
- Versatile urine input volumes (250 µL - 30 mL)
- Concentrate circulating DNA into a flexible elution volume ranging from (50 µL - 100 µL)
- Isolate inhibitor-free cell-free circulating DNA
- Purify high-quality DNA in 15-20 minutes
- Compatible with Norgen's Urine Preservative and other commercially available urine preservatives
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE ALL SIZES OF **CIRCULATING DNA** FROM **FRESH, PRESERVED** OR **FROZEN URINE** SAMPLES

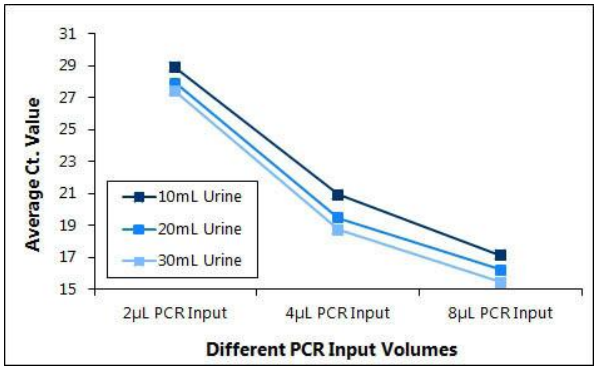

Figure 1. Determination of the amount of inhibition present in urine cell-free circulating DNA samples when detecting the human 5S gene. DNA was isolated from 10 mL, 20 mL and 30 mL urine using Norgen's Urine Cell-Free Circulating DNA Purification Maxi Kit (Cat# 56800). Increasing volumes of the elution (2, 4 and 8 µL) were used in a 20 µL qPCR reaction to observe any decrease in Ct value. An increase in Ct values with increasing amount of template would be a clear indication of PCR inhibitors present in the sample. An increase in elution volume used as a template in the qPCR did not affect the Ct value generated from qPCR. In fact the Ct values tend to decrease with increasing the PCR input volume, indicating that DNA purified from urine using Norgen's kit is free of the common inhibitors usually present in urine.

Ordering Information

Urine Cell-Free Circulating DNA Purification Kits	
50 Preps (Mini)	Cat. 56600
20 Preps (Midi)	Cat. 56700
10 Preps (Maxi)	Cat. 56800

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ENDOTOXIN REMOVAL KITS
(CAT. 21900, 22700, 52200)

- Reduce endotoxin levels to 0.1 EU/µg DNA or less
- Effectively remove endotoxins in as little as 20 minutes
- Remove endotoxins from 25 µg up to 1 mg of DNA
- Rapid spin-column format

FOR THE **RAPID REMOVAL** OF ENDOTOXINS FROM UP TO 1 MG OF PREVIOUSLY PURIFIED DNA

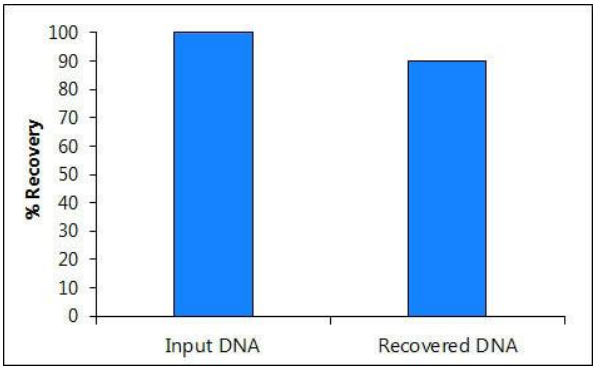

Figure 1. High DNA Recovery. An input of 11 µg of a plasmid in a 50 µL volume with an endotoxin level of over 8 EU/µg was subjected to clean-up by Norgen's Endotoxin Removal Kit in triplicate. The 50 µL DNA elution was quantified by spectrophotometry. There is very little loss of DNA associated with using Norgen's Endotoxin Removal Kit. 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

Endotoxin Removal Kits	
25 Preps (Mini)	Cat. 22700
10 Preps (Midi)	Cat. 52200
4 Preps (Maxi)	Cat. 21900

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PLASMID MINIPREP KITS
(CAT. 13300, 46400)

- 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

FOR **RAPID** AND **CONVENIENT PLASMID DNA** PREPARATIONS

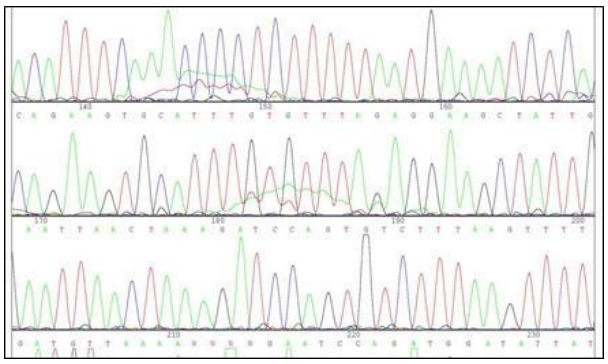

Figure 1. High-Accuracy Sequencing. One microgram of plasmid DNA purified by Norgens Plasmid Miniprep DNA Kit was used as a template in an Applied Biosystem DNA Sequencer. The result showed an accuracy of >99% over a 950 bp contiguous sequence.

Ordering Information

Plasmid MiniPrep Kits	
50 Preps	Cat. 13300
250 Preps	Cat. 46400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMID DNA MAXIPREP KITS
(CAT. 46500, 46600)

- Isolate up to 1.0 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

FOR THE **RAPID PREPARATION** OF **HIGH YIELDS** OF **PLASMID DNA**

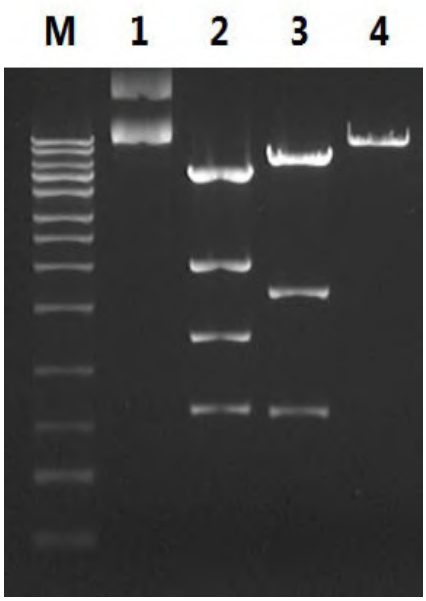

Figure 1. Full Compatibility with Digests. DNA isolated with Norgen's Plasmid DNA MaxiPrep Kit is easily digestible, often requiring less than 1 hour for full digestion. One microgram of a 9,309 bp plasmid purified by Norgen's DNA MaxiPrep Kit was digested for one hour at 37°C in a 20 µL reaction with 2 units of BamHI (Lane 2), HindIII (Lane 3), and SmaI (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

Plasmid DNA MaxiPrep Kits	
4 Preps	Cat. 46500
20 Preps	Cat. 46600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMID MINIPREP KITS (MAGNETIC BEAD SYSTEM) (CAT. 60300, 63000)

- Isolate high quality plasmid DNA
- Recovered plasmid DNA is compatible with various downstream applications
- Also available in a 96-well format that can be integrated with a robotic automation system

FAST, REPRODUCIBLE AND EASY PROCESSING USING A MAGNETIC BEAD SYSTEM

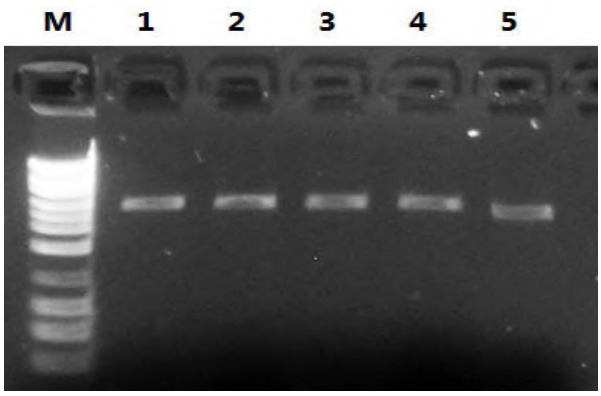

Figure 1. High Quality of Plasmid DNA. Resolution of plasmid DNA isolated from E. coli (1 mL) using Norgens Plasmid MiniPrep Kit (Magnetic Bead System). For evaluation, 10 µL from 50 µL of elution were digested with the restriction enzyme, EcoR I and run on 1X TAE 1.3% agarose gel. All plasmid DNA isolated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

Ordering Information

Plasmid MiniPrep Kit (Magnetic Bead System) Kits	
50 Preps	Cat. 60300
2 x 96-Well Plates	Cat. 63000

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

DNA CLEAN-UP AND CONCENTRATION MICRO-ELUTE KIT (CAT. 67200)

- Ideal for concentrating DNA from PCR and other enzymatic or labelling reactions and cleanup of plasmids or DNA previously isolated by other methods
- Isolated DNA is suitable for any downstream application including PCR, sequencing, ligation, RNA transcription, radiolabeling, arrays and more

RAPID CONCENTRATION OF SMALL AMOUNTS OF DNA **INTO FLEXIBLE FINAL ELUTION VOLUMES** OF 8 TO 15 µL

Kit Specifications

DNA Clean-Up and Concentration Micro-Elute Kit	
Maximum Binding Capacity	40 µg of DNA
Size of DNA Purified	50 bp to 10,000 bp
Maximum Volume of Starting Material	200 µL
Minimum Elution Volume	8 µL
Time to Complete 10 Purifications	20 minutes
Average Recovery	≥ 90%

Ordering Information

DNA Clean-Up and Concentration Micro-Elute Kit	
50 Preps	Cat. 67200

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PCR PURIFICATION KITS
(CAT. 14400, 24800, 45700)

- 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
- Rapid high throughput method to isolate genomic DNA

PURIFY AMPLIFIED DNA RANGING FROM 100 BP -15,000 BP IN SIZE

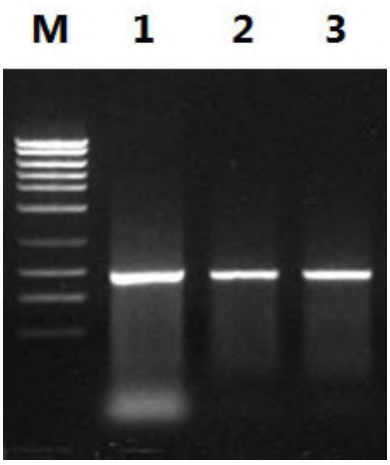

Figure 1. Removal of Primer-Dimers. Primer-dimers present in PCR reactions are effectively removed during the purification process with Norgen's PCR Purification Kit. One microgram of a 700 bp PCR fragment, spiked with 250 pmol of primer (Lane 1) was purified using Norgen's kit, with high recovery and 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

PCR Purification Kits	
50 Preps	Cat. 14400
2 x 96-Well Plates	Cat. 24800
250 Preps	Cat. 45700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

DNA GEL EXTRACTION KIT
(CAT. 13100)

- 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

FOR **RAPID EXTRACTION** OF **DNA** FROM **AGAROSE GEL FRAGMENTS**

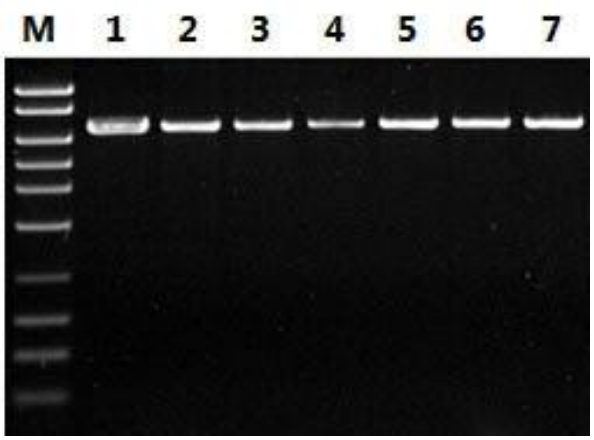

Figure 1. Efficient Recovery of Large DNA Fragments. The efficient recovery of Norgen's DNA Gel Extraction Kit is illustrated by purification of 1.5 µg of a 3,700 bp fragment from a 0.9% agarose gel using Norgen's DNA Gel Extraction Kit (Lanes 5-7) and a competitor's kit (Lanes 2-4). Eluted DNA was resolved 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 competitors kit.

Ordering Information

DNA Gel Extraction Kit	
50 Preps	Cat. 13100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

OLIGO CLEAN-UP AND CONCENTRATION KIT (CAT. 34100)

- Cleans and concentrates single-stranded or double-stranded DNA or RNA oligonucleotides larger than 10 bases
- Rapid and efficient spin column procedure
- No phenol, chloroform or alcohol precipitations are involved
- High recovery of up to 90%
- Efficient removal of enzymatic reaction buffers and proteins
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FAST AND SIMPLE CLEAN-UP AND CONCENTRATION OF OLIGONUCLEOTIDES WITHOUT THE USE OF PHENOL

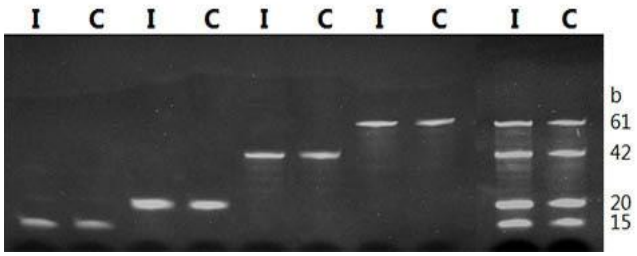

Figure 1. Integrity of Purified DNA Oligonucleotides. Oligonucleotides of different sizes (15mer, 20mer, 42mer and 61mer) were purified using Norgen's Oligo Clean-Up and Concentration Kit, and the integrity of the oligonucleotides before and after cleaning were compared by running a 15% urea-PAGE gel. 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.

Ordering Information

Oligo Clean-Up and Concentration Kit	
50 Preps	Cat. 34100

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For more data and technical specifications please visit **www.norgenbiotek.com** or scan the **QR code.**

SEQUENCING REACTION CLEAN-UP KITS
(CAT. 34400, 34500)

- 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

FOR THE RAPID PURIFICATION OF SEQUENCING EXTENSION PRODUCTS FROM REACTION MIXES

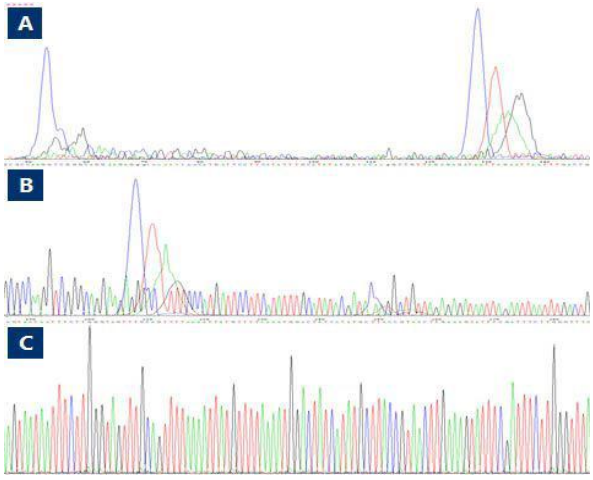

Figure 1. Sequencing Chromatogram of pDC-CG DNA. A single extension product was divided into 3 equal aliquots and was cleaned using either Norgen's Sequencing Reaction Clean-Up Kit, or one of two competitor kits. Sequencing data was then generated using Bigdye Terminator chemistry on the Applied Biosystems 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 Norgen's 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

Total RNA Purification Kits	
50 Preps	Cat. 34500
2 X 96-Well Plates	Cat. 34400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PCR AND SEQUENCING REACTION CLEAN-UP KITS (MAGNETIC BEAD SYSTEM)(CAT. 60200, 62700)

- Purification of all types of enzymatic reactions
- High recovery
- Complete magnetic bead purification
- High integrity product
- Also available in a 96-well format that can be integrated with a robotic automation system
- Rapid high throughput method to isolate genomic DNA

PURIFICATION FROM ALL SEQUENCE CYCLING BY-PRODUCTS

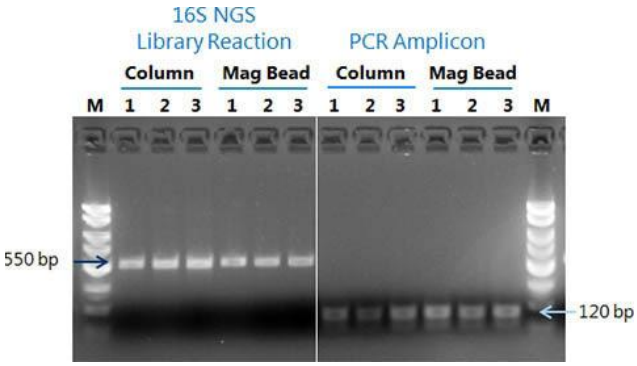

Figure 1. Efficient Clean-Up and Recovery. The performance of Norgen's PCR and Sequencing Reaction Clean-Up Kit (Magnetic Bead System) was compared to Norgen's column-based PCR Purification Kit and Sequencing Reaction Clean-Up Kit by purifying and cleaning 20 µL of 16S NGS library reaction and an end-point 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 = Norgen's FastRunner DNA Ladder.

Ordering Information

PCR and Sequencing Reaction Clean-Up Kits (Magnetic Bead System)	
50 Preps	Cat. 60200
2 x 96-Well Plates	Cat. 62700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CLEANALL DNA/RNA CLEAN-UP AND CONCENTRATION MICRO KIT (CAT. 23800)

- 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)
- Purification is based on spin column chromatography that uses Norgen's resin separation matrix

FOR THE **RAPID** AND **EFFICIENT PURIFICATION, CLEANUP** AND **CONCENTRATION** OF RNA OR DNA

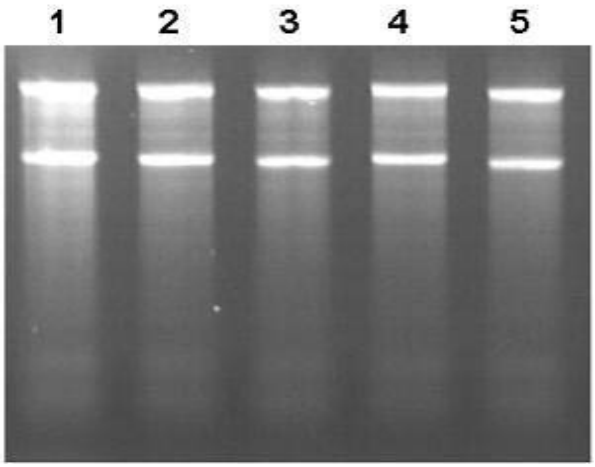

Figure 1. Clean-Up of RNA with High Recovery. Norgen's CleanAll DNA/RNA Clean-Up and Concentration Micro Kit can be used to clean up various enzymatic reactions including DNase treatment. Lane 1 is the RNA input, while lanes 2-5 contain the RNA that has been cleaned using Norgen's CleanAll Kit. It can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

Ordering Information

CleanAll DNA/RNA Clean-Up And Concentration Micro Kit	
50 Preps	Cat. 23800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

LOW ABUNDANCE DNA QUANTIFICATION KIT (CAT. 57200)

- Quantify DNA of a wide spectrum of concentrations, including the lower ng per µL, pg per µL and sub-pg per µL range
- DNA is accurately quantified using a standard curve constructed from the provided DNA standard

COMPATIBLE WITH ANY REAL-TIME PCR SYSTEM

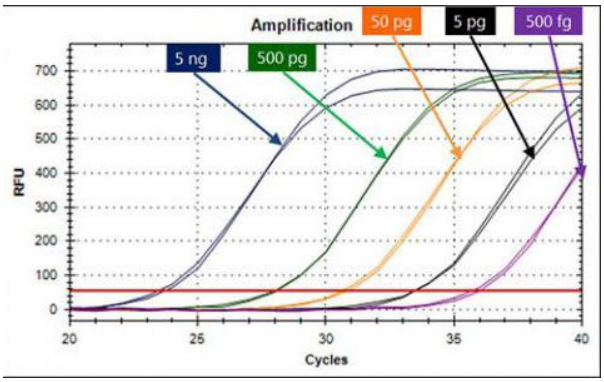

Figure 1. Sensitivity of DNA Quantification in the Picogram Range Using the Low Abundance DNA Quantification Kit. A representative qPCR Baseline Graph showing the amplification of a DNA standard dilution series. The Low Abundance DNA Quantification Kit can quantify purified DNA from low abundance samples such as liquid biopsies (Plasma or Urine). As little as 500 fg of DNA can be quantified.

Ordering Information

Total RNA Purification Kit	
48 Reactions	Cat. 57200

SHIPS ON DRY ICE

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SELECT PUBLICATIONS AND APPLICATION NOTES

FFPE DNA Purification Kit (Cat. 47400, Dx47400)

Cruz-Flores, R., Hernández Rodríguez, M., Flores, J. S. O. G., & Dhar, A. K. (2022). **Formalin-fixed paraffin-embedded tissues for microbiome analysis in rainbow trout (Oncorhynchus mykiss).** *Journal of Microbiological Methods, 192*, 106389–106389.

https://doi.org/10.1016/j.mimet.2021.106389

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Microbiome DNA Isolation Kit (Cat. 64100)

Christian, K., Shine, R., Day, K. A., Kaestli, M., Gibb, K., Shilton, C. M., & Brown, G. P. (2021). **First line of defence: Skin microbiota may protect anurans from infective larval lungworms.** *International Journal for Parasitology. Parasites and Wildlife, 14*, 185–189.

https://doi.org/10.1016/j.ijppaw.2021.02.014

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Biofilm DNA Isolation Kit (Cat. 62300)

Rodríguez, J., Mais, L., Campana, R., Piroddi, L., Mascia, M., Gurauskis, J., ... Palmas, S. (2021). **Comprehensive characterization of a cost-effective microbial fuel cell with Pt-free catalyst cathode and slip-casted ceramic membrane.** *International Journal of Hydrogen Energy, 46(51)*, 26205–26223.

https://doi.org/10.1016/j.ijhydene.2021.01.066

SCAN ME WITH YOUR SMART PHONE

Fungi/Yeast Genomic DNA Isolation Kit (Cat. 27300, 27350)

Sikandar, S., Ujor, V. C., Ezeji, T. C., Rossington, J. L., Michel, F. C., McMahan, C. M., ... Cornish, K. (2017). **Thermomyces lanuginosus STm: A source of thermostable hydrolytic enzymes for novel application in extraction of high-quality natural rubber from *Taraxacum kok-saghyz* (Rubber dandelion).** *Industrial Crops and Products, 103,* 161–168.

https://doi.org/10.1016/j.indcrop.2017.03.044

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Bacterial Genomic DNA Isolation Kit (Cat. 17900, 17950)

Tao, X., Franasiak, J. M., Zhan, Y., Scott, R. T., Rajchel, J., Bedard, J., ... Chu, T. (2017). **Characterizing the endometrial microbiome by analyzing the ultra-low bacteria from embryo transfer catheter tips in IVF cycles: Next generation sequencing (NGS) analysis of the 16S ribosomal gene.** *Human Microbiome Journal, 3,* 15–21.

https://doi.org/10.1016/j.humic.2017.01.004

SCAN ME WITH YOUR SMART PHONE

Phage DNA Isolation Kit (Cat. 46800, 46850)

Nepal, R., Houtak, G., Karki, S., Dhungana, G., Vreugde, S., & Malla, R. (2022). **Genomic characterization of three bacteriophages targeting multidrug resistant clinical isolates of Escherichia, *Klebsiella* and *Salmonella*.** *Archives of Microbiology, 204(6),* 334–334.

https://doi.org/10.1007/s00203-022-02948-0

SCAN ME WITH YOUR SMART PHONE

Milk DNA Preservation And Isolation Kit (Cat. 44800)

Lackey, K. A., Williams, J. E., Price, W. J., Carrothers, J. M., Brooker, S. L., Shafii, B., ... McGuire, M. K. (2017). **Comparison of commercially-available preservatives for maintaining the integrity of bacterial DNA in human milk.** *Journal of Microbiological Methods, 141,* 73–81.

https://doi.org/10.1016/j.mimet.2017.08.002

Plant/Fungi DNA Isolation Kits (Cat. 26200, 26250, 26900)

Boccacci, P., Mela, A., Pavez Mina, C., Chitarra, W., Perrone, I., Gribaudo, I., & Gambino, G. (2017). **Cultivar-specific gene modulation in Vitis vinifera: analysis of the promoters regulating the expression of WOX transcription factors.** *Scientific Reports, 7(1),* 45670–45670.

https://doi.org/10.1038/srep45670

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Soil DNA Isolation Plus Kits (Cat. 64000, 64060, 62000, 26560)

Yousaf, S., Anam, M., & Ali, N. (2017). **Evaluating the production and bio-stimulating effect of 5-methyl 1, hydroxy phenazine on microbial fuel cell performance.** *International Journal of Environmental Science and Technology (Tehran), 14(7),* 1439–1450.

https://doi.org/10.1007/s13762-016-1241-7

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Blood DNA Isolation Kits (Cat. 46300, Dx46300,46380, 51400, 31200, 46350)

Dal, T., Açıkgöz, Z. C., Başyiğit, T., Zeybek, H., & Durmaz, R. (2018). **[Comparison of two commercial DNA extraction kits and PCR master mixes for the detection of Brucella from blood samples and blood culture bottles]**. *Mikrobiyoloji bulteni, 52(2)*, 135–146.

https://doi.org/10.5578/mb.66742

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Urine DNA Isolation Micro Kit (Cat. 18100)

Biderman Waberski, M., Lindhurst, M., Keppler-Noreuil, K. M., Sapp, J. C., Baker, L., Gripp, K. W., ... Biesecker, L. G. (2018). **Urine cell-free DNA is a biomarker for nephroblastomatosis or Wilms tumor in PIK3CA-related overgrowth spectrum (PROS).** *Genetics in Medicine, 20(9),* 1077–1081.

https://doi.org/10.1038/gim.2017.228

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Urine DNA Isolation Kit For Exfoliated Cells Or Bacteria (Cat. 47050)

Hussein, A. A., Elsayed, A. S., Durrani, M., Jing, Z., Iqbal, U., Gomez, E. C., ... Guru, K. A. (2021). **Investigating the association between the urinary microbiome and bladder cancer: An exploratory study.** *Urologic Oncology, 39(6)*, 370.e9–370.e19.

https://doi.org/10.1016/j.urolonc.2020.12.011

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Stool DNA Isolation Kits (Cat. 27600, Dx27600, 65600)

Oldenburg, C. E., Hinterwirth, A., Sié, A., Coulibaly, B., Ouermi, L., Dah, C., ... Doan, T. (2020). **Gut Resistome After Oral Antibiotics in Preschool Children in Burkina Faso: A Randomized, Controlled Trial.** *Clinical Infectious Diseases, 70(3)*, 525–527.

https://doi.org/10.1093/cid/ciz455

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Saliva DNA Isolation Kits (Cat. 45400, Dx45400, 35200), Sputum Liquification Buffer (Cat. 28289)

Niemeier-Walsh, C., Ryan, P. H., Meller, J., Ollberding, N. J., Adhikari, A., & Reponen, T. (2021). **Exposure to traffic-related air pollution and bacterial diversity in the lower respiratory tract of children.** *PloS One, 16(6)*, e0244341–.

https://doi.org/10.1371/journal.pone.0244341

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Saliva DNA Isolation Reagent Kit (Up To 4 Ml) (Cat. 35720)

Soriano, S., Curry, K., Sadrameli, S. S., Wang, Q., Nute, M., Reeves, E., ... Villapol, S. (2022). **Alterations to the gut microbiome after sport-related concussion in a collegiate football players cohort: A pilot study.** *Brain, Behavior, & Immunity. Health, 21,* 100438–100438.

https://doi.org/10.1016/j.bbih.2022.100438

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Sputum Liquification Buffer (Cat. 28289)

Mehta, P., Alle, S., Chaturvedi, A., Swaminathan, A., Saifi, S., Maurya, R., ... Pandey, R. (2021). **Clinico-Genomic Analysis Reveals Mutations Associated with COVID-19 Disease Severity: Possible Modulation by RNA Structure.** *Pathogens (Basel), 10(9),* 1109–.

https://doi.org/10.3390/pathogens10091109

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PCR Purification Kits (Cat. 14400, 24800, 45700)

Naveen, M., & Siddalingeshwara, K. (2015). **Molecular Confirmation, Identification And Influence Of Carbon Source For The Production Of Xylanase From Penicillium Citribum.** *Journal of Drug Delivery and Therapeutics, 5(6),* 63-67.

https://doi.org/10.22270/jddt.v5i6.1113

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DNA Gel Extraction Kit (Cat. 13100)

Besbes, S., Shah, S., Al-dybiat, I., Mirshahi, S., Helfer, H., Najah, H., ... Mirshahi, M. (2017). **Thrombopoietin Secretion by Human Ovarian Cancer Cells.** *International Journal of Cell Biology, 2017,* 1873834–10.

https://doi.org/10.1155/2017/1873834

SCAN ME WITH YOUR SMART PHONE

Oligo CleanUp And Concentration Kit (Cat. 34100)

Wu, M. Z., Asahara, H., Tzertzinis, G., & Roy, B. (2020). **Synthesis of low immunogenicity RNA with high-temperature in vitro transcription.** *RNA (Cambridge), 26(3),* 345–360.

https://doi.org/10.1261/rna.073858.119

SCAN ME WITH YOUR SMART PHONE

CleanAll DNA/RNA Clean-Up And Concentration Micro Kit (Cat.23800)

Duan, Y.-F., Kong, X.-W., Schramm, A., Labouriau, R., Eriksen, J., & Petersen, S. O. (2017). **Microbial N Transformations and N2O Emission after Simulated Grassland Cultivation: Effects of the Nitrification Inhibitor 3,4-Dimethylpyrazole Phosphate (DMPP).** *Applied and Environmental Microbiology, 83(1).*

https://doi.org/10.1128/AEM.02019-16

SCAN ME WITH YOUR SMART PHONE

Plasma/Serum Cell-Free Circulating DNA Purification Kits (Cat. 55600, Dx55600)

Diefenbach, R. J., Lee, J. H., Kefford, R. F., & Rizos, H. (2018). **Evaluation of commercial kits for purification of circulating free DNA.** *Cancer Genetics, 228-229,* 21–27.

https://doi.org/10.1016/j.cancergen.2018.08.005

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Plasma/Serum Cell-Free Circulating DNA Purification Kits (Cat. 55100, Dx55100) **Page 45**

Kirov, A., Mihaylova, Z., Petrova, V., Todorov, T., Petkova, D., Garev, A., & Todorova-Georgieva, A. (2018). **KRAS-dependent and independent mechanisms of progressive disease (PD) in colorectal cancer (CRC) patients (pts) with liver metastases (LM) while monitoring on circulating cell free DNA (cfDNA).** *Annals of Oncology, 29 Suppl 8,* viii185–.

https://doi.org/10.1093/annonc/mdy281.100

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Plasma/Serum Circulating DNA Purification Kits (Slurry Format) (Cat. 50600, 51200, 51300) **Page 46**

Mauger, F., Dulary, C., Daviaud, C., Deleuze, J.-F., & Tost, J. (2015). **Comprehensive evaluation of methods to isolate, quantify, and characterize circulating cell-free DNA from small volumes of plasma.** *Analytical and Bioanalytical Chemistry, 407(22),* 6873–6878.

https://doi.org/10.1007/s00216-015-8846-4

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Urine Cell-Free Circulating DNA Purification (Cat. 56600, 56700, 56800) **Page 47**

Lee, E. Y., Lee, E.-J., Yoon, H., Lee, D. H., & Kim, K. H. (2020). **Comparison of Four Commercial Kits for Isolation of Urinary Cell-Free DNA and Sample Storage Conditions.** *Diagnostics (Basel), 10(4)*, 234–.

https://doi.org/10.3390/diagnostics10040234

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Endotoxin Removal Kit (Cat. 22700, 52200, 21900) **Page 48**

Prochazka, L., Angelici, B., Haefliger, B., & Benenson, Y. (2014). **Highly modular bow-tie gene circuits with programmable dynamic behaviour.** *Nature Communications, 5(1),* 4729–4729.

https://doi.org/10.1038/ncomms5729

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PROTEOSPIN™ INCLUSION BODY PROTEIN ISOLATION MICRO KIT (CAT. 10300)

- All-in-one solution for inclusion body protein isolation and purification
- Fast and convenient spin column protocol
- Complete kit with Cell Lysis Reagent, Inclusion Body Solubilization Reagent, buffers and spin columns to purify proteins
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE RAPID ISOLATION OF INCLUSION BODY PROTEINS - CELLS TO GELS IN 60 MINUTES

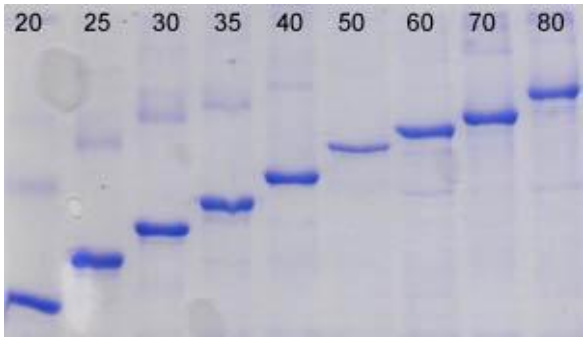

Figure 1. Efficient Isolation of Inclusion Body Proteins. Following gene expression, 1.5 mL cultures of BL21 (DE3) pLysS bacteria expressing proteins of various molecular weights were pelleted by centrifugation. Cells were lysed and inclusion bodies separated and dissolved using the ProteoSpin™ Inclusion Body Protein Isolation Micro Kit. The resulting proteins were bound to the ProteoSpin™ columns, washed and eluted in 50 µL of the provided elution buffer. The eluted protein samples were analyzed in 12.5% polyacrylamide gels, which were run for 45 minutes at 200 V/6.5 cm. The protein bands were made visible by staining with Coomassie Blue R-250. Lane labels indicate the size of each protein in kDa.

Ordering Information

ProteoSpin™ Inclusion Body Protein Isolation Micro Kit	
25 Preps	Cat. 10300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PROTEOSPIN™ INCLUSION BODY PROTEIN ISOLATION MAXI KIT (CAT. 17700)

- All-in-one solution for inclusion body protein isolation and purification
- Complete kit with Cell Lysis Reagent, Inclusion Body Solubilization Reagent, buffers and spin columns to purify proteins
- Isolate up to 12 mg of protein per spin column
- Fast and convenient spin column protocol
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE RAPID ISOLATION OF **INCLUSION BODY PROTEINS**

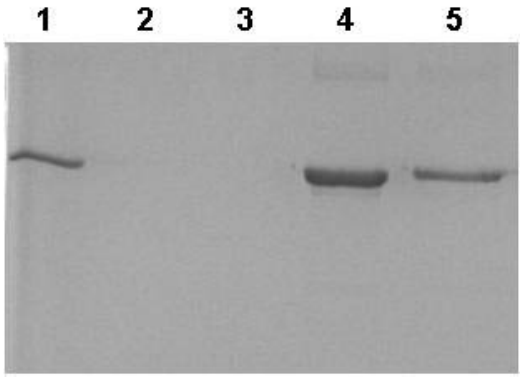

Figure 1. No Loss of Proteins when Isolating a Basic Protein. 100 mL of induced bacterial culture expressing a recombinant 30 kD BASIC protein were pelleted and processed using the ProteoSpin™ Inclusion Body Protein Isolation Maxi Kit. Briefly, pelleted cells were lysed, inclusion bodies were separated and subsequently dissolved using the provided Inclusion Body. Solubilization Reagent. Fractions of input, flowthrough, wash and elution were loaded on a 12.5% acrylamide gel. Lane 1 is the input, Lane 2 is the flowthrough from the input, Lane 3 is the wash, Lane 4 is the first elution and Lane 5 is the second elution. As can be seen, proteins are not lost in the flowthrough or wash. Recombinant proteins were efficiently bound to the column and eluted.

Ordering Information

ProteoSpin™ Inclusion Body Protein Isolation	
4 Preps	Cat. 17700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELL LYSIS REAGENT
(CAT. 18800, 18801)

- Proprietary solution of detergents, protease-inhibitors and buffer
- Efficient lysis of bacterial cells for extraction of inclusion body proteins

FOR THE **EFFICIENT LYSIS** OF **BACTERIAL CELLS** AND THE **EXTRACTION** OF **INCLUSION BODY PROTEINS**

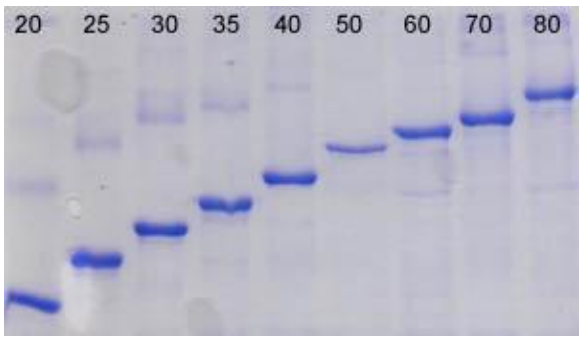

Figure 1: Efficient Isolation of Inclusion Body Proteins Using Norgen's Cell Lysis Reagent and Inclusion Body Solubilization Reagent. Inclusion bodies were extracted and solubilized following gene expression. Recovered proteins were analyzed on 12% SDS-PAGE and stained with Coomassie Brilliant Blue R-250. Numbers represent kDa sizes of protein bands.

Ordering Information

Cell Lysis Reagent	
100 mL	Cat. 18800
500 mL	Cat. 18801

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

INCLUSION BODY SOLUBILIZATION REAGENT
(CAT. 18700, 18701)

- Rapid and convenient solubilization of inclusion body aggregates
- Allows for downstream processing of dissolved inclusion body proteins

FOR THE **EFFICIENT SOLUBILIZATION** OF **INCLUSION BODY PROTEINS**

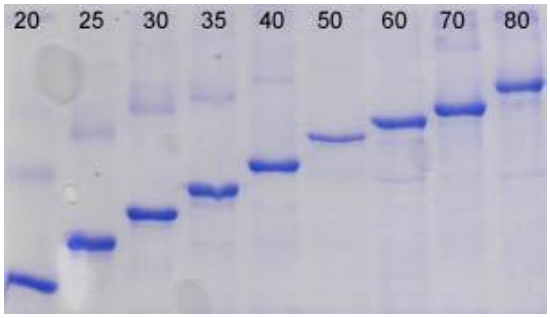

Figure 1. Efficient Isolation of Inclusion Body Proteins Using Norgen's Cell Lysis Reagent and Inclusion Body Solubilization Reagent. Inclusion Bodies were extracted and solubilized following gene expression. Recovered proteins were analyzed on 12% SDS-PAGE and stained with Coomassie Brilliant Blue R-250. Numbers represent kDa sizes of protein bands.

Ordering Information

Inclusion Body Solubilization Reagent	
25 mL	Cat. 18700
100 mL	Cat. 18701

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SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PROTEOSPIN™ TOTAL PROTEIN CONCENTRATION, DETERGENT CLEAN-UP AND ENDOTOXIN REMOVAL MINI KIT (CAT. 22800)

- Columns bind proteins of interest while endotoxins flow through
- Proteins are desalted
- Reduce endotoxin levels to less than 0.01 EU/µg of protein
- Greater than 95% protein recovery
- Concentrate protein samples and remove detergents at the same time
- Effectively remove a wide range of detergents including SDS, Triton® X-100, CHAPS, NP-40, and Tween 20
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR RAPID AND EFFICIENT **ENDOTOXIN REMOVAL FROM PROTEINS** AND **PEPTIDES**

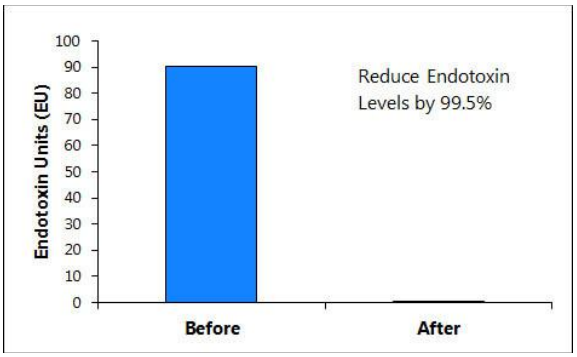

Figure 1. Endotoxin-Free Proteins. Endotoxins were removed from 100 µg protein samples in triplicate using the ProteoSpin™ Total Protein Concentration, Detergent Clean-Up and Endotoxin Removal Mini Kit. Samples containing 100 µg of BSA were spiked with endotoxins (0.9 EU/mg). The endotoxin-spiked BSA was then cleaned, in triplicate, using the ProteoSpin™ Total Protein Concentration, Detergent Clean-Up and Endotoxin Removal Mini Kit by using 5 µL of the provided Endotoxin Removal Solution in the presence of isopropanol. On average, the endotoxin levels in the 100 µg samples were reduced from 0.9 EU/mg to 0.005 EU/mg.

Ordering Information

ProteoSpin™ Total Protein Concentration, Detergent Clean-Up and Endotoxin Removal Mini Kit	
25 Preps	Cat. 22800

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PROTEOSPIN™ URINE PROTEIN CONCENTRATION KITS (CAT. 17400, 52300, 21600)

- Simultaneously clean-up and concentrate total urinary proteins using Norgen's proprietary resin matrix
- Rapidly remove salts and urea without buffer exchange
- Versatile sample input volumes
  - **Micro**: up to 1 mL
  - **Midi**: 1 mL - 5 mL
  - **Maxi**: 2 mL - 20 mL
- No molecular weight cutoff allows for isolation of all sizes of proteins and peptides
- Intact, functional proteins are ready for downstream applications including SDS-PAGE, 2D gels, Western Blotting, whole protein mass spectrometry, and protein microarrays
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID** AND **EFFICIENT CONCENTRATION** OF **TOTAL PROTEINS** FROM **URINE**

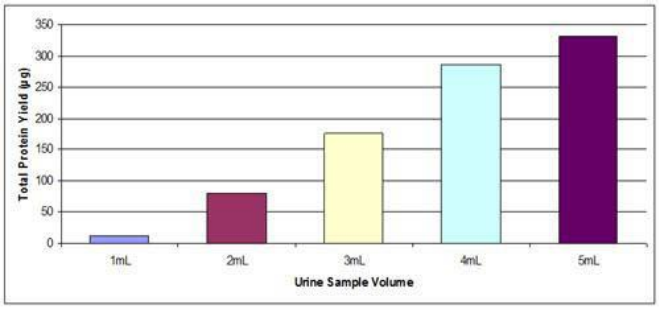

Figure 1. High Yield of Urine Proteins. Five different urine sample volumes were concentrated using Norgen's Urine Protein Concentration Midi Kit. The total urine protein yield from the different urine sample volumes processed using Norgen's kit appears to be increasing with the increase of the urine sample volume.

Ordering Information

ProteoSpin™ Urine Protein Concentration Kits	
Micro (25 Preps)	Cat. 17400
Midi (10 Preps)	Cat. 52300
Maxi (4 Preps)	Cat. 21600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PROTEOSPIN™ ABUNDANT SERUM PROTEIN DEPLETION KIT (CAT. 17300)

- Rapid and efficient removal of abundant proteins from serum and plasma samples
- Process 10 samples in 30 minutes
- Allows for visualization of low abundance proteins
- Convenient and affordable spin column protocol
- Generic protocol allows for depletion from human and other animal samples
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID DEPLETION** OF **ABUNDANT PROTEINS** FROM SERUM SAMPLES

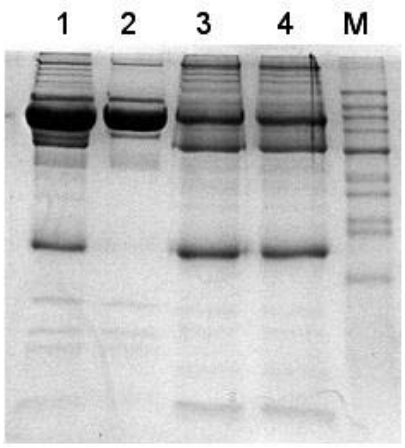

Figure 1. Depletion of Abundant Proteins. Abundant proteins were depleted from human serum using the ProteoSpinTM Abundant Serum Protein Depletion Kit. Lane 1 represents the input human serum proteins, while Lanes 3 and 4 represent the elution after the abundant proteins were depleted with the kit. Lane 2 represents the binding flow through, and contains the proteins that have been depleted from the serum sample.

Ordering Information

ProteoSpin™ Abundant Serum Protein Depletion Kit	
25 Preps	Cat. 17300

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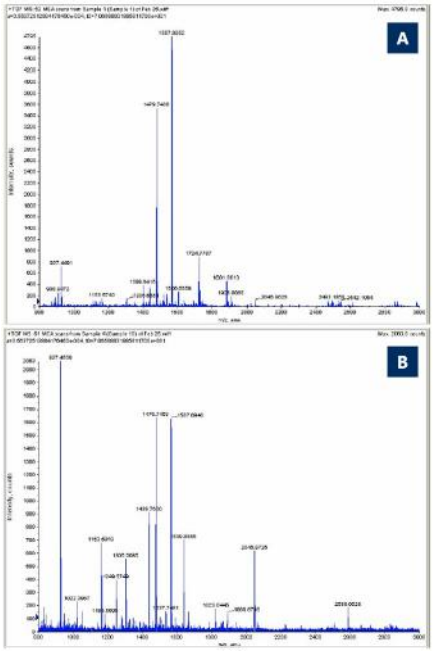
For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PROTEOSPIN™ ON-COLUMN PROTEOLYTIC DIGESTION KIT (CAT. 17500)

- Rapid and simple procedure to generate digested peptides
- Simultaneous digestion, purification and concentration at once
- Peptide generation is complete, with no generation of additional artifacts being detected in mass spectrometry
- Peptides are ready for applications such as mass spectrometry and SDS-PAGE
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE **RAPID** AND **CONVENIENT ON-COLUMN DIGESTION OF PROTEINS**



Ordering Information

ProteoSpin™ On-Column Proteolytic Digestion Kit	
25 Preps	Cat. 17500

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

Figure 1. Generation of Tryptic BSA Peptides without the Generation of any Artifacts. MALDI-TOF spectra of the peptides that resulted after BSA was digested on-column with trypsin using the ProteoSpinTM On-Column Proteolytic Digestion Kit (Panel A) or digested in a typical liquid environment (Panel B). For both digestions, 15 µg of BSA was used as the input and 0.3 µg of Trypsin was used for the digestion. For on-column digestion, the 15 µg of BSA was loaded onto the column with the trypsin, the BSA was washed, then the on-column digestion proceeded and the resulting peptides were eluted. By comparing the spectra, it can be seen that the ProteoSpinTM kit (Panel A) resulted in the generation of the same peptide profile in MALDI-TOF as the liquid digestion did (Panel B). Furthermore, no artifacts were found to arise from the use of the column, and all the same peaks could be detected in both spectra.

SELECT PUBLICATIONS AND APPLICATION NOTES

Proteospin™ Inclusion Body Protein Isolation Maxi Kit (Cat. 17700)

Shadnezhad, A., Naegeli, A., & Collin, M. (2016). **CP40 from Corynebacterium pseudotuberculosis is an endo-B-N-acetylglucosaminidase.** *BMC Microbiology, 16(1)*, 261–261.

https://doi.org/10.1186/s12866-016-0884-3

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Proteospin™ Total Protein Concentration, Detergent Clean-Up And Endotoxin Removal Mini Kit (Cat. 22800)

Ono, H. K., Hirose, S., Naito, I., Sato'o, Y., Asano, K., Hu, D.-L., … Nakane, A. (2017). **The emetic activity of staphylococcal enterotoxins, SEK, SEL, SEM, SEN and SEO in a small emetic animal model, the house musk shrew: Emetic activity of different SEs.** *Microbiology and Immunology, 61(1),* 12–16.

https://doi.org/10.1111/1348-0421.12460

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Proteospin™ Total Protein Concentration, Detergent Clean-Up And Endotoxin Removal Maxi Kit (Cat. 22200)

Song, L., Xiong, D., Kang, X., Yang, Y., Wang, J., Guo, Y., … Jiao, X. (2015). **An avian influenza A (H7N9) virus vaccine candidate based on the fusion protein of hemagglutinin globular head and Salmonella typhimurium flagellin.** *BMC Biotechnology, 15(1)*, 79–79.

https://doi.org/10.1186/s12896-015-0195-z

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Detergent-Free Total Protein Isolation Kit (Cat. 30300)

Hanafi, A., Lee, W. C., Loke, M. F., Teh, X., Shaari, A., Dinarvand, M., … Goh, K. L. (2016). **Molecular and Proteomic Analysis of Levofloxacin and Metronidazole Resistant Helicobacter pylori.** *Frontiers in Microbiology, 7,* 2015–2015.

https://doi.org/10.3389/fmicb.2016.02015

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Proteospin™ Urine Protein Concentration Kits (Cat. 17400, 52300, 21600)

Ozcan, F., Akbas, H., Kırac, E., Suleymanlar, G., Aslan, M., & Yucel, G. (2016). **Mass spectrometric quantification of urinary human liver fatty acid binding protein in renal transplant recipients.** *Rapid Communications in Mass Spectrometry, 30(5), 603–610.*

https://doi.org/10.1002/rcm.7474

SCAN ME WITH YOUR SMART PHONE

Proteospin™ Urine Protein Concentration Kits (Cat. 17400, 52300, 21600)

Bathla, S., Rawat, P., Baithalu, R., Yadav, M. L., Naru, J., Tiwari, A., … Mohanty, A. K. (2015). **Profiling of urinary proteins in Karan Fries cows reveals more than 1550 proteins.** *Journal of Proteomics, 127,* 193–201.

https://doi.org/10.1016/j.jprot.2015.05.026

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Proteospin™ Abundant Serum Protein Depletion Kit (Cat. 17300)

Henry, M., & Meleady, P. (2011). **Clinical proteomics: liquid chromatography-mass spectrometry purification systems.** *Methods in molecular biology (Clifton, N.J.), 681*, 473–483.

https://doi.org/10.1007/978-1-60761-913-0_28

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- Urine Exosomes
- Stool RNA/DNA
- Plasma/Serum Cell-Free Nucleic Acids
- And so much more!

RNA/DNA/PROTEIN PURIFICATION PLUS KIT
(CAT. 47700)

- Sequentially purify total RNA (and miRNA), DNA and proteins from a single sample
- No sample splitting or need to use phenol or precipitation methods
- Purify RNA/DNA/Protein from cultured animal cells, tissues, blood, bacteria, yeast, fungi or plants
- Rapid and efficient spin column procedure - all done in 30 minutes
- Proteins are purified on column and are soluble in the elution buffer. No further cleaning is required
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR SEQUENTIAL ISOLATION OF **TOTAL RNA, GENOMIC DNA** AND **TOTAL PROTEINS** FROM THE **SAME SAMPLE**

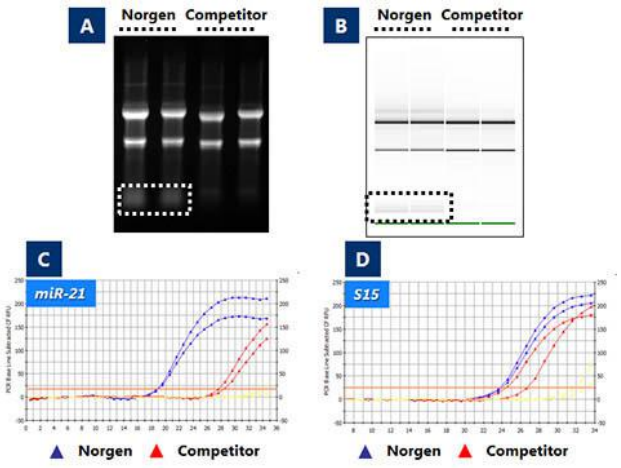

Figure 1. Recovery of True Total RNA including microRNA from HEK-293 Cells. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of ~ 800,000 HEK-293 cells using either Norgen's RNA/DNA/Protein Purification Plus Kit or a competitor's multiple-analyte purification kit. Both kits isolated large RNA (represented by 28S and 18S rRNA) with high integrity but Norgen's RNA/DNA/Protein Purification Plus Kit provided the added benefit of recovering small RNA without any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, Norgen's RNA/DNA/Protein Purification Plus Kit showed the added benefit of recovering small RNA. The difference in small RNA recovery was also demonstrated by gene-specific RT-qPCR. One microgram of RNA was used in RT-qPCR reactions for human S15 (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by Norgen's RNA/DNA/Protein Purification Plus Kit showed similar Ct value to RNA isolated by the competitor's kit for the large RNA (Panel D). However, Norgen's RNA/DNA/Protein Purification Plus Kit showed superior recovery of small RNA including microRNAs as depicted by the miR-21 RT-qPCR (Panel C).

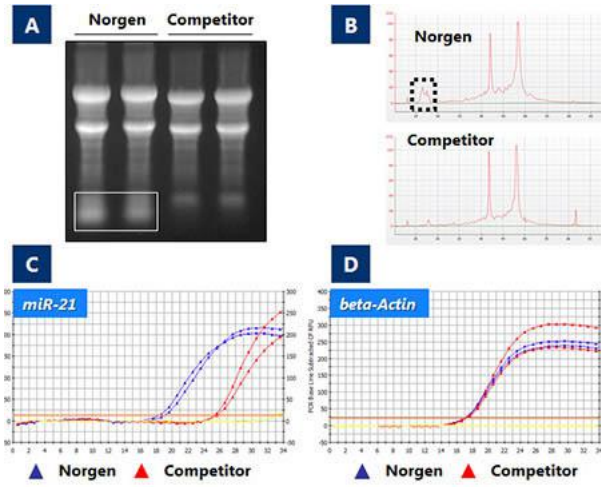

Figure 2. Recovery of True Total RNA including microRNA from Hamster Liver. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of 15 mg hamster liver using either Norgen's RNA/DNA/Protein Purification Plus Kit or a competitor's multiple-analyte purification kit. Both kits isolated large RNA (represented by 28S and 18S rRNA) with high integrity but Norgen's RNA/DNA/Protein Purification Plus Kit provided the added benefit of recovering small RNA without any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, Norgen's RNA/DNA/Protein Purification Plus Kit showed the added benefit of recovering small RNA. The difference in small RNA recovery was also demonstrated by gene-specific RT-qPCR. One microgram of RNA was used in RT-qPCR reactions for hamster beta-Actin (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by Norgen's RNA/DNA/Protein Purification Plus Kit showed similar Ct value to RNA isolated by the competitor's kit for the large RNA (Panel D). However, Norgen's RNA/DNA/Protein Purification Plus Kit showed superior recovery of small RNA including microRNAs as depicted by the miR-21 RT-qPCR (Panel C).

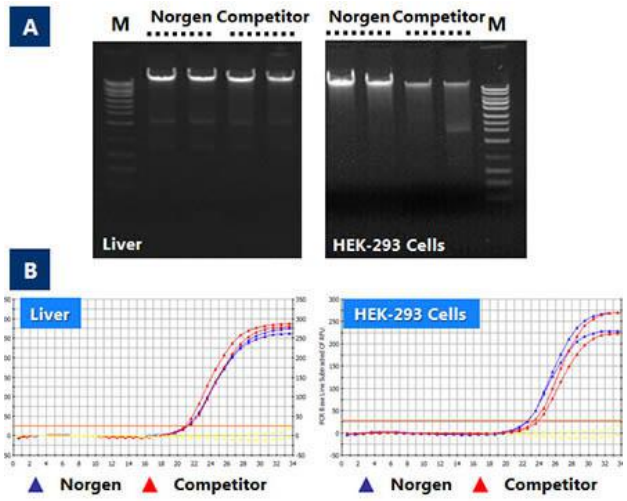

Figure 3. Recovery of Intact, High Quality Genomic DNA from HEK-293 cells and Hamster Liver. Panel A is a 1% agarose gel showing the gDNA isolated from the same HEK-293 cell or hamster liver samples using Norgen's RNA/DNA/Protein Purification Plus Kit or competitor's multiple-analyte purification kit. Lane M is Norgen's HighRanger 1 kb DNA Ladder and the sample lanes contain 10 µL of each of the 100 µL elutions. The gel showed high quality, and intact genomic DNA, with a better yield using Norgen's RNA/DNA/Protein Purification Plus Kit. Panel B is the result of qPCR amplification of 25 ng of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using Norgen's RNA/DNA/Protein Purification Plus Kit is of high quality and performed similar to or better than competitor's product.

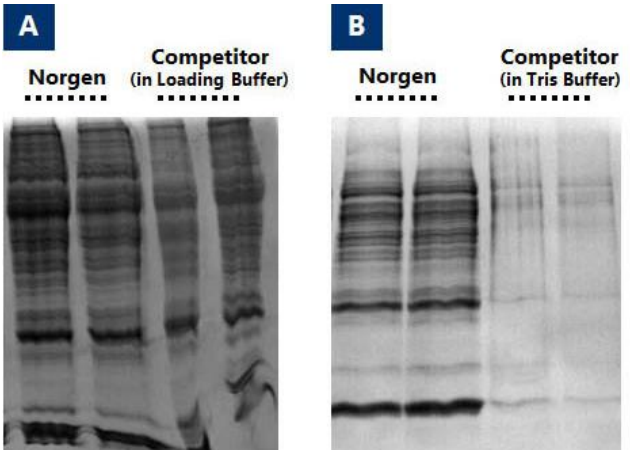

Figure 4. High Quality Total Proteins Eluted in Mass Spec-Compatible Buffer. Norgen's RNA/DNA/Protein Purification Plus Kit provides an additional column purification step for effective concentration and clean-up of the isolated proteins. In contrast, most competing multiple analyte isolation products require protein precipitation and the precipitated proteins are required to be resuspended in buffer with high-detergent content (such as SDS-PAGE loading dye) for full recovery. Protein fractions (from hamster liver) isolated by Norgen's RNA/DNA/Protein Purification Plus Kit and a competitor's kit were resolved on a 12% SDS-PAGE protein gel. Panel A showed that when the competitor's precipitated protein fraction was resuspended in a provided SDS-PAGE loading buffer, the protein recovery was similar among the two kits. Panel B showed that when the same precipitated protein fraction from the competitor's kit was resuspended in a Tris-based buffer containing no detergent or denaturant, the protein recovery became drastically reduced. In contrary, Norgen's RNA/DNA/Protein Purification Plus Kit purified proteins by column and the eluted proteins are already in a buffer compatible with most downstream applications including mass spectrophotometry as well as standard protein quantification methods (including Bradford assays).

Ordering Information

RNA/DNA/Protein Purification Plus Kit	
50 Preps	Cat. 47700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA/DNA/PROTEIN PURIFICATION PLUS MICRO KIT (CAT. 51600)

- Sequentially purify RNA (and miRNA), DNA and proteins from a single sample
- Small elution volume down to 20 µL with a specialized column
- No sample splitting, no need to use phenol or precipitation methods
- Proteins are purified on column and are soluble in the elution buffer
- Proteins require no further cleaning - ready for Western blot and Mass spectrometry
- Suitable for cells, tissues, stem cells, CTC, small input of samples
- Rapid and efficient spin column procedure - all done in 30 minutes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

MULTIPLE-ANALYTE ISOLATION FROM THE **SAME SAMPLE** WITH ELUTION VOLUMES **DOWN TO 20 µL**

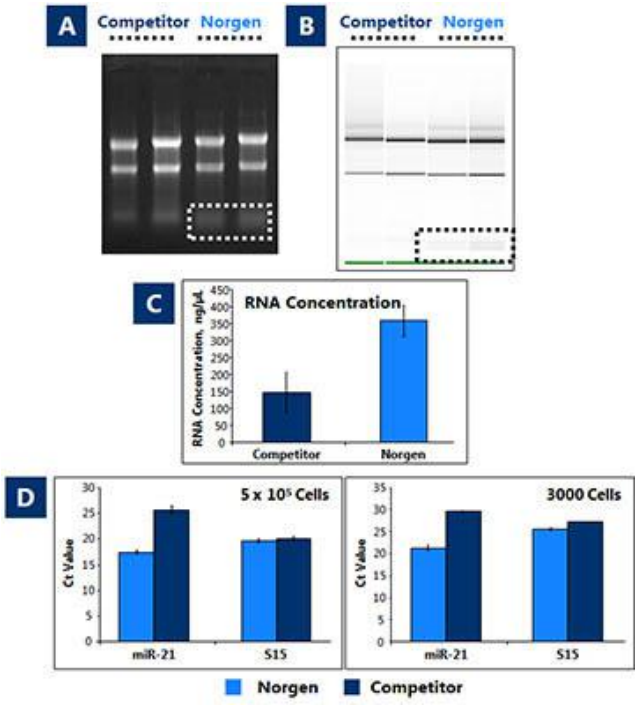

Figure 1. Recovery of True Total RNA including microRNA from HeLa Cells. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of ~500,000 HeLa cells using either Norgen's RNA/DNA/Protein Purification Plus Micro Kit or a competitor's multiple-analyte purification kit. Both kits isolated large RNA (represented by 28S and 18S rRNA) with high integrity but Norgen's RNA/DNA/Protein Purification Plus Micro Kit provided the added benefit of recovering small RNA without any additional protocols. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, Norgen's RNA/DNA/Protein Purification Plus Micro Kit showed the added benefit of recovering small RNA as well as a much higher concentration of RNA (Panel C). The difference in small RNA recovery was also demonstrated by gene-specific RT-qPCR. Two microliters of RNA isolated from both 500,000 and 3,000 HeLa cells were used in RT-qPCR reactions for human S15 (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by Norgen's RNA/DNA/Protein Purification Plus Micro Kit showed similar or better (lower) Ct value than RNA isolated by the competitor's kit for the large RNA. More importantly, Norgen's RNA/DNA/Protein Purification Plus Micro Kit showed superior recovery of small RNA including microRNAs as depicted by the miR-21 RT-qPCR (Panel D).

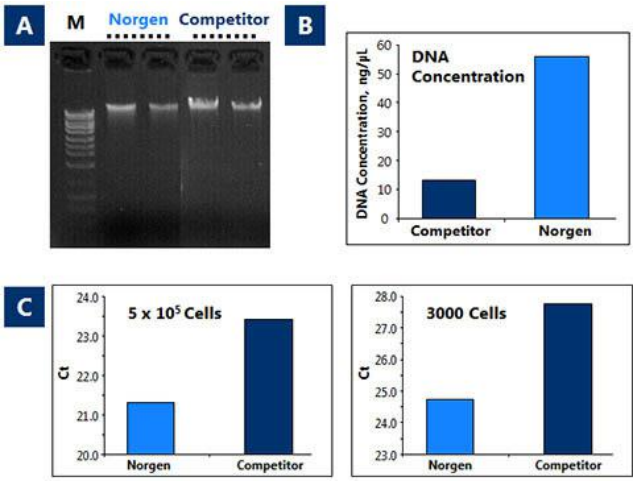

Figure 2. Recovery of Intact, High Quality Genomic DNA from HeLa Cells. Panel A is a 1% agarose gel showing equal amounts of gDNA isolated from the same HeLa cells using Norgen's RNA/DNA/Protein Purification Plus Micro Kit or competitor's multiple-analyte purification kit. Lane M is Norgen's HighRanger 1 kb DNA Ladder. The gel shows high quality, intact genomic DNA with a better DNA concentration using Norgen's RNA/DNA/Protein Purification Plus Micro Kit (Panel B). Panel C is the result of qPCR amplification of 2 µL of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using Norgen's RNA/DNA/Protein Purification Plus Micro Kit is of high quality, and performed better than DNA purified using a competitor's product.

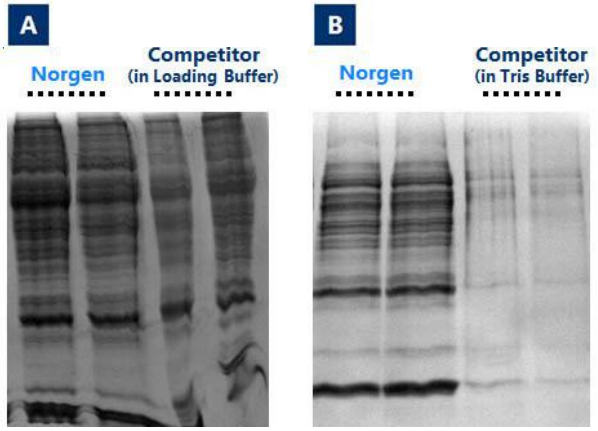

Figure 3. High Quality Total Proteins Eluted in Mass Spec-Compatible Buffer. Norgen's RNA/DNA/Protein Purification Plus Micro Kit provides an additional column purification step for effective concentration and clean-up of the isolated proteins. In contrast, most competing multiple analyte isolation products require protein precipitation and the precipitated proteins need to be resuspended in a buffer with high-detergent content (such as SDS-PAGE loading dye) for full recovery. Protein fractions (from hamster liver) isolated by Norgen's RNA/DNA/Protein Purification Plus Micro Kit and a competitor's kit were resolved on a 12% SDS-PAGE protein gel. Panel A showed that when the competitor's precipitated protein fraction was resuspended in a provided SDS-PAGE loading buffer, the protein recovery was similar among the two kits. Panel B showed that when the same precipitated protein fraction from the competitor's kit was resuspended in a Tris-based buffer containing no detergent or denaturant, the protein recovery became drastically reduced. In contrast, Norgen's RNA/DNA/Protein Purification Plus Micro Kit purified proteins by column and the eluted proteins are already in a buffer compatible with most downstream applications including mass spectrophotometry as well as standard protein quantification methods (including Bradford assays).

Ordering Information

RNA/DNA/Protein Purification Plus Micro Kit	
50 Preps	Cat. 51600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA/DNA/PROTEIN PURIFICATION 96-WELL PLUS KIT (CAT. 51700)

- Consistent, high quality RNA/DNA/Proteins ready for downstream applications
- Sequentially isolate nucleic acids and proteins from a single lysate – no need to split the lysate
- Isolate total RNA including microRNA
- Proteins are eluted ready to use- require no further clean up or purification
- No phenol or chloroform extractions
- Fast and easy processing using vacuum manifold, centrifuge and easily automatable
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **96-WELL SEQUENTIAL ISOLATION** OF **TOTAL RNA, GENOMIC DNA** AND **TOTAL PROTEINS** FROM **THE SAME SAMPLE**

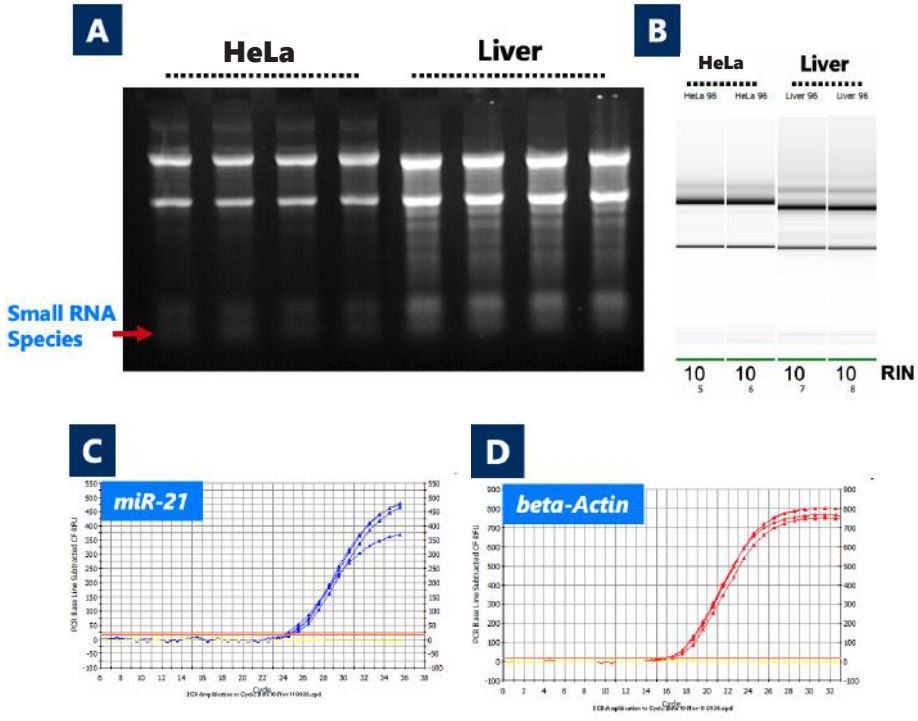

Figure 1. High Throughput Isolation of High Quality RNA with Complete Size Range without the Use of Phenol. Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit allows for the consistent isolation of high quality RNA, with complete size range from the very large RNA down to small RNA without the use of phenol. HeLa RNA and hamster liver RNA was isolated using Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit in replicates. (A) The isolated RNA was resolved on a 1.2% formaldehyde agarose gel. All replicates showed both high yield and high quality. In addition, all replicates showed effective recovery of all sizes of RNA including the small RNA (arrow). (B) The isolated RNA was resolved on an Agilent RNA Nano 6000 Chip. All RNA achieved high RNA Integrity Number (RIN). The RNA isolated by Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit showed good recovery of both small RNA (miR-21, (C)) and large RNA (beta-Actin, (D)).

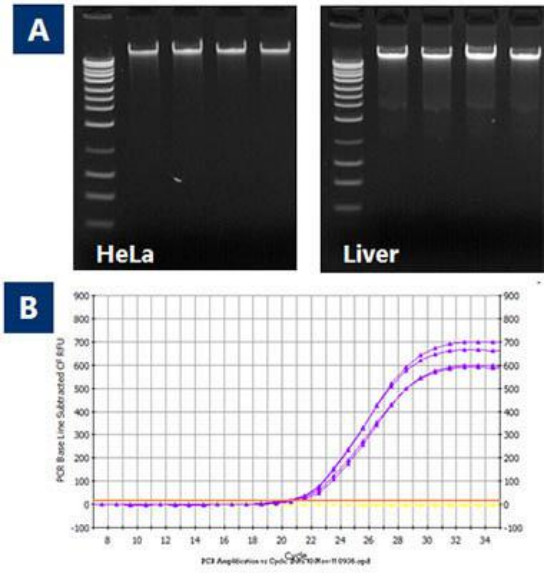

Figure 2 Recovery of Intact, High Quality Genomic DNA from HeLa cells and Hamster Liver. Panel A is a 1% agarose gel showing the gDNA isolated from the same HeLa cell or hamster liver samples using Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit with Norgen's HighRanger 1 kb DNA Ladder and the sample lanes contain 10 µL of each of the 100 µL elutions. The gel showed high quality, and intact genomic DNA. Panel B is the result of qPCR amplification of 25 ng of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit is of high quality and is compatible to sensitive downstream applications.

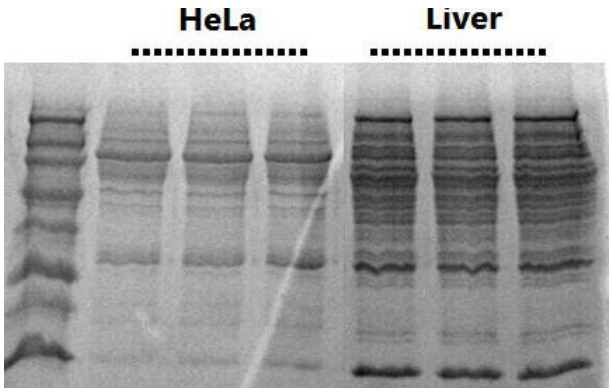

Figure 3. Consistent Isolation and Purification of Total Protein from the same sample used for RNA and DNA Isolation. Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit allows sequential isolation of RNA, DNA and protein from the same sample without splitting. The flowthrough samples from the RNA/DNA isolation in Figure 1 and Figure 2 were further purified using Norgen's RNA/DNA/Protein Purification 96-Well Plus Kit. Ten microliters of the 100 µL protein elutions were loaded on a 10% SDS-PAGE gel. The proteins are consistent in yield, intact and of the highest quality, and can be used in a number of different downstream applications.

Ordering Information

RNA/DNA/Protein Purification 96-Well Plus Kit	
1 x 96-well plate	Cat. 51700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA/DNA PURIFICATION KIT
(CAT. 48700)

- Sequentially isolate and purify total RNA and DNA from a single sample
- Two column system: one for DNA and one for RNA
- The RNA column is for the purification of total RNA including microRNA
- No need to split the lysate, or to use phenol or precipitation methods
- Rapid and efficient spin column procedure - it takes only 30 minutes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **SEQUENTIAL ISOLATION** OF **TOTAL RNA** AND **GENOMIC DNA** FROM **THE SAME SAMPLE**

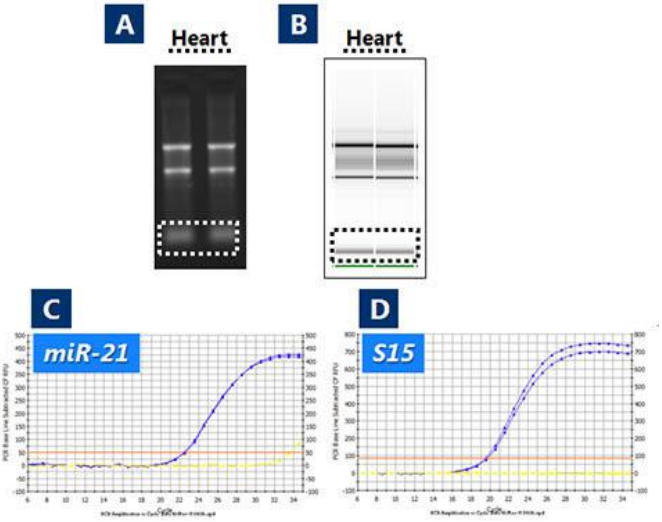

Figure 1. Recovery of True Total RNA including microRNA from Hamster Heart. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of 10 mg hamster heart using Norgen's RNA/DNA Purification Kit. Norgen's RNA/DNA Purification Kit isolated large RNA (represented by 28S and 18S rRNA) with high integrity. Moreover, it provided the added benefit of recovering small RNA without any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, Norgen's RNA/DNA Purification Kit showed the added benefit of recovering small RNA. The effectiveness of small RNA recovery was also demonstrated by gene-specific RT-qPCR. One microgram of RNA was used in RT-qPCR reactions for human S15 (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by Norgen's RNA/DNA Purification Kit showed detection of both small RNA (Panel C) and the large RNA (Panel D).

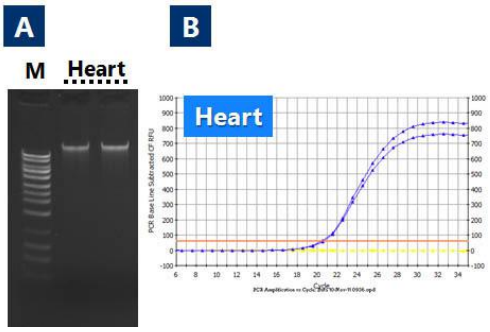

Figure 2. Recovery of Intact, High Quality Genomic DNA from Hamster Heart. Panel A is a 1% agarose gel showing the gDNA isolated from the same hamster heart samples above using Norgen's RNA/DNA Purification Kit. Lane M is Norgen's HighRanger 1 kb DNA Ladder and the sample lanes contain 10 µL of each of the 100 µL elutions. The gel showed high quality, and intact genomic DNA. Panel B is the result of qPCR amplification of 25 ng of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using Norgen's RNA/DNA Purification Kit is of high quality with effective qPCR amplification.

Ordering Information

RNA/DNA Purification Kit	
50 preps	Cat. 48700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA/DNA PURIFICATION MICRO KIT
(CAT. 50300)

- Sequentially isolate and purify total RNA and DNA from a single sample
- Two specialized small diameter columns: 1) for DNA and 2) for RNA
- The RNA column is for the purification of Total RNA including microRNA
- Ideal for cell number inputs of 500,000 and as little as 5 cells
- Elute DNA or RNA in as little as 20 µL for clean and concentrated sample
- No need to split the lysate, or to use phenol or precipitation methods
- Rapid and efficient spin column procedure - it takes only 30 minutes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **SEQUENTIAL ISOLATION** OF **TOTAL RNA** AND **GENOMIC DNA** USING **THE SAME SAMPLE** FROM AS LITTLE AS **20 µL**

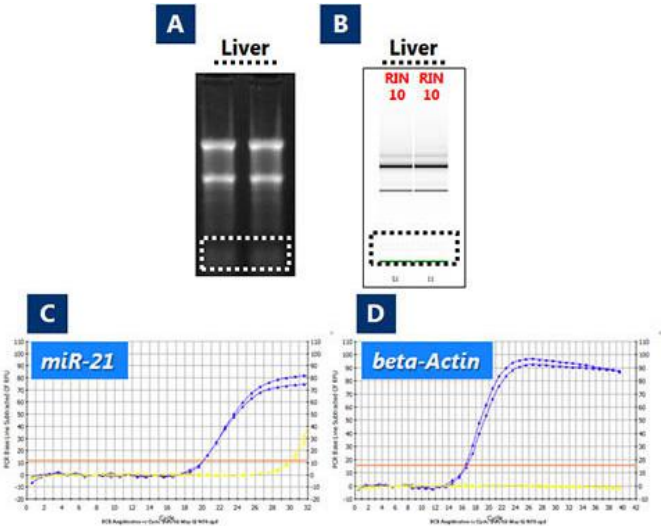

Figure 1. Recovery of True Total RNA including microRNA from Hamster Liver. Panel A is a 1X MOPS 1% agarose gel showing 3 µL of 20 µL eluted RNA that was isolated from 2 different samples of 5 mg hamster liver using Norgen's RNA/DNA Purification Micro Kit. Norgen's RNA/DNA Purification Micro Kit isolated large RNA (represented by 28S and 18S rRNA) with high integrity. Moreover, it provided the added benefit of recovering small RNA without any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, Norgen's RNA/DNA Purification Micro Kit showed the added benefit of recovering small RNA while isolating very high quality RNA. The effectiveness in small RNA recovery was also demonstrated by gene-specific RT-qPCR. One microgram of RNA was used in RT-qPCR reactions for beta-Actin (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated by Norgen's RNA/DNA Purification Micro Kit showed detection of both small RNA (Panel C) and the large RNA (Panel D).

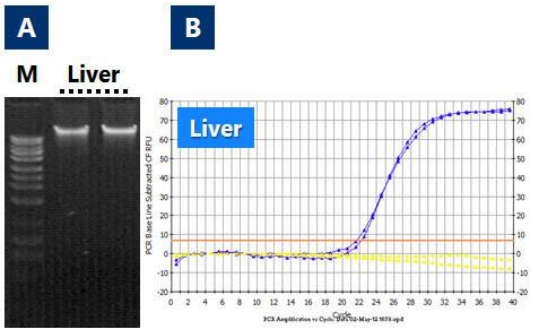

Figure 2. Recovery of Intact, High Quality Genomic DNA from Hamster Liver. Panel A is a 1% agarose gel showing the gDNA isolated from the same hamster liver samples using Norgen's RNA/DNA Purification Micro Kit. Lane M is Norgen's HighRanger 1 kb DNA Ladder and the sample lanes contain 3 µL of each of the 20 µL elutions. The gel showed high quality, and intact genomic DNA. Panel B is the result of qPCR amplification of 25 ng of eluted genomic DNA using 5S rRNA-specific primers. Genomic DNA isolated using Norgen's RNA/DNA Purification Micro Kit is of high quality with effective qPCR amplification.

Ordering Information

RNA/DNA Purification Micro Kit	
50 preps	Cat. 50300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

RNA/PROTEIN PURIFICATION PLUS KIT (CAT. 48200)

- Sequentially purify total RNA and total proteins from a single sample
- Kit includes a gDNA elimination column
- No sample splitting required
- No phenol step required for efficient isolation
- Ideal for small or difficult to obtain samples
- Purify RNA and proteins from cultured animal cells, tissues, blood, bacteria, yeast, fungi or plants
- Rapid and efficient spin column procedure
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **SEQUENTIAL ISOLATION** OF **TOTAL RNA** AND **TOTAL PROTEINS** FROM **THE SAME SAMPLE**

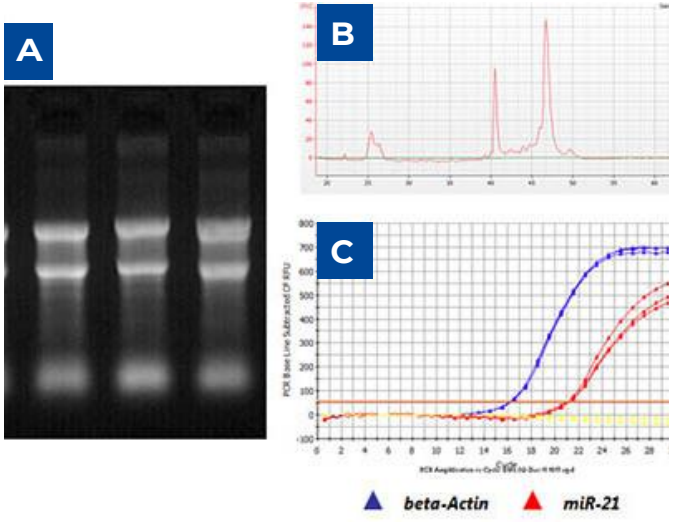

Figure 1. Recovery of True Total RNA including microRNA from Hamster Liver. Panel A is a 1X MOPS 1% agarose gel showing the RNA that was isolated from 2 different samples of 10 mg hamster liver using Norgen's RNA/Protein Purification Plus Kit. Norgen's RNA/Protein Purification Plus Kit isolated both large RNA (represented by 28S and 18S rRNA) as well as small RNA with high integrity and without having to perform any additional protocol. Panel B is a result from a bioanalyzer resolution of the eluted RNA. Similar to the agarose gel, the Bioanalyzer showed that Norgen's RNA/Protein Purification Plus Kit has the added benefit of recovering small RNA. One microgram of the RNA was used in RT-qPCR reactions for the detection of human beta-Actin (for Large RNA) and miR-21 (for microRNA) genes. The RNA isolated using Norgen's RNA/Protein Purification Plus Kit showed superior recovery of both large RNA and small RNA including microRNAs as depicted by the successful miR-21 RT-qPCR (Panel C).

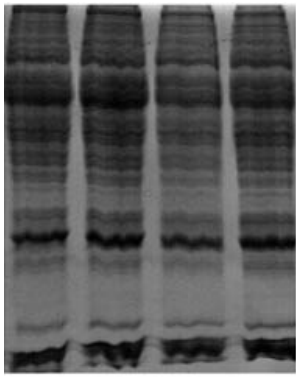

Figure 2. High Quality Total Proteins Eluted in Mass Spec-Compatible Buffer. Norgen's RNA/Protein Purification Plus Kit provides a column purification step for effective concentration and clean-up of the isolated proteins. The proteins are eluted into a buffer which is compatible with many downstream applications including mass spectrometry as well as standard protein quantification methods (including Bradford assays). In contrast, most competing multiple analyte isolation products require protein precipitation and the precipitated proteins are required to be resuspended in buffer with high-detergent content (such as SDS-PAGE loading dye) for full recovery. In this figure, the protein fraction isolated from hamster liver using Norgen's RNA/Protein Purification Plus Kit was resolved direclty on a 12% SDS-PAGE protein gel. Norgen's RNA/Protein Purification Plus Kit purified the proteins by column and the eluted proteins are already in buffer compatible with downstream applications.

Ordering Information

RNA/Protein Purification Plus Kit	
50 preps	Cat. 48200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

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PLASMA/SERUM TOTAL CFC-NUCLEIC ACID ADVANCED PURIFICATION KIT (CAT. 68100)

- Versatile plasma/serum input ranging from 1 mL to 6 mL
- No phenol extractions
- No carrier RNA
- Minimal high molecular weight gDNA contamination in the purified cfc-DNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA and exosomal RNA into a flexible elution volume ranging from 25 µL to 50 µL
- Purify superior-quality and superior-quantity RNA in 45 minutes
- Fully automated purification procedure on Hamilton MicroLab Nimbus
- Compatible with fresh, preserved or frozen serum/plasma prepared from blood collected on either Norgen's cf-DNA/cf-RNA Preservative Tubes (Cat. 63950, 63960), Cell-Free DNA BCT® (Streck), EDTA or Citrate
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg. 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **SIMPLE COMBINED PURIFICATION** OF **ALL SIZES** OF **CFC-DNA, CT-DNA** AND **CIRCULATING/EXOSOMAL RNA, INCLUDING MICRORNA.**

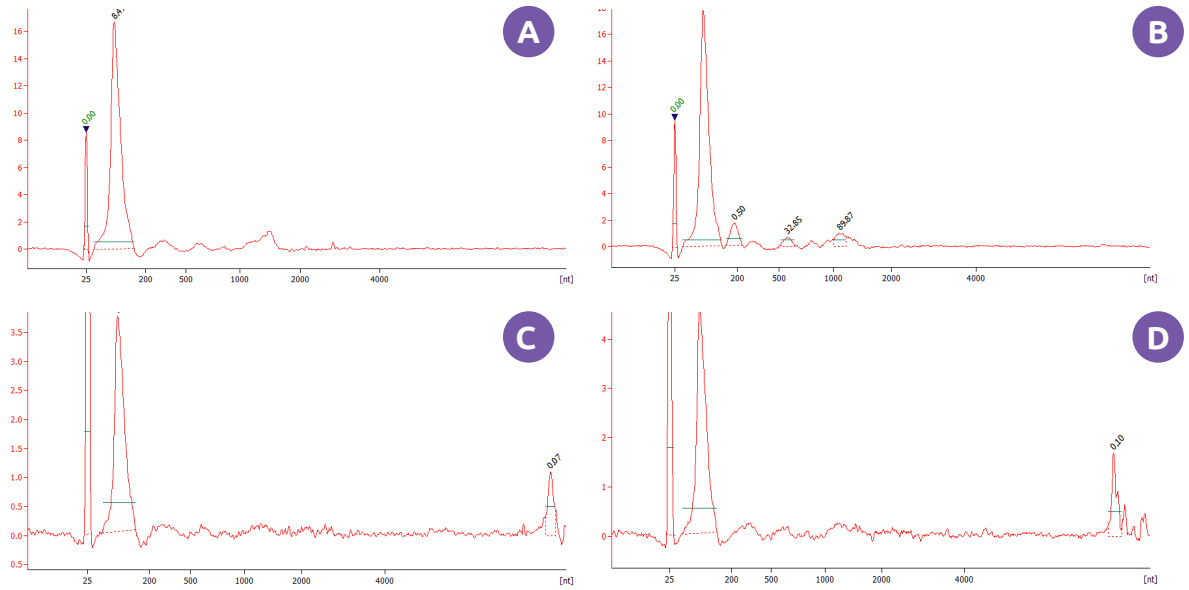

Figure 1. A representative Bioanalyzer RNA Pico Chip trace showing the quality/quantity of the RNA purified from 4 mL K2 EDTA plasma using A) Norgens Plasma/Serum Total cfc-Nucleic Acid Advanced Purification Kit (Automated Isolation), B) Norgens Plasma/Serum Total cfc-Nucleic Acid Advanced Purification Kit (Manual Isolation), C) Competitor Q's ccfDNA/RNA Kit and D) Competitor Q's Circulating Nucleic Acid Kit. All purification methods showed the correct cf-RNA size on the bioanalyzer trace however the amount of the cf-RNA recovered using Norgen's technology (as can be noticed by the height of the cf-RNA peak) was significantly higher than that for the cf-RNA purified using the silica-based technology.

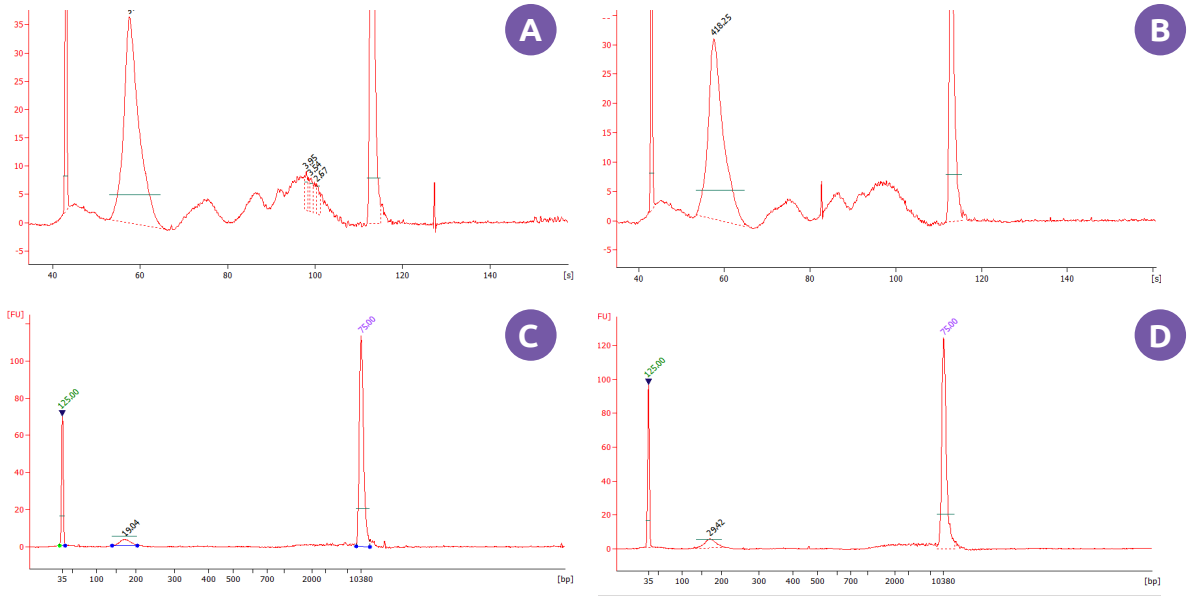

Figure 2. A representative Bioanalyzer High Sensitivity DNA Chip trace showing the quality/quantity of the cf-DNA purified from 4 mL K2 EDTA plasma A) Norgens Plasma/Serum Total cfc-NA Advanced Purification Kit (Automated Isolation), B) Norgens Plasma/Serum Total cfc-NA Advanced Purification Kit (Manual Isolation), C) Competitor Q's ccfDNA/RNA Kit and D) Competitor Q's MinElute ccfDNA Midi Kit. All purification methods showed the correct cf-DNA size (~180bp) on the bioanalyzer trace however the amount of the cf-DNA recovered using Norgens technology (as can be noticed by the height of the cf-DNA peak) was significantly higher than recovered using the silica-based technology.

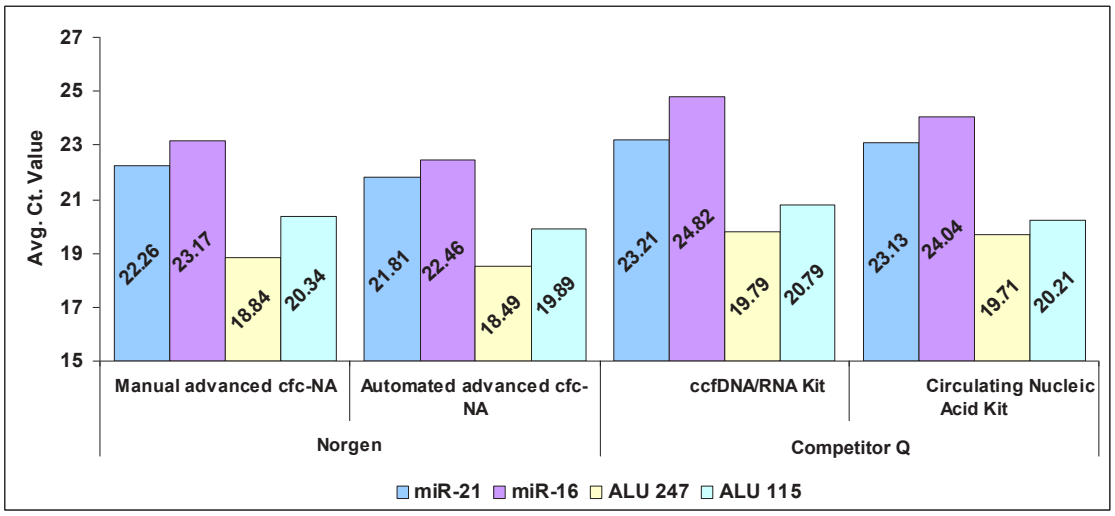

Figure 3. Real-Time PCR amplification of miR-21, miR-16 (cfc-RNA targets) and ALU 247, ALU 115 (cfc-DNA targets) from Total cfc-Nucleic acid purified from 4mL K2 EDTA plasma using different purification methods. Norgen's SiC technology, manual and automated procedure, was superior as compared to the amplification of the same targets amplified from Total Nucleic aicd purified from K2 EDTA plasma using the Silica-based technology represented by Competitor Q.

Ordering Information

Plasma/Serum Total cfc-Nucleic Acid Advanced Purification Kit	
50 preps	Cat. 68100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM CFC-DNA/CFC-RNA ADVANCED FRACTIONATION KIT (CAT. 68300)

- Versatile plasma/serum input ranging from 1 mL to 6 mL
- No phenol extractions or carrier RNA
- Minimal high molecular weight gDNA contamination in the purified cfc-DNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA and exosomal RNA into a flexible elution volume ranging from 25 µL to 50 µL
- Purify superior-quality and superior-quantity RNA in 45 minutes
- **Fully automated** purification procedure on Hamilton MicroLab Nimbus
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg. 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **RAPID** AND **SIMPLE SIMULTANEOUS PURIFICATION** OF **ALL SIZES OF CFC-DNA, CT-DNA** AND **CIRCULATING/EXOSOMAL RNA, INCLUDING MICRORNA** FROM THE **SAME PLASMA/SERUM SAMPLE**

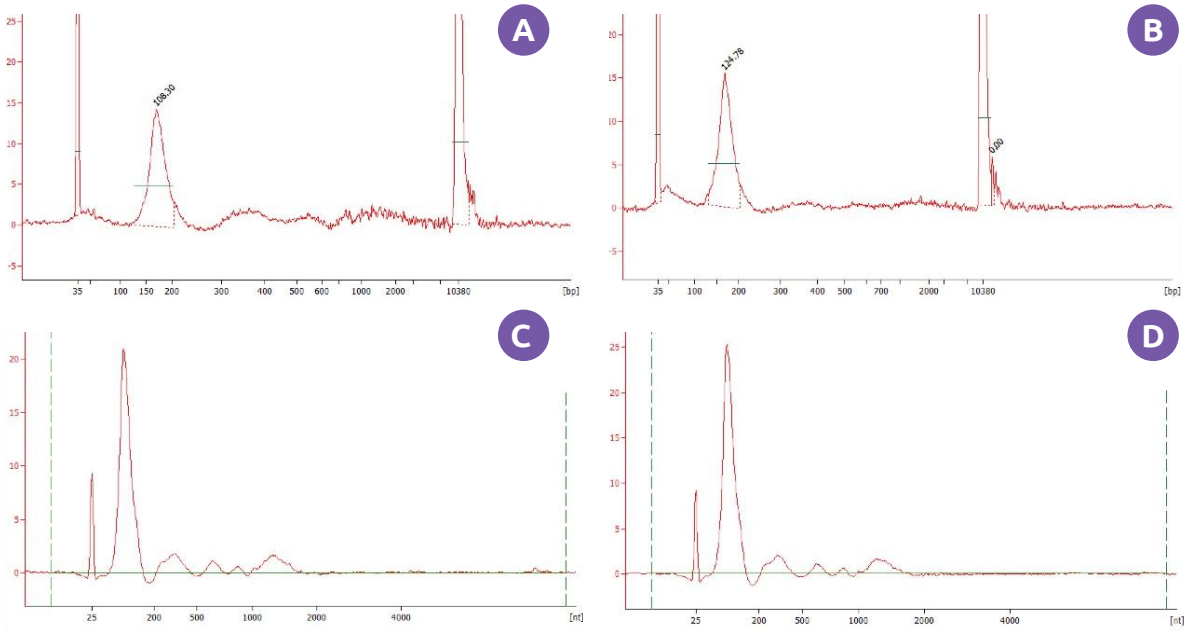

Figure 1. Representative Bioanalyzer RNA Pico Chip traces and High Sensitivity DNA Chip traces showing the quality/quantity of the RNA fraction and the DNA fraction purified simultaneously from the same 4 mL K2 EDTA plasma using both automated and manual isolation. A) Norgens Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit (DNA Fraction from Automated Isolation), B) Norgens Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit (DNA Fraction from Manual Isolation), C) Norgens Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit (RNA Fraction from Automated Isolation), D) Norgens Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit RNA Fraction from Manual Isolation). All purification methods showed the correct cf-RNA size on the Bioanalyzer trace.

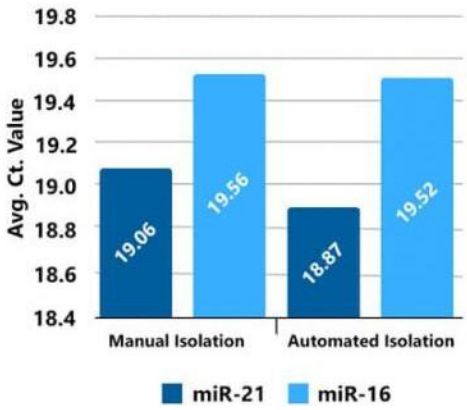

Figure 2. RT-qPCR amplification of miR-21 and miR-16 from the RNA fraction purified from 4mL K2 EDTA plasma using Norgen's Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit, both manually and automated. There is no difference in the amplification of both miR-21 and miR-16 between the automated and the manual isolation.

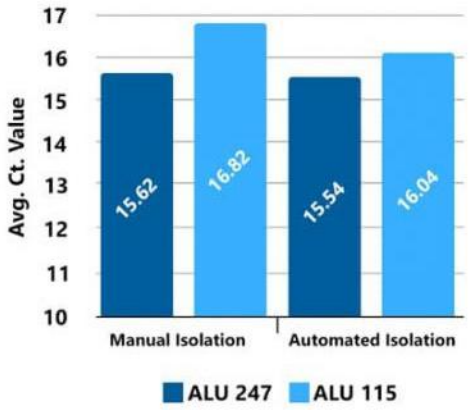

Figure 3. Real-Time PCR amplification of ALU 247 and ALU 115 from the DNA fraction purified from 4mL K2 EDTA plasma using Norgen's Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit, both manually and automated. There is no difference in the amplification of both ALU 247 and ALU 115 between the automated and the manual isolation.

Ordering Information

Plasma/Serum cfc-DNA/cfc-RNA Advanced Fractionation Kit	
50 preps	Cat. 68300

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PLASMA/SERUM RNA/DNA PURIFICATION MINI KIT (CAT. 55200)

- Isolate all sizes of circulating and exosomal RNA, including microRNA
- Isolate all sizes of circulating DNA from plasma and serum samples
- Isolate viral and bacterial DNA and RNA
- Versatile plasma and serum input volumes (10 µL - 200 µL)
- No phenol extractions
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating RNA, exosomal RNA and cell-free circulating DNA into a flexible elution volume ranging from 10 µL to 25 µL
- Isolate inhibitor-free nucleic acids
- Purify high-quality RNA and DNA in 30 minutes

FOR **RAPID** AND **SIMPLE SEQUENTIAL PURIFICATION** OF **CIRCULATING RNA, EXOSOMAL RNA** AND **CFC-DNA** FROM **PLASMA/SERUM SAMPLES**

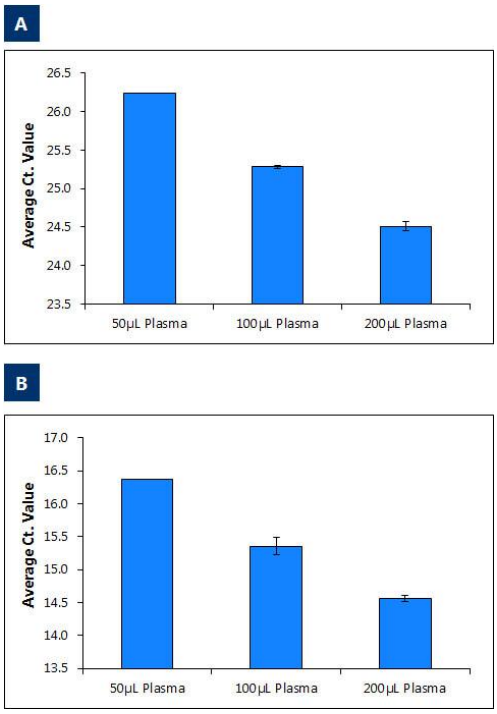

Figure 1. Purification of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum RNA/DNA Purification Mini Kit was used to purify circulating RNA from 50 µL, 100 µL and 200 µL plasma prepared from blood collected on EDTA. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect miR-21 (Figure 1A) and the housekeeping 5S rRNA transcript (Figure 1B). The relative amount of both the miR-21 (Figure 1A) and the 5S rRNA transcript (Figure 1B) is linearly increasing with increasing the sample input volume.

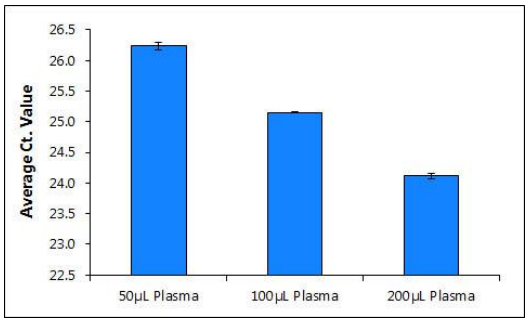

Figure 2. Purification of Cell-Free Circulating DNA from Different Plasma Volumes. Norgen's Plasma/Serum RNA/DNA Purification Mini Kit was used to purify cell-free circulating DNA from 50 µL, 100 µL and 200 µL plasma prepared from blood collected on EDTA. Three microlitres of the purified DNA was then used as the template in qPCR reactions to detect the housekeeping 5S rRNA transcript. The average Ct value for the 5S rRNA gene is linearly decreasing with increasing the sample input volume.

Ordering Information

Plasma/Serum RNA/DNA Purification Mini Kit	
50 preps	Cat. 55200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM CELL-FREE CIRCULATING AND VIRAL NUCLEIC ACID PURIFICATION KITS (CAT. 56300, 56400, 56500)

- Versatile plasma/serum input ranging from 50 µL to 5mL
- No phenol extractions
- No carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating DNA, circulating and exosomal RNA, viral DNA and viral RNA into a flexible elution volume ranging from 10 µL to 100 µL
- Purify high-quality RNA/DNA in 15 -40 minutes
- Compatible with Streck Cell-Free DNA BCT® Tubes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)

ISOLATE ALL SIZES OF CIRCULATING DNA, CIRCULATING AND EXOSOMAL RNA, INCLUDING MICRORNA, VIRAL DNA/RNA IN ONE ELUTION

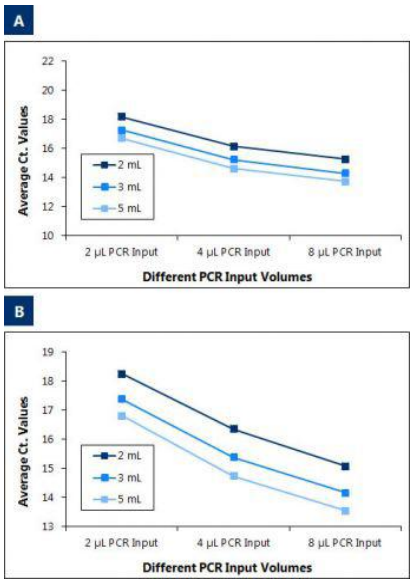

Figure 1. Determination of the amount of inhibition present in plasma RNA samples when detecting the human 5S transcript and miR-21. RNA was isolated from 2 mL, 3 mL and 5 mL plasma using Norgen's Plasma/Serum Cell-Free Circulating and Viral Nucleic Acid Purification Maxi Kit (Cat# 56500). Increasing volumes of the elution (2, 4 and 8 µL) were used in a 20 µL reverse transcription reaction followed by qPCR amplification reaction to observe any decrease in Ct value. An increase in Ct values with increasing amount of template would be a clear indication of PCR inhibitors present in the sample. An increase in the PCR input volume used as a template in the reverse transcription reaction did not affect the Ct value generated from the qPCR amplification for both (A) 5S rRNA transcript and (B) miR-21. In fact the Ct values tend to decrease with increasing the PCR input volume indicating that RNA purified from plasma using Norgen's kit is free of the common inhibitors usually present in plasma.

Ordering Information

Plasma/Serum Cell-Free Circulating and Viral Nucleic Acid Purification Kits	
50 preps (Mini)	Cat. 56300
20 Preps (Midi)	Cat. 56400
10 Preps (Maxi)	Cat. 56500

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE CELL-FREE CIRCULATING AND VIRAL NUCLEIC ACID PURIFICATION KITS (CAT. 59900, 60000, 60100)

- Versatile urine input ranging from 250 µL - 30 mL
- No phenol extractions nor carrier RNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- Concentrate circulating DNA, circulating RNA and exosomal RNA, viral DNA, viral RNA into a flexible elution volume ranging from 50 µL - 100 µL
- Purify high-quality RNA/DNA in 25 - 50 minutes
- Compatible with fresh, frozen or preserved urine sample
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE ALL SIZES OF CIRCULATING DNA, CIRCULATING AND EXOSOMAL RNA, INCLUDING MICRORNA, VIRAL DNA/RNA IN ONE ELUTION

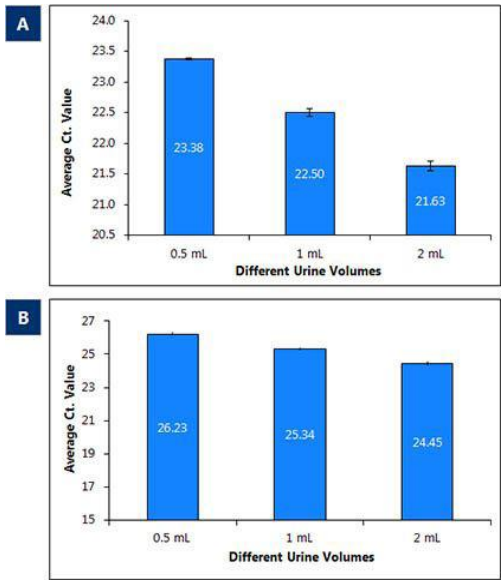

Figure 1. Purification of cell-free circulating RNA and exosomal RNA from different urine volumes. Norgen's Urine Cell-Free Circulating and Viral Nucleic Acid Purification Mini Kit (Cat. 59900) was used to purify cell-free circulating and exosomal RNA from 500 µL, 1 mL and 2 mL urine. Two microlitres of the purified RNA was then used as the template in RT-qPCR reactions to assess the amplification of the purified(A) housekeeping 5S rRNA transcript and (B) miR-21. The average Ct value for both (A) 5S rRNA transcript and (B) miR-21 is linearly decreasing with increasing the sample input volume.

Ordering Information

Urine Cell-Free Circulating And Viral Nucleic Acid Purification Kits	
50 preps (Mini)	Cat. 59900
20 Preps (Midi)	Cat. 60000
10 Preps (Maxi)	Cat. 60100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

STOOL NUCLEIC ACID ISOLATION KIT
(CAT. 45600)

- 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
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **CONVENIENT** AND **RAPID METHOD** TO **ISOLATE TOTAL DNA** AND **RNA** FROM FRESH, FROZEN AND PRESERVED STOOL SAMPLES

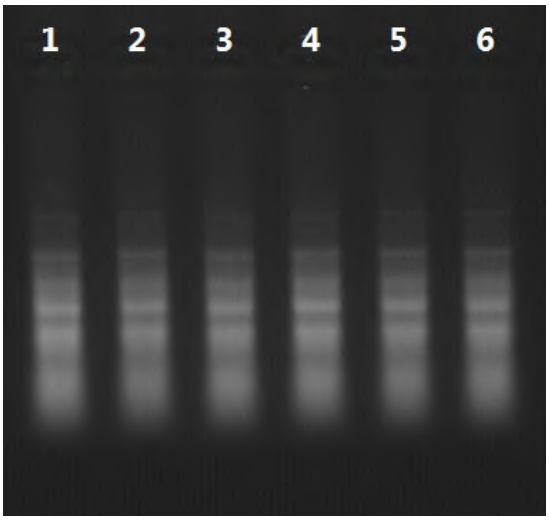

Figure 1. Total RNA Profile from Different Stool Samples. Total RNA and DNA were isolated from 6 different 200 mg human stool samples using Norgen's Stool Nucleic Acid Isolation Kit. For analysis, 7.5 µL from each 75 µL elution were loaded on 1.2 % MOPS agarose gel. All six samples showed a good RNA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

Ordering Information

Stool Nucleic Acid Isolation Kit	
50 preps	Cat. 45600

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FFPE RNA/DNA PURIFICATION PLUS KIT
(CAT. 54300, Dx54300)

- CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746 (Dx54300)
- 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
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

SEQUENTIAL ISOLATION AND PURIFICATION OF **TOTAL RNA** AND **GENOMIC DNA** FROM **FFPE TISSUE SAMPLES**

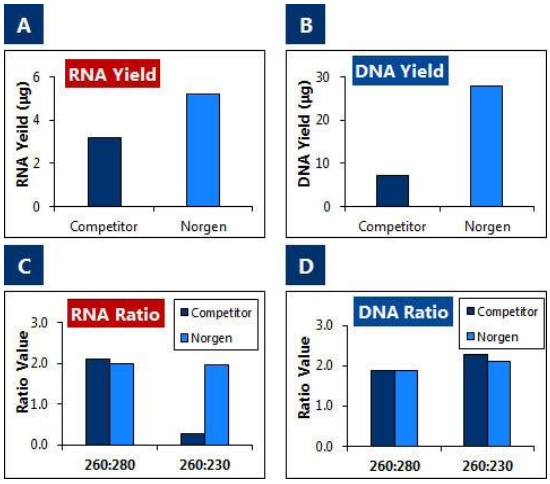

Figure 1. Superior Recovery of High Quality RNA and DNA from FFPE Spleen Tissues. Norgen's FFPE RNA/DNA Purification Plus Kit isolates FFPE RNA and DNA that exceeds the yield of competitors. Total RNA and DNA was isolated from equal amounts of hamster FFPE spleen sections (20 micron thickness) using Norgen's FFPE RNA/DNA Purification Plus Kit and a leading competitor's kit. 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.

Ordering Information

FFPE RNA/DNA Purification Plus Kit	
50 preps	Cat. 54300
50 Preps	Cat. Dx54300

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CE

Intended for *in vitro* diagnostic use
CE-IVDR marked in accordance with the European Commission Regulation (EU) No. 2017/746

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CYTOPLASMIC AND NUCLEAR RNA PURIFICATION KITS (CAT. 21000, 37400)

- Excellent separation and purification of cytoplasmic and nuclear RNA
- Convenient and fast spin column format
- High quality and yield of RNA
- Isolate full diversity of RNA (including microRNA) without phenol
- Purified RNA is ready for any application including RT-PCR, qRT-PCR, RNA-Seq, arrays and more
- Cytoplasmic RNA is free of DNA and ready for direct use in RT-PCR/qRT-PCR
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR THE CONVENIENT PURIFICATION OF **CYTOPLASMIC** AND **NUCLEAR RNA** FROM **CULTURED CELLS** AND **TISSUES**

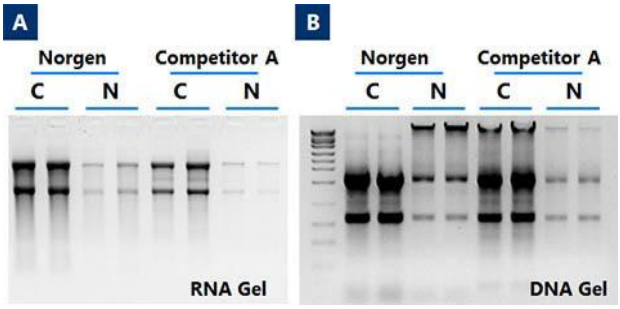

Figure 1. Superior Separation of HeLa Cell Cytoplasmic & Nuclear RNA. Norgen's Cytoplasmic & Nuclear RNA Purification Kit provides better separation of cytoplasmic and nuclear RNA from 0.8 million HeLa cells when compared to a leading competitor's product. Panel A: Cytoplasmic and nuclear RNA purified from HeLa cells using Norgen's kit and a competitor's kit. Ten microliters of each 50 µL elution (Norgen or competitor's kit) of the cytoplasmic (C) or nuclear (N) RNA were run on a 1.5% formaldehyde-agarose gel. Higher yields of RNA with good integrity were isolated using Norgen's kit. Panel B: Ten microliters of the cytoplasmic and nuclear RNA isolated from HeLa cells using Norgen's kit and the competitor's kit was run on a 0.9% agarose gel. Genomic DNA only co-migrates with the nuclear fraction in RNA isolated using Norgen's Cytoplasmic & Nuclear RNA Purification Kit, not the cytoplasmic fraction. Note that an optional on-column DNase treatment protocol is provided to remove the genomic DNA in the nuclear fraction. In contrast, significant genomic DNA contamination was observed in the cytoplasmic fraction of the RNA isolated using the competitor's kit.

Ordering Information

Cytoplasmic and Nuclear RNA Purification Kits	
50 preps	Cat. 21000
100 Preps	Cat. 37400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLANT RNA/DNA PURIFICATION KIT
(CAT. 24400)

- Robust Lysis Solution processes even the most challenging plant species such as pine needle and grape
- No phenol extractions
- DNA and all sizes of RNA are recovered, including microRNA
- High quality DNA and RNA are purified simultaneously using the same spin column
- No need to split the lysate
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR **SIMULTANEOUS ISOLATION** OF **TOTAL RNA** AND **DNA** FROM THE SAME PLANT SAMPLE

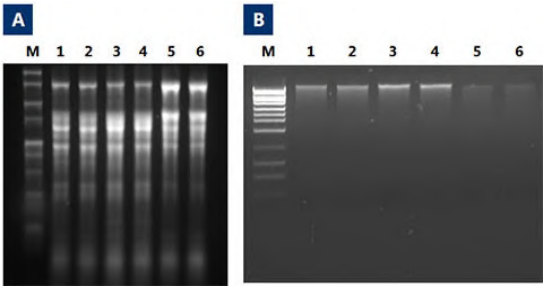

Figure 1. Isolation of Total RNA and Genomic DNA from Tobacco, Tomato and Peach Leaf Tissue. Total RNA and genomic DNA were isolated from 50 mg of tobacco leaf, 50 mg of tomato leaf and 50 mg of peach leaf using Norgen's Plant RNA/DNA Purification Kit. Panel A is a 1X MOPS 1.5% agarose gel showing the total RNA that was isolated after the optional on-column DNase digestion. 5 µL of total RNA from each 75 µL elution was mixed with 2x RNA loading dye and denatured at 70°C for 10 minutes and loaded onto the gel. Lane M is Norgen's 1 kb RNA Ladder, Lanes 1 and 2 contain RNA isolated from tobacco cells, Lanes 3 and 4 contain RNA isolated from tomato cells, and Lanes 5 and 6 contain RNA isolated from peach cells. Panel B is a 1.5% agarose gel containing the genomic DNA that was isolated after the optional on-column RNase digestion, and in each case 10 µL of the 75 µL elution was loaded. Lane M is Norgen's HighRanger 1kb DNA Ladder, Lanes 1 and 2 contain the tobacco DNA, Lanes 3 and 4 contain the tomato DNA, and Lanes 5 and 6 contain the peach DNA. The RNA and DNA are intact and of the highest quality, and can be used in a number of different downstream applications.

Ordering Information

Plant RNA/DNA Purification Kit	
50 preps	Cat. 24400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

WATER RNA/DNA PURIFICATION KITS (0.45 µM AND 0.22 µM) (CAT. 26400, 26450, 26480)

- The kits Cat. 26450, 26400 include filters. For the isolation kit that does not include filters, see Cat. 26480.
- Isolate total DNA and RNA from all microorganisms found in water, including bacteria, fungi and algae
- RNA and DNA are both column purified simultaneously using the same column
- Elution contains concentrated DNA and RNA without the need for further precipitation
- Complete RNA (including microRNA) without phenol
- Isolated RNA and DNA are of high quality and integrity for all downstream applications
- Available in 0.45 µm and 0.22 µm filter formats
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

FOR CONVENIENT PURIFICATION OF **RNA** AND **DNA** FROM MICROORGANISMS IN WATER SAMPLES

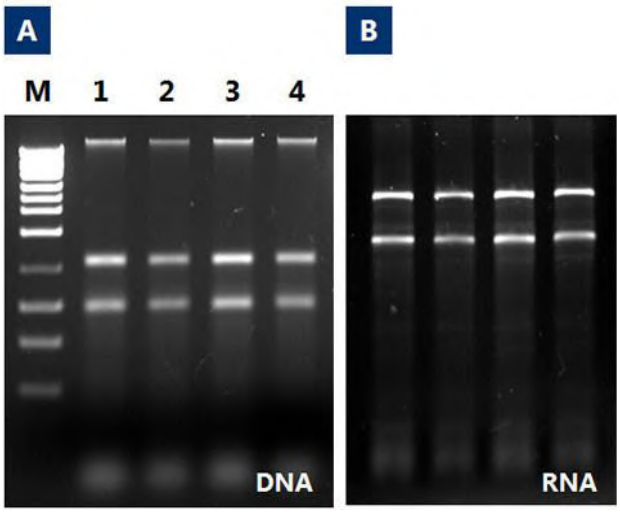

Figure 1. High Yield and Purity of RNA and DNA. Total RNA and DNA were simultaneously isolated from 50 mL of water sample containing 107 cfu/mL E.coli using Norgen's Water RNA/DNA Purification Kit and subsequently run on gels for visual analysis. Panel A shows 10 µL aliquots (no RNase treatment) of the 50 µL elutions run on a 1% TAE agarose gel. Genomic DNA and 16S and 23S rRNA bands were visable. Panel B shows 5 µL aliquots (on-column DNase was applied) of the elution run on a 1.5% formaldehyde agarose gel. 16S and 23S rRNA was seen without DNA contamination. From observing the gels it can be seen that the kit allows for the isolation and purification of high yields of concentrated and high quality RNA and DNA.

Ordering Information

Water RNA/DNA Purification Kits	
25 Preps (0.45 µm)	Cat. 26450
25 Preps (0.22 µm)	Cat. 26400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

Water RNA/DNA Purification Kits	
50 preps	Cat. 26480

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SELECT PUBLICATIONS AND APPLICATION NOTES

RNA/DNA/Protein Purification Plus Kit (Cat. 47700)

El-Mogy, M. A., Abdalla, M. A. ., Misic, V., & Haj-Ahmad, Y. (2017). **Effect of adenovirus infection on transgene expression under the adenoviral MLP/TPL and the CMVie promoter/enhancer in CHO cells.** *Journal of Genetic Engineering and Biotechnology, 15(1)*, 211–217.

https://doi.org/10.1016/j.jgeb.2017.04.003

SCAN ME WITH YOUR SMART PHONE

RNA/DNA Purification Kit (Cat. 48700)

Lobo, J., Constancio, V., Leite-Silva, P., Guimaraes, R., Cantante, M., Braga, I., ... Jeronimo, C. (2021). **Differential methylation EPIC analysis discloses cisplatin-resistance related hypermethylation and tumor-specific heterogeneity within matched primary and metastatic testicular germ cell tumor patient tissue samples.** *Clinical Epigenetics, 13(1),* 70–70.

https://doi.org/10.1186/s13148-021-01048-y

SCAN ME WITH YOUR SMART PHONE

Plasma/Serum Total cfc-Nucleic Acid Advanced Purification Kit (Cat. 50300)

Gat, I., Maghen, L., Filice, M., Wyse, B., Zohni, K., Jarvi, K., ... Librach, C. (2017). **Optimal culture conditions are critical for efficient expansion of human testicular somatic and germ cells in vitro.** *Fertility and Sterility, 107(3),* 595–605.e7.

https://doi.org/10.1016/j.fertnstert.2016.12.028

SCAN ME WITH YOUR SMART PHONE

FFPE RNA/DNA Purification Plus Kit (Cat. 54300, Dx54300)

Włodarski, P. K., Klicka, K., Grzywa, T. M., Klinke, A., Mielniczuk, A., Wejman, J., Ostrowska, J., & Gondek, A. (2022). **Decreased expression of Mir-23b is associated with poor survival of endometrial cancer patients.** *Research Square.*

https://doi.org/10.21203/rs.3.rs-1422217/v1

SCAN ME WITH YOUR SMART PHONE

Cytoplasmic and Nuclear RNA Purification Kits (Cat. 21000, 37400)

Codrich, M., Bertuzzi, M., Russo, R., Francescatto, M., Espinoza, S., Zentilin, L., ... Gustincich, S. (2017). **Neuronal hemoglobin affects dopaminergic cells' response to stress.** *Cell Death & Disease, 8(1),* e2538–e2538.

https://doi.org/10.1038/cddis.2016.458

SCAN ME WITH YOUR SMART PHONE

Water RNA/DNA Purification Kit (0.45 µm and 0.22 µm) (Cat. 26480, 26450, 26400)

de Oliveira, L. F. V., & Margis, R. (2015). **The source of the river as a nursery for microbial diversity.** *PloS One, 10(3),* e0120608–e0120608.

https://doi.org/10.1371/journal.pone.0120608

SCAN ME WITH YOUR SMART PHONE

PLASMA/SERUM EXOSOME PURIFICATION KITS
(CAT. 57400, 57500, 57600)

- Versatile sample input ranging from 50 µL to 10 mL
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents nor overnight incubation required
- No protease treatment required
- Compatible with plasma/serum from any species
- Pure exosomes are purified and are free-from any other RNA-binding proteins
- Purified exosomes can be analyzed using NanoSight® or Electron Microscopy for assessing the approximate exosome size range and concentration
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND ENRICHMENT OF INTACT PLASMA/SERUM EXOSOMES FOR FUNCTIONAL STUDIES

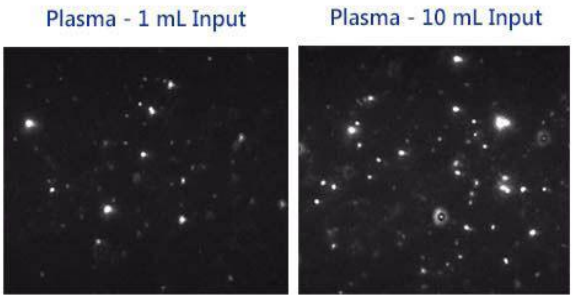

Figure 1. Intact exosomes purified from 1 mL and 10 mL plasma. Intact exosomes were purified from 1 mL plasma using Norgen's Plasma/Serum Exosome Purification Mini Kit (Cat. 57400) and from 10 mL plasma using Norgen's Plasma/Serum Exosome Purification Maxi Kit (Cat. 57600). Exosomes purified using Norgen's Mini kit were resuspended in 200 µL of Norgen's ExoR buffer whereas exosomes purified using Norgen's Maxi kit were resuspended in 600 µL Norgen's ExoR buffer, diluted 1:1,000 and visualized on the NanoSight LM10 instrument. The analysis shows that the purification of exosomes is linear as 4.04 x 10^{10} particles/mL was recovered from 1 mL plasma whereas 2.95 x 10^{11} particles/mL was recovered from 10 mL plasma.

Ordering Information

Plasma/Serum Exosome Purification Kits	
50 Preps (Mini)	Cat. 57400
25 Preps (Midi)	Cat. 57500
15 Preps (Maxi)	Cat. 57600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE EXOSOME PURIFICATION KITS
(CAT. 57700, 57800, 57900)

- Versatile sample input ranging from 250 µL to 30 mL
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents nor overnight incubation required
- No protease treatment required
- Compatible with urine from any species
- Pure exosomes are purified and are free-from any other RNA-binding proteins
- Purified exosomes can be analyzed using NanoSight® or Electron Microscopy for assessing the approximate exosome size range and concentration
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND **ENRICHMENT** OF INTACT URINARY EXOSOMES FOR FUNCTIONAL STUDIES

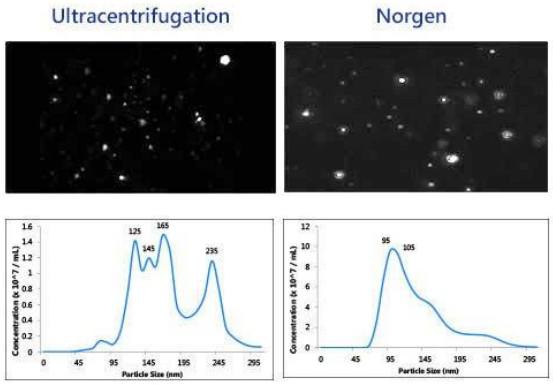

Figure 1. Intact Exosomes were purified from 10 mL urine using Norgen's Urine Exosome Purification Midi Kit (Cat# 57800) and Ultracentrifugation. Exosomes purified using Norgen's kit or ultracentrifugation, were resuspended in 400 µL of Norgen's ExoR buffer, diluted 1:1,000 and visualized on the NanoSight LM10 instrument. The analysis shows that Norgen's kit purified exosomes with sizes ranging from 65 nm to 195 nm, with a total recovery of 7.63 x 10^8 particles/mL. No impurities were found to be contaminating the exosomes purified using Norgen's Urine Exosome Purification Midi Kit as opposed to the exosomes purified using ultracentrifugation, which purified exosomes with larger particle sizes ranging from 125 nm -235 nm with a total recovery of 1.56 x 10^8 particles/mL.

Ordering Information

Urine Exosome Purification Kits	
50 Preps (Mini)	Cat. 57700
25 Preps (Midi)	Cat. 57800
15 Preps (Maxi)	Cat. 57900

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELL CULTURE MEDIA EXOSOME PURIFICATION KITS (CAT. 60400, 60500, 60600)

- Versatile sample input ranging from 5 mL to 35 mL
  - Cell Culture Media Exosome Purification Mini Kit (5 mL - 10 mL)
  - Cell Culture Media Exosome Purification Midi Kit (10 mL - 20 mL)
  - Cell Culture Media Exosome Purification Maxi Kit (20 mL - 35 mL)
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents nor overnight incubation required
- No protease treatment required
- Compatible with cell culture media from any species
- Pure exosomes are purified and are free-from any other RNA-binding proteins
- Purified exosomes can be analyzed using NanoSight® or Electron Microscopy for assessing the approximate exosome size range and concentration
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND ENRICHMENT OF INTACT CELL CULTURE MEDIA EXOSOMES FOR FUNCTIONAL STUDIES

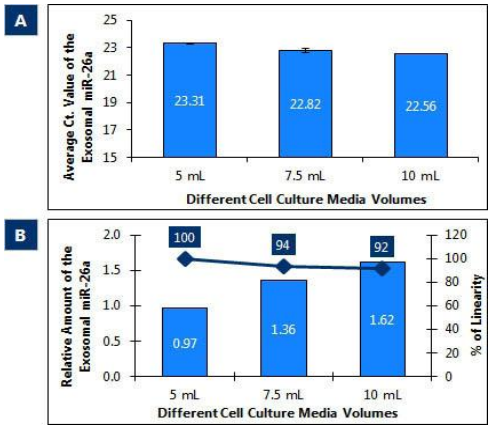

Figure 1. Isolation of RNA from exosomes purified from different cell culture media volumes. Norgen's Cell Culture Media Exosome Purification Mini Kit (Cat.60400) was used to isolate exosomal RNA from exosomes purified from different cell culture media volumes using the same kit. Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated exosomal RNA (A) The exosomal miR-26a is linearly decreasing with increasing the sample input volume. (B) The relative amount of the exosomal miR-26a shows excellent linearity with a percentage of recovery of more than 90%

Ordering Information

Cell Culture Media Exosome Purification Kits	
50 Preps (Mini)	Cat. 60400
25 Preps (Midi)	Cat. 60500
15 Preps (Maxi)	Cat. 60600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SALIVA EXOSOME PURIFICATION KIT (CAT. 65300)

- Versatile sample input ranging from 0.5 mL to 2 mL
- Process fresh saliva or saliva collected with Norgen's **Saliva Exosome Collection and Preservation Device (Cat 65400)**
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents or overnight incubation required
- No protease treatment required
- Purify pure exosomes that are free from RNA-binding proteins
- Purified exosomes can be analyzed using NanoSight® or Electron Microscopy for assessing the approximate exosome size range and concentration
- RNA can be isolated from the purified exosomes using Norgen's **Exosome RNA Purification kit (Cat. 58000)**
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND ENRICHMENT OF INTACT SALIVA EXOSOMES

Preserve **High Quality Exosomes,** for up to **2 years at room temperature** with Norgen's **Saliva Exosome Collection and Preservation Device** (p. 11)

Ordering Information

Saliva Exosome Purification Kit	
50 Preps	Cat. 65300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM EXOSOME PURIFICATION AND RNA ISOLATION KITS (CAT. 58300, 58500, 58600)

- Bind and elute all RNA irrespective of size or GC content, without bias
- Isolate all sizes of exosomal and extracellular vesicle RNA, including microRNA
- Versatile plasma/serum input volume (50 µL - 10 mL)
- No phenol extractions, Proteinase K treatment, nor carrier RNA required
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents, nor overnight incubation required
- Compatible with plasma/serum from any species
- Pure exosomes are purified and are free from any other RNA-binding proteins
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND ENRICHMENT OF INTACT PLASMA/SERUM EXOSOMES FOR FUNCTIONAL STUDIES

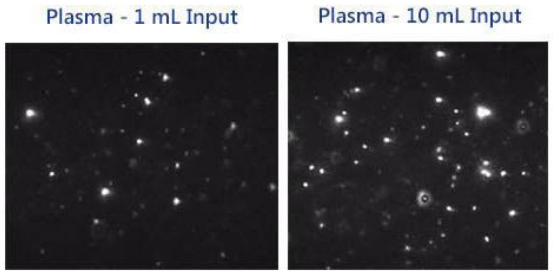

Figure 1. Intact exosomes purified from 1 mL and 10 mL plasma. Intact exosomes were purified from 1 mL plasma using Norgen's Plasma/Serum Exosome Purification and RNA Isolation Mini Kit (Cat# 58300) and from 10 mL plasma using the Plasma/Serum Exosome Purification and RNA Isolation Maxi Kit (Cat#56800). Exosomes purified using Norgen's Mini kit were resuspended in 200 µL Norgen's ExoR buffer whereas exosomes purified using Norgen's Maxi kit were resuspended in 600 µL Norgen's ExoR buffer, diluted 1:1,000 and visualized on the NanoSight LM10 instrument. The analysis shows that the purification of exosomes is linear as 4.04 x 10^{10} particles/mL were recovered from 1 mL plasma whereas 2.95 x 10^{11} particles/mL were recovered from 10 mL plasma.

Ordering Information

Plasma/Serum Exosome Purification and RNA Isolation Kits	
50 Preps (Mini)	Cat. 58300
25 Preps (Midi)	Cat. 58500
15 Preps (Maxi)	Cat. 58600

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE EXOSOME PURIFICATION AND RNA ISOLATION KITS (CAT. 58400, 58700, 58800)

- Bind and elute all RNA irrespective of size or GC content, without bias
- Isolate all sizes of exosomal RNA, including microRNA
- Versatile urine input volume (250 µL to 30 mL)
- No phenol extractions, Proteinase K treatment, nor carrier RNA required
- No time-consuming ultracentrifugation, filtration nor special syringes are required
- No precipitation reagents or overnight incubation required
- Compatible with urine from any species
- Pure exosomes are purified and are free-from any other RNA-binding proteins
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

PURIFICATION AND ENRICHMENT OF INTACT URINARY EXOSOMES FOR FUNCTIONAL STUDIES

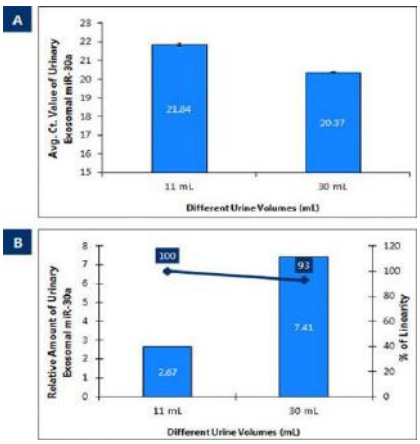

Figure 1. Isolation of RNA from exosomes purified from different urine volumes. Norgen's Urine Exosome Purification and RNA Isolation Maxi Kit (Cat# 58800) was used to isolate RNA from exosomes purified from different urine volumes using the same kit. Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated urinary exosomal miR-30a. (A) The urinary exosomal miR-30a is linearly decreasing with increasing the sample input volume. B) The relative amount of the urinary exosomal miR-30a shows excellent linearity with a percentage of recovery of more than 90%.

Ordering Information

Urine Exosome Purification and RNA Isolation Kits	
50 Preps (Mini)	Cat. 58400
25 Preps (Midi)	Cat. 58700
15 Preps (Maxi)	Cat. 58800

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

CELL CULTURE MEDIA EXOSOME PURIFICATION AND RNA ISOLATION KITS (CAT. 60700, 60800, 60900)

- Purification and enrichment of intact cell culture media exosomes for functional studies
- Bind and elute all RNA irrespective of size or GC content, without bias
- Versatile cell culture media input volume (5 mL - 35 mL)
- No phenol extractions, Proteinase K treatment, nor carrier RNA required
- No time-consuming ultracentrifugation, filtration nor special syringes required
- No precipitation reagents nor overnight incubation required
- Pure exosomes are purified and are free-from any other RNA-binding proteins
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE ALL SIZES OF EXOSOMAL RNA, INCLUDING MICRORNA

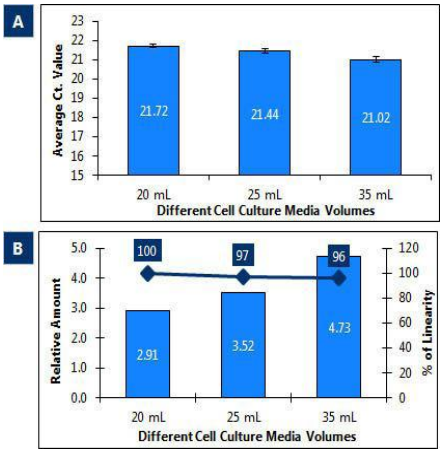

Figure 1. Isolation of RNA from exosomes purified from different cell culture media volumes. Norgen's Cell Culture Media Exosome Purification and RNA Isolation Maxi Kit (Cat# 60900) was used to isolate exosomal RNA from different cell culture media volumes from exosomes purified using the same kit. Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated exosomal RNA. (A) The exosomal miR-26a is linearly decreasing with increasing the sample input volume. (B) The relative amount of the exosomal miR-26a shows excellent linearity with a percentage of recovery of more than 90%.

Ordering Information

Cell Culture Media Exosome Purification and RNA Isolation Kits	
50 Preps (Mini)	Cat. 60700
25 Preps (Midi)	Cat. 60800
15 Preps (Maxi)	Cat. 60900

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

PLASMA/SERUM EXOSOME AND FREE-CIRCULATING RNA ISOLATION KITS (CAT. 59500, 59600, 59700)

- Isolate all sizes of exosomal and extracellular vesicle RNA, including microRNA
- Versatile sample input ranging from 50 µL to 10 mL
- Isolate all sizes of free-circulating RNA, including microRNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- The purified exosomal RNA is free from any circulating RNA-binding proteins
- No phenol extractions, Proteinase K treatment, nor carrier RNA
- No time-consuming ultracentrifugation, filtration nor special syringes are required
- No precipitation reagents, nor overnight incubation required
- Concentrate isolated exosomal RNA and are free-circulating RNA into a flexible elution volume ranging from 50 µL to 100 µL
- Purify high-quality RNA in 15-20 minutes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE ALL SIZES OF EXOSOMAL AND EXTRACELLULAR VESICLE RNA, INCLUDING MICRORNA

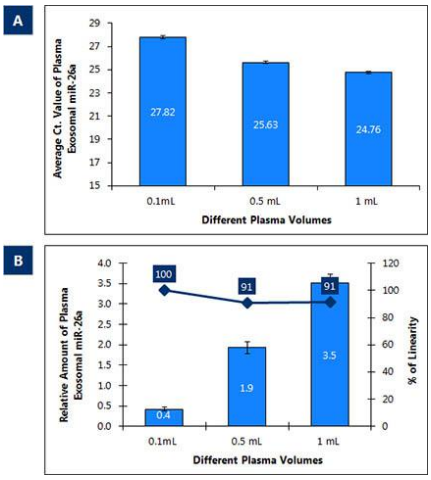

Figure 1. Isolation of RNA from exosomes purified from different plasma volumes. Norgen's Plasma/Serum Exosome and Free-Circulating RNA Isolation Mini Kit (Cat# 59500) was used to isolate Exosomal RNA from different plasma volumes ranging from 0.1 mL and up to 1 mL. Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated plasma exosomal miR-26a. (A) The plasma exosomal miR-26a is linearly decreasing with increasing the sample input volume. B) The relative amount of the plasma exosomal miR-26a shows excellent linearity with a percentage of recovery of more than 90%.

Ordering Information

Plasma/Serum Exosome And Free-Circulating RNA Isolation Kits	
50 Preps (Mini)	Cat. 59500
25 Preps (Midi)	Cat. 59600
15 Preps (Maxi)	Cat. 59700

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

URINE EXOSOME AND FREE-CIRCULATING RNA ISOLATION KITS (CAT. 59200, 59300, 59400)

- Versatile sample input ranging from 250 µL to 30 mL
- Isolate all sizes of free-circulating RNA, including microRNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- The purified exosomal RNA is free from any circulating RNA-binding proteins
- No phenol extractions, Proteinase K treatment nor carrier RNA required
- No time-consuming ultracentrifugation, filtration nor special syringes are required
- No precipitation reagents nor overnight incubation required
- Concentrate isolated exosomal RNA and free-circulating RNA into a flexible elution volume ranging from 50 µL to 100 µL
- Purify high-quality RNA in 15-20 minutes
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

ISOLATE ALL SIZES OF EXOSOMAL AND EXTRACELLULAR VESICLE RNA, INCLUDING MICRORNA

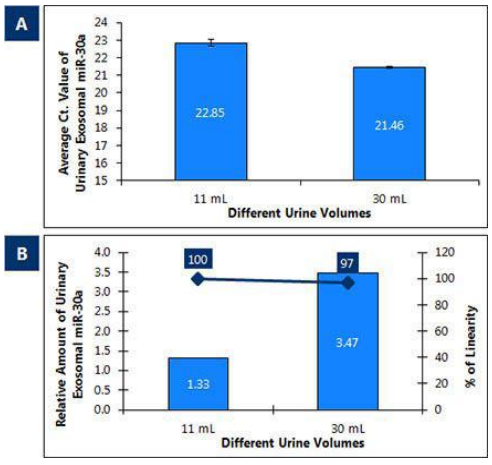

Figure 1. Isolation of RNA from exosomes purified from different urine volumes. Norgens Urine Exosome and Free-Circulating RNA Isolation Maxi Kit (Cat# 59400) was used to isolate exosomal RNA from different urine volumes ranging from 11 mL to 30 mL. Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated urinary exosomal miR-30a. (A) The urinary exosomal miR-30a is linearly decreasing with increasing the sample input volume. B) The relative amount of the urinary exosomal miR-30a shows excellent linearity with a percentage of recovery of more than 90%.

Ordering Information

Urine Exosome And Free-Circulating RNA Isolation Kits	
50 Preps (Mini)	Cat. 59200
25 Preps (Midi)	Cat. 59300
15 Preps (Maxi)	Cat. 59400

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

From Exosomes purified using Norgen's Technology

EXOSOMAL RNA ISOLATION KIT (CAT. 58000)

- Isolate all sizes of exosomal and extracellular vesicle RNA, including microRNA
- Bind and elute all RNA irrespective of size or GC content, without bias
- No phenol extractions
- No Proteinase K treatment
- No carrier RNA
- Concentrate isolated RNA into a flexible elution volume ranging from 50 µL to 100 µL
- Purify high-quality RNA in 15-20 minutes
- Purified RNA is suitable for a variety of downstream applications, including Small RNA Sequencing. Find out more information on Norgen's NGS services (pg 184)
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

THIS KIT IS FOR USE WITH **NORGEN'S EXOSOME PURIFICATION TECHNOLOGY** ONLY

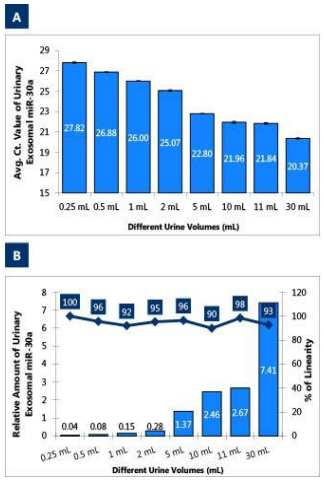

Figure 1. Isolation of RNA from exosomes purified from different urine volumes. Norgen's Exosomal RNA Isolation Kit (Cat# 58000) was used to isolate RNA from exosomes isolated from different urine volumes purified using Norgen's Urine Exosome Purification Kits (Cat# 57700, 57800 and 57900). Two microlitres of the isolated RNA was then used as the template in RT-qPCR reactions to assess the amplification of the isolated urinary exosomal miR-30a. (A) The urinary exosomal miR-30a is linearly decreasing with increasing the sample input volume. B) The relative amount of the urinary exosomal miR-30a shows excellent linearity with a percentage of recovery of more than 90%.

Ordering Information

Exosomal RNA Isolation Kit	
Variable	Cat. 58000

SCAN ME WITH YOUR SMART PHONE

For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FBS EXOSOME DEPLETION KITS (SLURRY FORMAT)
(CAT. 61100, 61400)

- Efficient depletion of cow's exosomes from Fetal Bovine Serum
- Deplete exosome-sized vesicles from versatile FBS volumes of up to 280 mL
- No protease treatment required
- No time-consuming ultracentrifugation
- No precipitation reagents required
- No overnight incubation required
- Depleted FBS has no detectable cow's miRNA
- The depleted FBS provides the same cellular growth rates as the standard FBS
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

EFFICIENT DEPLETION OF COW'S EXOSOMES FROM FETAL BOVINE SERUM

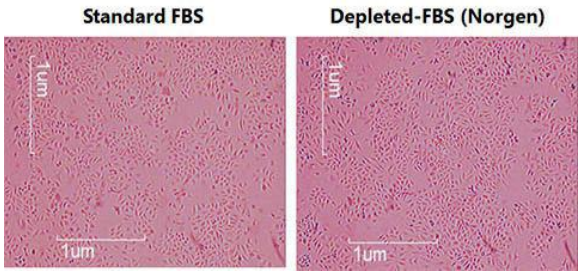

Figure 1. Growth rates of HeLa cells in media containing Exosome-depleted FBS. Growth rates of HeLa cells in media containing Exosome-depleted FBS using Norgen's FBS Exosome Depletion Kits (Slurry Format) was compared to that in media containing standard FBS. Simply, HeLa cells were seeded in DMEM with either 10% Exosome-depleted FBS using Norgen's Kits or 10% standard FBS and then cultured under standard conditions at 37°C with 5% CO^2 for 3 days. The cells were imaged using Moticam 480 to observe cellular morphology and growth rate. Similar growth and identical cellular morphology were detected for both the Exosome-depleted FBS using Norgen's FBS Exosome Depletion Kits and the standard FBS.

Ordering Information

FBS Exosome Depletion Kits (Slurry Format)	
Kit I - 6 Preps	Cat. 61100
Kit II - 12 Preps	Cat. 61400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

FBS EXOSOME DEPLETION KITS (COLUMN FORMAT) (CAT. 61200, 61300)

- Efficient depletion of cow's exosomes from Fetal Bovine Serum
- Deplete exosome-sized vesicles from versatile FBS volumes of up to 240 mL
- No protease treatment required
- No time-consuming ultracentrifugation
- No filtration or special syringes are required
- No precipitation reagents required
- No overnight incubation required
- Depleted FBS has no detectable cow's miRNA
- The depleted FBS provides the same cellular growth rates as the standard FBS
- Purification is based on spin column chromatography that uses Norgen's resin separation matrix

EFFICIENT DEPLETION OF COW'S EXOSOMES FROM FETAL BOVINE SERUM

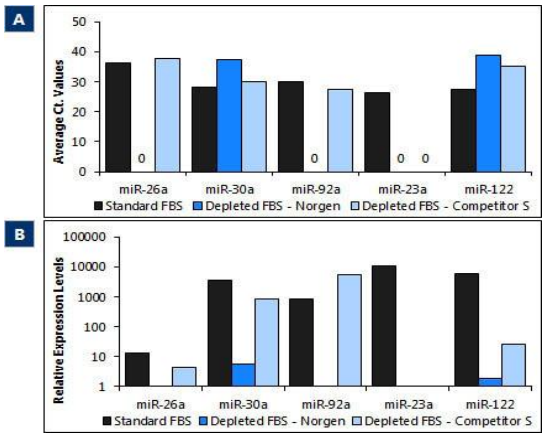

Figure 1. Exosome-depleted FBS with Norgen's FBS Exosome Depletion Kits (Column Format) has undetectable Bovine miRNA levels. Norgen's FBS Exosome Depletion Kit I (Column Format) (Cat# 61200) was used to deplete bovine miRNA from 5mL FBS. Total RNA/miRNA including exosomal RNA was purified from the depleted FBS, non-depleted FBS and a commercially available ready to go depleted FBS using Norgen's Plasma/Serum Cell-Free Circulating DNA Purification Maxi Kit (Cat# 55800). Five different bovine microRNAs were assessed by RT-qPCR (miR-26a, miR-30a, miR-92a, miR-23a and miR-122). Three out of the five tested miRNA (miR-26a, miR-92a and miR-23a) didn't show any amplification in the FBS depleted using Norgen's FBS Exosome Depletion Kit I (Column Format) whereas the other two miRNAs (miR-30a and miR-122) showed very late Ct. values which appeared to be a primer dimer according to the melt curve.

Ordering Information

FBS Exosome Depletion Kits	
Kit I - 6 Preps	Cat. 61200
Kit II - 12 Preps	Cat. 61300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

EXOSOME LABELING AND CLEANING KIT (CAT. 68400)

- Allows for efficient labelling of exosomes with very low levels of background
- Allows for labelling of exosomes isolated using various methods, including Norgen Biotek Corp. proprietary kits, ultracentrifugation and precipitation reagents
- Convenient & fast protocol, which includes both labelling and cleaning procedures
- Excitation at 590 nm/Emission at 617 nm

ALL-IN-ONE SOLUTION FOR THE FLUORESCENT LABELING AND CLEAN-UP OF EXOSOMES

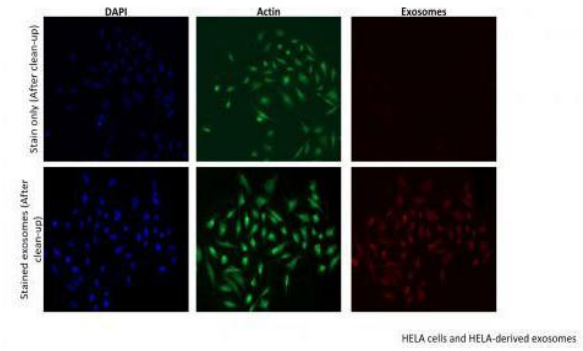

Figure 1. While the stain is selective to the exosomes lipidic membrane, the absence of cellular staining in presence of only the labeling molecule shows that the cleaning step is effective and leads to no labeling molecule carryover.

Ordering Information

Exosome Labeling and Cleaning Kit (Slurry Format)	
25 rxns	Cat. 68400

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

SELECT PUBLICATIONS AND APPLICATION NOTES

Plasma/Serum Exosome Purification Kits (Cat. 57400, 57500, 57600)

Reale, A., Carmichael, I., Xu, R., Mithraprabhu, S., Khong, T., Chen, M., ... Spencer, A. (2021). **Human myeloma cell- and plasma-derived extracellular vesicles contribute to functional regulation of stromal cells.** *Proteomics (Weinheim), 21(13-14),* e2000119–n/a.

https://doi.org/10.1002/pmic.202000119

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Urine Exosome Purification Kits (Cat. 57700, 57800, 57900)

Peng, Q., Chiu, P. K.-F., Wong, C. Y.-P., Cheng, C. K.-L., Teoh, J. Y.-C., & Ng, C.-F. (2021). **Identification of piRNA Targets in Urinary Extracellular Vesicles for the Diagnosis of Prostate Cancer.** *Diagnostics (Basel), 11(10),* 1828–.

https://doi.org/10.3390/diagnostics11101828

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Cell Culture Media Exosome Purification Kits (Cat. 60400, 60500, 60600)

Pane, K., Quintavalle, C., Nuzzo, S., Ingenito, F., Roscigno, G., Affinito, A., ... Condorelli, G. (2022). **Comparative Proteomic Profiling of Secreted Extracellular Vesicles from Breast Fibroadenoma and Malignant Lesions: A Pilot Study.** *International Journal of Molecular Sciences, 23(7),* 3989–.

https://doi.org/10.3390/ijms23073989

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Plasma/Serum Exosome Purification And RNA Isolation Kits (Cat. 58300, 58500, 58600)

Sundar, I. K., Li, D., & Rahman, I. (2019). **Small RNA-sequence analysis of plasma-derived extracellular vesicle miRNAs in smokers and patients with chronic obstructive pulmonary disease as circulating biomarkers.** *Journal of Extracellular Vesicles, 8(1),* 1684816–n/a.

https://doi.org/10.1080/20013078.2019.1684816

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Urine Exosome Purification And RNA Isolation Kits (Cat. 58400, 58700, 58800)

Herrera-Van Oostdam, A. S., Toro-Ortiz, J. C., Lopez, J. A., Noyola, D. E., Garcia-Lopez, D. A., Duran-Figueroa, N. V., ... Lopez-Hernandez, Y. (2020). **Placental exosomes isolated from urine of patients with gestational diabetes exhibit a differential profile expression of microRNAs across gestation.** *International Journal of Molecular Medicine, 46(2),* 546–560.

https://doi.org/10.3892/ijmm.2020.4626

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Urine Exosome Purification And RNA Isolation Kits (Cat. 58400, 58700, 58800)

Kuji, T., Sugasawa, T., Fujita, S., Ono, S., Kawakami, Y., & Takekoshi, K. (2021). **A Pilot Study of miRNA Expression Profile as a Liquid Biopsy for Full-Marathon Participants.** *Sports (Basel), 9(10),* 134–.

https://doi.org/10.3390/sports9100134

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Cell Culture Media Exosome Purification And RNA Isolation Kits (Cat. 60700, 60800, 60900)

Sundar, I. K., Li, D., & Rahman, I. (2019). **Small RNA-sequence analysis of plasma-derived extracellular vesicle miRNAs in smokers and patients with chronic obstructive pulmonary disease as circulating biomarkers.** *Journal of Extracellular Vesicles, 8(1),* 1684816–n/a.

https://doi.org/10.1080/20013078.2019.1684816

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AAV PURIFICATION KIT
(CAT. 66100)

- AAV Purification from cell fraction or media fraction
- Rapid purification within 2 to 4.5 hours
- High AAV recovery, up to 90%
- No specialized equipment needed
- Purification from a variety of AAV serotypes (including AAV6 and AAV9)
- Purify AAV cell culture supernatant from 1 mL to 33.5 mL input per prep
- Yields highly active AAV for *in vivo* and *in vitro* experiments
- Up to 33X sample concentration
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **FAST** AND **SIMPLE** PROCEDURE FOR **CONCENTRATING** AND **PURIFYING AAV VECTORS** FROM CELL LYSATE AND CELL CULTURE MEDIA.

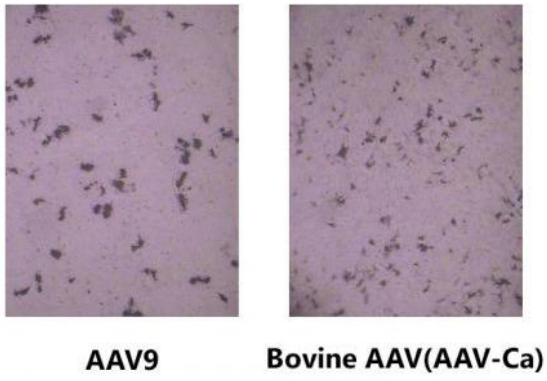

Figure 1. *In vitro* transduction. HTX cells transduced with 50 µL eluted vector from the Norgen AAV Purification Kit after purification of cell culture supernatant containing AAV. Both AAV9 and a bovine AAV capsid (isolate AAV-Ca) were tested in vitro on HTX cells. The vector encoded an alkaline phosphatase reporter gene driven by the CAG promoter. Dark/purple staining represents cells that have been transduced by AAV bearing the alkaline phosphatase reporter gene.

Ordering Information

AAV Purification Kit	
15 Preps	Cat. 66100

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

AAV PURIFICATION MINI KIT
(CAT. 63200)

- AAV Purification from cell fraction, media fraction, or mixed cells and media
- Rapid purification within 1 to 2 hours
- High AAV recovery, up to 90%
- No specialized equipment needed
- Purification from a variety of AAV serotypes
- Purify AAV from 0.5 mL to 8 mL input
- Yields highly active AAV for *in vitro* experiments
- Up to 50x sample concentration
- Multiple purifications (20 per kit) can be done in parallel for rapid screening experiments
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **FAST** AND **SIMPLE** PROCEDURE FOR **CONCENTRATING** AND **PURIFYING AAV VECTORS** FROM CELL LYSATE AND CELL CULTURE MEDIA.

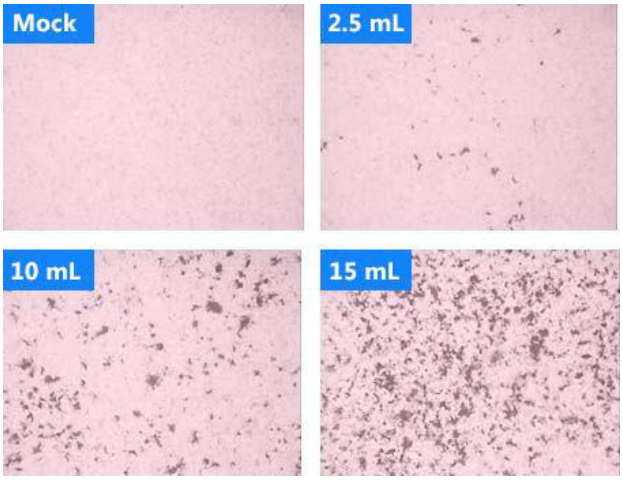

Figure 1. Transduction of HTX cells with Norgen's AAV Purification Mini Kit with different input volumes of mixed cells and supernatant (0.5 mL. 2.5 mL, 10 mL and 15 mL). Microscopic view of HTX cells transduced with biologically active AAV vector after purification using Norgen's AAV Purification Mini Kit (dark purple represents alkaline phosphatase transgene expression).

Ordering Information

AAV Purification Mini Kit	
20 Preps	Cat. 63200

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

AAV PURIFICATION MIDI KIT
(CAT. 63300)

- AAV Purification from cell fraction, media fraction, or mixed cells and media
- Rapid purification within 2 to 2.5 hours
- High AAV recovery, up to 90%
- No specialized equipment needed
- Purification from a variety of AAV serotypes
- Purify AAV from 8 mL to 45 mL input
- Yields highly active AAV for *in vitro* experiments
- Up to 50X sample concentration
- Multiple purifications (8 per kit) can be done in parallel. More parallel purifications can be done with additional kits
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **FAST** AND **SIMPLE** PROCEDURE FOR **CONCENTRATING** AND **PURIFYING AAV VECTORS** FROM CELL LYSATE AND CELL CULTURE MEDIA.

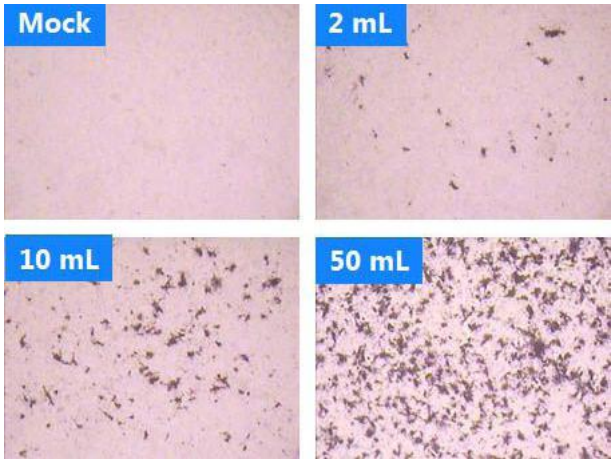

Figure 1. Transduction of HTX cells with Norgen's AAV Purification Midi Kit with different input volumes (2 mL, 10 mL and 50 mL) of mixed cells and supernatant. Microscopic view of HTX cells transduced with biologically active AAV vector after purification using Norgen's AAV Purification Midi Kit (dark purple represents alkaline phosphatase transgene expression).

Ordering Information

AAV Purification Midi Kit	
4-8 Preps	Cat. 63300

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

AAV PURIFICATION MAXI SLURRY KIT
(CAT. 63250)

- AAV Purification from cell fraction, media fraction, or mixed cells and media
- Rapid purification within 2.5 to 3.5 hours, with optional concentration step
- 1-10 mL final elution volume
- High AAV recovery, up to 90%
- No specialized equipment needed
- Purification from a variety of AAV serotypes
- Purify AAV from 90 mL to 900 mL of input per run
- Yields highly active AAV for *in vitro* experiments
- Up to 200-fold sample concentration
- Multiple purifications (10 per kit, 90 mL each) can be done in parallel, or 1 single large purification of 900 mL of input
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

A **FAST** AND **SIMPLE** PROCEDURE FOR **CONCENTRATING** AND **PURIFYING AAV VECTORS** FROM CELL LYSATE AND CELL CULTURE MEDIA.

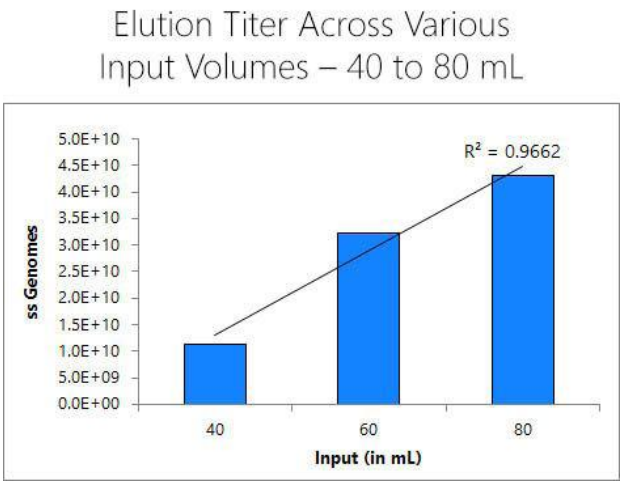

Figure 1. Supernatant from cells transfected with AAV production plasmids was purified using the Norgen AAV Purification Maxi Slurry Kit. Three different volumes were tested: 40, 60 and 80 mL, demonstrating scalable purification of AAV vector over increasing volumes.

Ordering Information

AAV Purification Maxi Slurry Kit	
1-10 Preps	Cat. 63250

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

ADENOVIRUS PURIFICATION KIT
(CAT. 67600)

- Adenovirus Purification from cell fraction or media fraction
- Rapid purification within 2 to 4.5 hours
- No specialized equipment needed (ultracentrifuge not required)
- Purify adenovirus cell culture supernatant from 1 mL to 33.5 mL input per prep
- Purify adenovirus cell pellet from 1 mL of input per prep
- Up to 25X sample concentration
- Purification is based on spin column chromatography that uses Norgen's proprietary resin separation matrix

SIMPLE AND RAPID ADENOVIRUS PURIFICATION

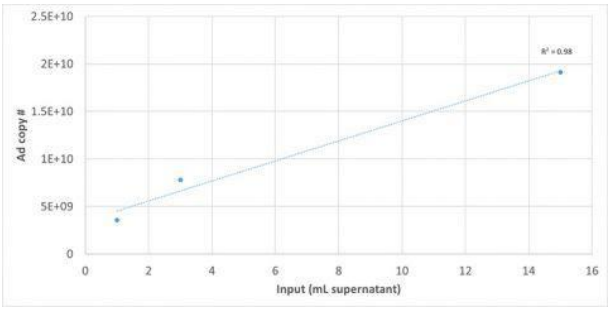

Figure 1. Total adenoviral vector eluted for 1, 3, or 15 mL of supernatant containing adenovirus. An increase in titer is observed as the volume of adenovirus containing supernatant increases, demonstrating effective purification at different volumes.

Ordering Information

Adenovirus Purification Kit	
15 Preps	Cat. 67600

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SMALL RNA LIBRARY PREP KIT FOR ILLUMINA
(CAT. 63600, 63620)

- Optimized for ultra-low input RNA, especially from bodily fluids such as plasma or serum from as little as 1 ng of RNA
- Simple and quick workflow: libraries can be prepared in less than 5 hours
- No gel purification for selected types of samples
- Protocol optimized for RNA isolated from different types of input, including liquid biopsies (blood, plasma, serum, urine & exosomes)
- Complements Norgen's Best-in-Class Total RNA (including microRNA) Purification Technology

GENERATE **SMALL RNA LIBRARIES** TO BE USED FOR **NEXT-GENERATION SEQUENCING**

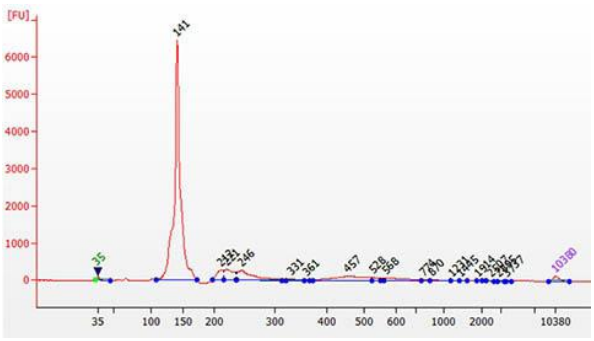

Figure 1. An example of a purified small RNA library on an Agilent 2100 Bioanalyzer using a High Sensitivity DNA Chip. The library was prepared using a mixture of synthetic microRNAs as an input. A single peak of ~ 141 bp was obtained and could be used directly for analysis on an Illumina next-generation sequencing platform.

Ordering Information

Small RNA Library Prep Kit for Illumina	
24 Preps	Cat. 63600 (Indexes 1-24)
24 Preps	Cat. 63620 (Indexes 25-48)

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

NGS LIBRARY QUANTIFICATION KIT (FOR SMALL RNA-SEQ) (CAT. 61600)

- Able to quantify NGS Libraries (Illumina) of a wide spectrum of concentrations, including sub-nanomolar concentrations
- DNA is accurately quantified by using a standard curve
- Specially designed DNA standards for Small RNA-Seq library; also compatible to NGS library of other molecular weights

A **PCR-BASED DETECTION** PROCEDURE TO **QUANTIFY NGS LIBRARIES** OF A **WIDE SPECTRUM OF CONCENTRATIONS**

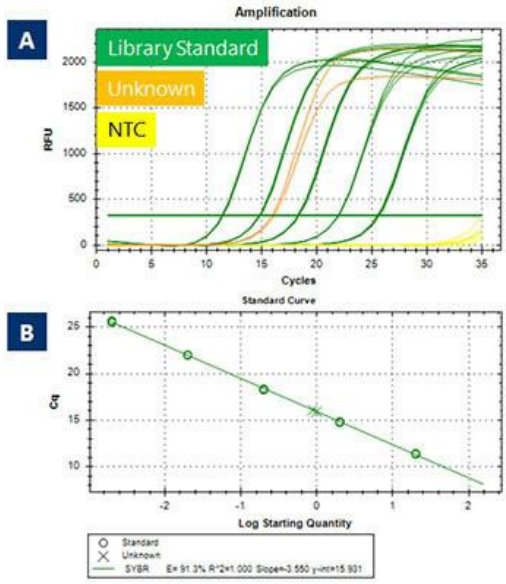

Figure 1. A representative qPCR baseline graph showing the successful amplification of Quantified NGS Library Standards (Green) with a range from 20 pM to 2 fM, using Norgens NGS Library Quantification Kit (for Small RNA-Seq) (Panel A). Duplicate amplification of a sample Small RNA-Seq library (at 1:10,000 dilution) was performed (Orange). The derived library concentration was 9.41 nM. Norgen's NGS Library Quantification Kit (for Small RNA-Seq) is of good quality as shown with the high PCR efficiency and correlation in the standard curve (Panel B) with low background signals (No Template Control NTC as Yellow in Panel A).

Ordering Information

NGS Library Quantification Kit	
100 Rxns	Cat. 61600

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16S LIBRARY PREPARATION KITS FOR ILLUMINA
(CAT. 70100, 70110, 70120...) *See page 165 complete catalog

- Protocol optimized for DNA isolated from a diversity of samples including stool, soil, water, saliva, plant, urine, skin, and more
- Simple and quick workflow: library could be prepared in less than 5 hours
- Component of Norgen's metagenomics workflow
- A single NGS run can be prepared with up to 384 unique dual-index libraries

FOR **LIBRARY PREPARATION** OF THE **9 VARIABLE REGIONS** OF THE **16S RNA GENE**

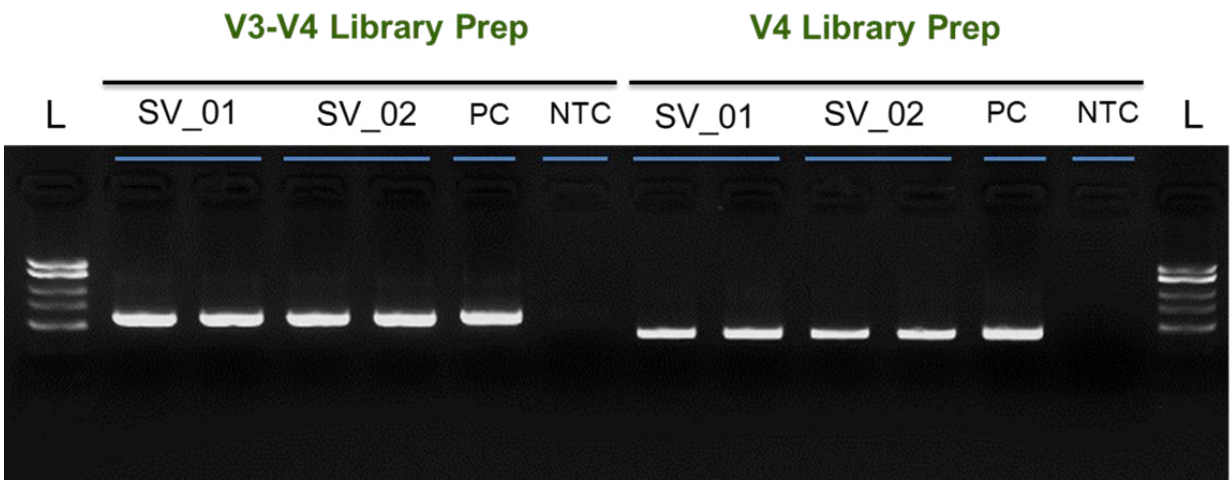

Figure 1. 16S rRNA V3-V4 PCR1 Amplification (left), and 16S rRNA V4 PCR1 Amplification (right)

***Ordering Information**

16S V1-V2 Library Preparation Kit for Illumina	
24 Preps	Cat. 70100
96 Preps (Set A)	Cat. 70110
96 Preps (Set B)	Cat. 70120
96 Preps (Set C)	Cat. 70130
96 Preps (Set D)	Cat. 70140
16S V1-V3 Library Preparation Kit for Illumina	
24 Preps	Cat. 70200
96 Preps (Set A)	Cat. 70210
96 Preps (Set B)	Cat. 70220
96 Preps (Set C)	Cat. 70230
96 Preps (Set D)	Cat. 70240
16S V2-V3 Library Preparation Kit for Illumina	
24 Preps	Cat. 70300
96 Preps (Set A)	Cat. 70310
96 Preps (Set B)	Cat. 70320
96 Preps (Set C)	Cat. 70330
96 Preps (Set D)	Cat. 70340
16S V3-V4 Library Preparation Kit for Illumina	
24 Preps	Cat. 70400
96 Preps (Set A)	Cat. 70410
96 Preps (Set B)	Cat. 70420
96 Preps (Set C)	Cat. 70430
96 Preps (Set D)	Cat. 70440
16S V3-V5 Library Preparation Kit for Illumina	
24 Preps	Cat. 70500
96 Preps (Set A)	Cat. 70510
96 Preps (Set B)	Cat. 70520
96 Preps (Set C)	Cat. 70530
96 Preps (Set D)	Cat. 70540

16S V4 Library Preparation Kit for Illumina	
24 Preps	Cat. 70600
96 Preps (Set A)	Cat. 70610
96 Preps (Set B)	Cat. 70620
96 Preps (Set C)	Cat. 70630
96 Preps (Set D)	Cat. 70640
16S V4-V5 Library Preparation Kit for Illumina	
24 Preps	Cat. 70700
96 Preps (Set A)	Cat. 70710
96 Preps (Set B)	Cat. 70720
96 Preps (Set C)	Cat. 70730
96 Preps (Set D)	Cat. 70740
16S V5-V7 Library Preparation Kit for Illumina	
24 Preps	Cat. 70800
96 Preps (Set A)	Cat. 70810
96 Preps (Set B)	Cat. 70820
96 Preps (Set C)	Cat. 70830
96 Preps (Set D)	Cat. 70840
16S V7-V9 Library Preparation Kit for Illumina	
24 Preps	Cat. 70900
96 Preps (Set A)	Cat. 70910
96 Preps (Set B)	Cat. 70920
96 Preps (Set C)	Cat. 70930
96 Preps (Set D)	Cat. 70940

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NGS NORMALIZATION 96-WELL KIT
(CAT. 61900)

- Removes primer dimers
- Simultaneously clean-up and normalize PCR products
- Fast (less than 20 minutes), high-throughput and easy processing using centrifugation
- Sufficient elution volume (100 µL) for repeat or future assays
- Non-magnetic bead purification

A **PCR-BASED DETECTION** PROCEDURE TO **QUANTIFY NGS LIBRARIES** OF A **WIDE SPECTRUM OF CONCENTRATIONS.**

Input		SequalPrep			Norgen		
Avg	Std Dev	Avg	Std Dev	Error %	Avg	Std Dev	Error %
27	0.4	1.87	0.66	35.41	4.38	0.68	15.41

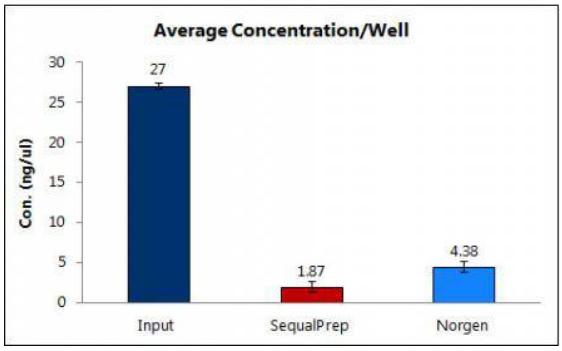

Figure 1. The efficiency of the DNA normalization in comparison with SequalPrep (Invitrogen). Norgen's NGS Normalization 96-Well Kit showed a lower error percentage compared to Invitrogen's SequalPrep Kit, indicating the uniformed normalization performance of Norgen's kit.

Ordering Information

NGS Normalization 96-Well Kit	
2 x 96-Well Plates	Cat. 61900

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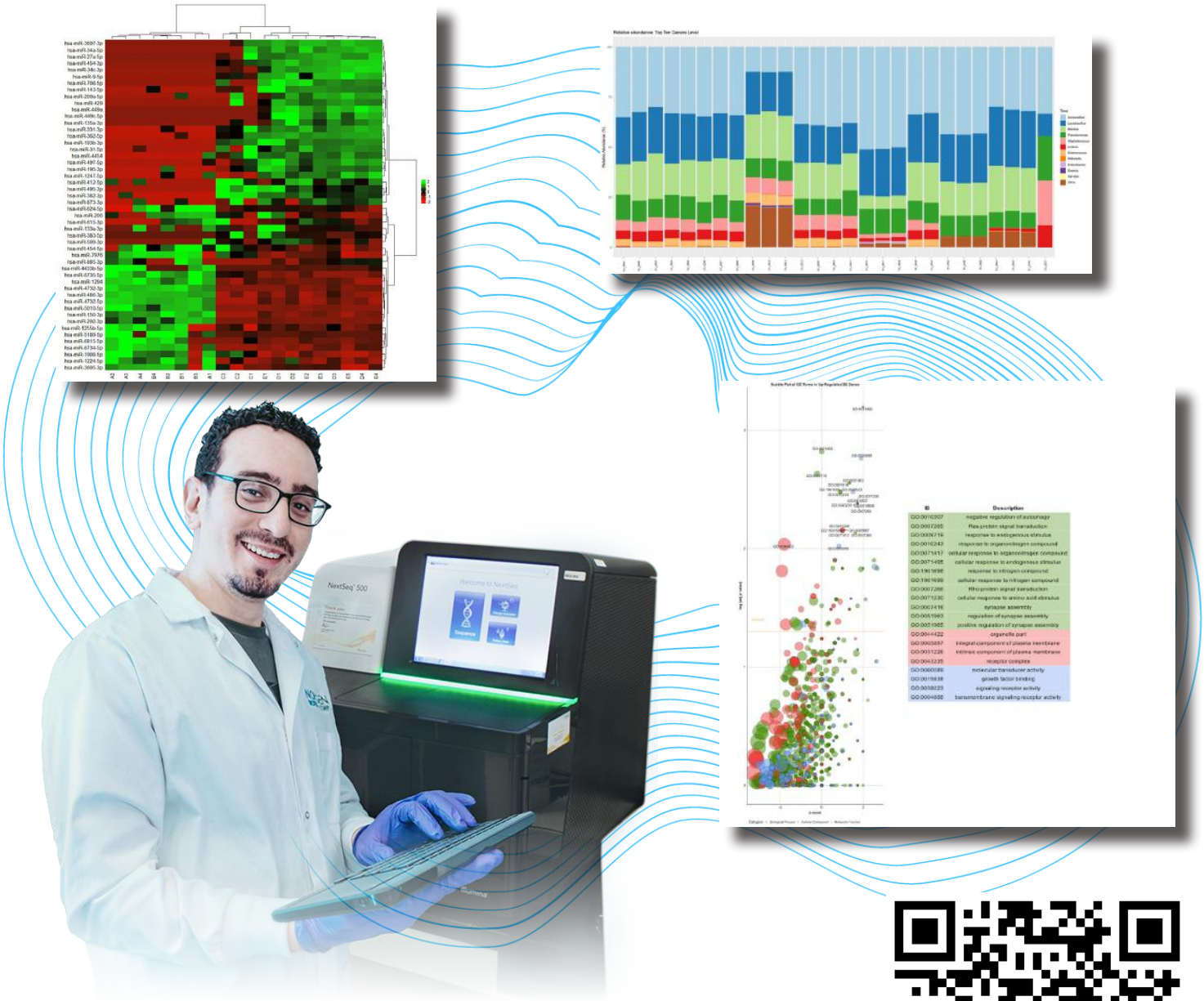
Next Generation Sequencing

Designed to Discover

Find more information on **pg 184.**

Small RNA | **RNA (mRNA)** | **Metagenomics** | **SARS-CoV-2**



Book your Free Consultation with Norgen Biotek

norgenbiotek.com/ngs

MOLECULAR DIAGNOSTIC KITS

Norgen's Detection Kits are designed for the detection of pathogens and viruses for research use only and not for use in diagnostic procedures unless otherwise specified.

Some products are also available CE marked for *in vitro* diagnostic use. These products are labelled with a **Dx** catalogue number. Please note that these CE marked kits are not available for sale in all geographic regions, including the USA.

All kits were developed and validated to be used with the following PCR instruments:

- Qiagen Rotor-Gene Q
- BioRad CFX96 Touch™ Real-Time PCR Detection System
- QuantStudioTM 7 Pro Real-Time PCR System

TaqMan format is available for each pathogen/virus:

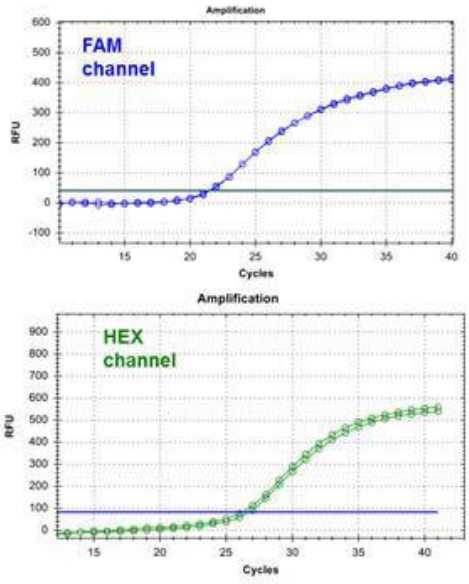
TaqMan PCR/RT-PCR Kit

- ☑ PCR control to monitor for PCR inhibition and validate the quality
- ☑ Master Mix for the target and PCR control detection
- ☑ Primer and Probe mix
- ☑ Positive control and a negative control to confirm the integrity of the kit reagents

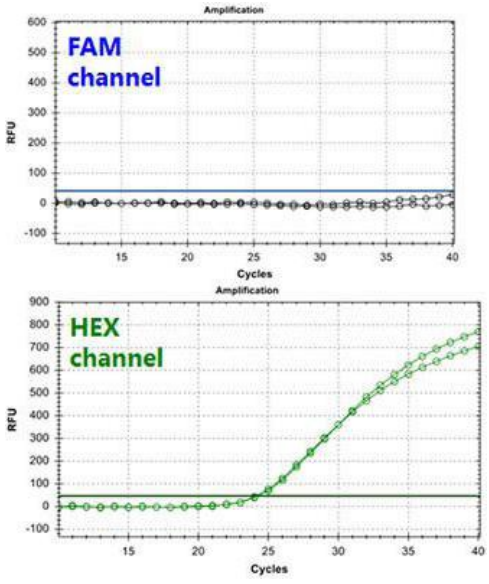
TaqMan Primer/Probe & Control

- ☑ Specific Primer/Probe mix and Positive Control for the pathogen/virus/viroid of interest
- ☑ Nuclease-free water
- ☑ Can be used together with Norgen's PCR/RT-PCR Master Mix (#28007/#28113) or customer supplied master mix

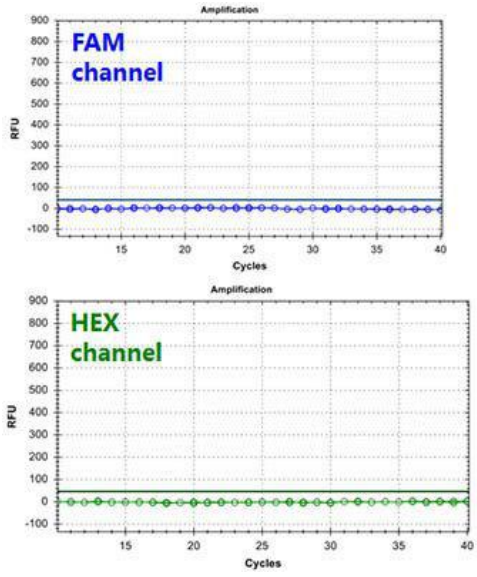
Norgen is an **ISO 15189:2012, ISO 9001:2015 & ISO 13485:2016** registered company, indicating our commitment to quality.



TaqMan PCR Kit - Figure 1. Example of TaqMan PCR Positive result. Both PCR signals above the baseline from FAM and HEX channel indicate the successful PCR.



TaqMan PCR Kit -Figure 2. Example of TaqMan PCR Negative result. No target DNA was detected in FAM channel but amplification signal from HEX indicates the successful PCR.



TaqMan PCR Kit - Figure 3. Example of TaqMan one-step RT-PCR inhibition result. No signal from both FAM and HEX channel was detected. It is suggested to repeat the sample preparation using recommended kit for RNA purification.

HUMAN PATHOGEN DETECTION

	Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan PCR/ RT-PCR Kit (24 rxns)* CE	TaqMan Probe/ Primer & Control Set (100 rxns)
Bacteria	*Bacillus cereus*	TM36950	DxTM36900	TM36910
	Chlamydia	TM31450		TM31410
	Chlamydia/*Neisseria gonorrhoeae*	TM42550		TM42510
	Clostridium difficile	TM37150	DxTM37100	TM37110
	Escherichia coli (E. coli) O157:H7	TM41350		TM41310
	Mycobacterium tuberculosis	TM42150	DxTM42100	TM42110
	Neisseria gonorrhoea	TM30950	DxTM30900	TM30910
	Staphyloccocus aureus	TM29350	DxTM29300	TM29310
	Vibrio cholerae	TM38550	DxTM38500	TM38510
	Cryptococcus neoformans	TM42750		TM42710
	Mycoplasma genitalium	TM62150	DxTM62100	TM62110
Fungi/Protozoa	*Candida albicans*	TM34050	DxTM34000	TM34010
	Pneumocystis jirovecii	TM42850		TM42810
	Malaria	TM34850	DxTM34800	TM34810
	Toxoplasma gondii	TM44750		TM44710
	Trichomonas vaginalis	TM52050		TM52010
Parasite	*Trichinella spiralis*	TM72450		
	Anisakis spp.	TM72550		
	Cryptosporidium tyzzer	TM72650		
Virus	Avian Influenza A Virus (H5N1)	TM35450		TM35410
	BK virus (BKV)	TM36550		TM36510
	BK virus/John Cunningham virus (BKV/JCV)	TM36350		TM36310
	Cytomegalovirus (CMV)	TM36350		TM36310
	Enterovirus (HEV)	TM39750	DxTM39700	TM39710
	Epstein-Barr virus (EBV)	TM41050	DxTM41000	TM41010
	Hepatitis B virus (HBV)	TM29250		TM29210
	Hepatitis C virus (HCV)	TM37650		TM37610
	Herpes simplex virus (HSV) 1	TM32650	DxTM32600	TM32610
	Herpes simplex virus (HSV) 2	TM32450	DxTM32400	TM32410
	Herpes simplex virus (HSV) 1 & 2	TM31750		TM31710
	Human immunodeficiency virus (HIV)	TM33750		TM33710

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

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SHIPS ON DRY ICE

* CE marked version available for in vitro diagnostic use. CE marked kits are not available for sale in the United States.

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

	Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan PCR/ RT-PCR Kit (24 rxns)* CE	TaqMan Probe/ Primer & Control Set (100 rxns)
Virus	Human papillomavirus (HPV) High Risk	TM32250	DxTM32200	TM32210
	Human papillomavirus (HPV) High and Low Risk	TM31550		TM31510
	Human papillomavirus (HPV) 6/16	TM42050		TM42010
	Influenza A Virus (H1N1)	TM27950	DxTM27900	TM27910
	John Cunningham virus (JCV)	TM37250	DxTM37200	TM37210
	Norovirus (NoV)	TM41450	DxTM41400	TM41410
	Parvovirus B19	TM39650	DxTM39600	TM39610
	Respiratory syncytial virus (RSV) A	TM34250	DxTM34200	TM34210
	Varicella zoster virus (VZV)	TM36750	DxTM36700	TM36710
	West Nile Virus (WNV)	TM44250	DxTM44200	TM44210
	Xenotropic murine leukemia virus-related virus (XMRV)	TM34750	DxTM34700	TM34710
	Zika Virus (ZIKV)	TM62250	DxTM62200	TM62210

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* CE marked version available for in vitro diagnostic use. CE marked kits are not available for sale in the United States.

COVID-19 RT-PCR DETECTION

40 rxns*, 50 rxns**, 500rxns***

	Product	Research Use	Research Use	For *in Vitro* Diagnostics CE
Virus	COVID-19 TaqMan RT-PCR Kit (N/ORF1ab genes)	TM67320**	TM67300***	DxTM67300***
	COVID-19 TaqMan RT-PCR Kit (E/RdRP genes)	TM67240*	TM67200***	DxTM67200***
	COVID-19/Influenza (A & B) TaqMan RT-PCR Kit	N/A	TM67400***	N/A
	2019-nCoV TaqMan RT-PCR Kit	TM67100**	TM67120***	DxTM67120***

PCR Detection Solutions for Coronavirus	Primer & Probe Mixes	RT-PCR Positive Control	Positive Control	RT-PCR Master Mix
	TM67101 (50 rxns) TM67130 (500 rxns)	PC67102 (50 µL)	PC67120 (500 µL)	28113 (100 rxns) 28114 (200 rxns) 28115 (500 rxns)

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CE **Intended for *in vitro* diagnostic use**
CE-IVD marked in accordance with EU Directive 98/79/EC

Authorized for sale by Health Canada

PLANT PATHOGEN DETECTION

	Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan Probe/ Primer & Control Set (100 rxns)
Bacteria	*Erwinia amylovora*	TM35150	TM35110
Bacteria	*Candidatus Liberibacter*	TM64350	TM64310
Bacteria	*Candidatus Liberibacter Solanacearum*	TM66250	TM66210
Bacteria	*Xylella fastidiosa*	TM67050	TM67010
Bacteria	Legionella sp.	TM64450	TM64410
Fungi	*Aspergillus niger*	TM32950	TM32910
Fungi	*Botrytis cinerea*	TM29450	TM29410
Fungi	*Cladosporium cladosporioides*	TM33050	TM33010
Fungi	Penicillium sp.	TM33250	TM33210
Fungi	*Phomopsis viticola*	TM34950	TM34910
Yeast	*Saccharomyces cerevisiae*	TM33350	TM33310
Viroid	Avocado Sunblotch Viroid (ASBVd)	TM38850	TM38810
Viroid	Chrysanthemum Chlorotic Mottle Viroid (CChMVd)	TM35550	TM35510
Viroid	Chrysanthemum Stunt Viroid (CSVd)	TM39950	TM39910
Viroid	Citrus Exocortis Viroid (CEVd)	TM47650	TM47610
Viroid	Coconut Cadang-Cadang Viroid (CCCVd)	TM47950	TM47910
Virus	Grapevine Red Blotch-Associated Virus (GRBaV)	TM65850	TM65810
Virus	Hop Latent Viroid (HLVd), Lettuce Chlorotic Virus (LCV), and Cannabis Cryptic Virus (CanCV)	TM69950	TM69910
Virus	Plum Pox Virus (PPV)	TM33450	TM33410

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

SHIPS ON DRY ICE

Viroid

Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan Probe/ Primer & Control Set (100 rxns)
Coconut Tinangaja Viroid (CTiVd)	TM50550	TM50510
Hop Stunt Viroid (HSVd)	TM38950	TM38910
Hop Latent Viroid (HLVd)	TM38750	TM38710
Pospiviroid	TM53750	TM53710
Potato Spindle Tuber Viroid (PSTVd)	TM38650	TM38610
Tomato Chlorotic Dwarf Viroid (TCDVd)	TM39050	TM39010
Tomato Planta Macho Viroid (TPMVd)	TM48050	TM48010

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

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FOOD & MILK PATHOGEN DETECTION

	Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan PCR/ RT-PCR Kit (24 rxns)* CE	TaqMan Probe/ Primer & Control Set (100 rxns)
Food	*Campylobacter jejuni*	TM36150		TM36110
Food	*Listeria monocytogenes*	TM30450	DxTM30400	TM30410
Milk	*Salmonella enterica*	TM32150	DxTM32100	TM32110
Milk	*Streptococcus agalactiae*	TM30650		TM30610
Milk	*Streptococcus dysgalactiae*	TM30750		TM30710
Milk	*Streptococcus uberis*	TM30850		TM30810

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

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WATER-BORNE PATHOGEN DETECTION

Pathogen	TaqMan PCR/ RT-PCR Kit (100 rxns)	TaqMan PCR/ RT-PCR Kit (24 rxns)* CE	TaqMan Probe/ Primer & Control Set (100 rxns)
Cryptosporidium	TM39150	DxTM39100	TM39110
Giardia intestinalis	TM43850	DxTM43800	TM43810

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

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MYCOPLASMA DETECTION

Pathogen	TaqMan PCR/RT-PCR Kit (100 rxns)	TaqMan PCR/RT-PCR Kit (24 rxns)* CE	TaqMan Probe/ Primer & Control Set (100 rxns)
Mycoplasma Detection Kit	TM33150	DxTM33100	TM33110

TaqMan PCR Detection Kit

TaqMan RT-PCR Detection Kit

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QUANTIFIED DNA STANDARDS FOR PATHOGENS

Product Name	Description	Cat. #
E. coli O157:H7 Quantified Bacterial DNA Standards	To be used as a positive control or PCR quantification standard for E. coli O157:H7.	28302
Listeria monocytogenes Quantified Bacterial DNA Standard	To be used as a positive control or PCR quantification standard for Listeria monocytogenes.	28299
Neisseria gonorrhoeae Quantified Bacterial DNA Standard	To be used as a positive control or PCR quantification standard for Neisseria gonorrhoeae.	28296
Salmonella enterica Quantified Bacterial DNA Standard	To be used as a positive control or PCR quantification standard for Salmonella enterica .	28300
Staphylococcus aureus Quantified Bacterial DNA Standard	To be used as a positive control or PCR quantification standard for Staphylococcus aureus.	28301

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REVERSE TRANSCRIPTION AND cDNA SYNTHESIS

ALL-IN-ONE, READY-TO-USE FIRST STRAND cDNA SYNTHESIS KITS

- Convenient – With the ready-to-use Reaction Mix, the user needs only to add template and the enzyme in order to set up the reverse transcriptase reaction
- Time Savings – Set up RT reactions in a shorter time since less pipetting steps are required
- Cost Efficient – No need to buy separate enzymes, dNTPs and buffers
- High Sensitivity and Yield – the optimized Reaction Mix allows for highly sensitive amplifications with high yields of PCR products
- Robust Enzyme – broad range of working temperatures from 37°C to 60°C. Capable of amplifying difficult templates with a high degree of reproducibility

Product Name	Size	Cat. #
TruScript Reverse Transcriptase	10,000 Units	54440
TruScript First Strand cDNA Synthesis Kit	50 Reactions	54420
TruScript First Strand cDNA Synthesis Kit for mRNA	50 Reactions	54400
microScript microRNA cDNA Synthesis Kit	50 Reactions & 12 Reactions	54410 & 54415

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MICRORNA SPIKE-IN

WELL-ACCEPTED MICRORNA SEQUENCE USED FOR NORMALIZATION IN GENE EXPRESSION STUDIES

- Best suited for RNA purification from samples with low RNA abundance including liquid biopsies
- Compatible to expression analysis using RT-qPCR - both RNA and matching forward PCR primer provided.
- Fully compatible with Norgen's microScript cDNA Synthesis system
- Fully compatible with Next Generation Sequencing (Small RNA-Seq) library preparation workflow

Product Name	Size	Cat. #
microRNA (cel-miR-39) Spike-In Kit	1 Kit	59000

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PCR MASTER MIX

READY-TO-USE TAQMAN MASTER MIXES WITH PRE-MIXED INTERNAL PCR CONTROL (HEX/VIC)

- Both Taqman PCR Master Mix and RT-PCR Master Mixes available
- Use with Norgen's TaqMan Probe/Primer and Control Sets

Product Name	Size	Cat. #
TaqMan 2X PCR Master Mix	100 Reactions	28340
TaqMan 2X RT- PCR Master Mix	100 Reactions	28341
2X One-Step RT-PCR Master Mix	100, 200 & 500 Reactions	28113, 28114 & 28115
2X PCR Master Mix	100 Reactions	28007

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DNA LADDERS

PRECISE, QUANTITATIVE DNA LADDERS

- 12 different DNA ladders ranging from 25 bp to 24,000 bp
- Ready-to-use
- Quantitative
- Highly stable
- Precise with discrete bands
- Higher intensity reference ban

50bp Ladders

Product Name	Size	Cat. #
50 bp DNA Ladder	100 Loads	13525
MiniSizer 50 bp DNA Ladder	100 Loads	11200

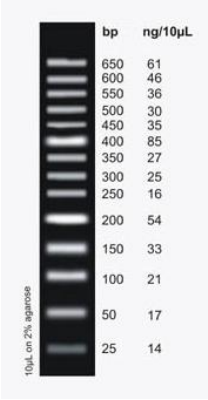

Figure 1. MiniSizer 50 bp DNA Ladder

100bp Ladders

Product Name	Size	Cat. #
PCR Ranger 100 bp DNA Ladder	100 Loads	11300
PCR Sizer 100 bp DNA Ladder	100 Loads	11400
LowRanger 100 bp DNA Ladder	100 Loads	11500
FastRunner DNA Ladder	100 Loads	12800
CloneSizer 100 bp DNA Ladder	100 Loads	11600
FullRanger 100 bp DNA Ladder	100 Loads	11800
HighRanger Plus 100 bp DNA Ladder	100 Loads	12000

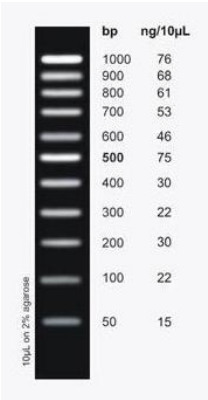

Figure 2. PCR Ranger 100 bp DNA Ladder

1kb Ladders

Product Name	Size	Cat. #
MidRanger 1 kb DNA Ladder	100 Loads	11700
HighRanger 1 kb DNA Ladder	100 Loads	11900
UltraRanger 1 kb DNA Ladder	100 Loads	12100

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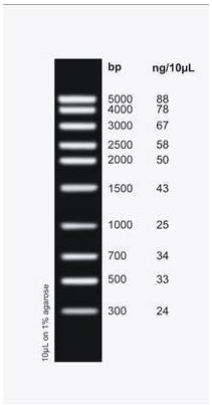

Figure 3. MidRanger 1 kb DNA Ladder

RNA LADDERS

FOR PRECISE SIZING OF RNA MOLECULES

- 100 b RNA Ladder and 1 kb RNA Ladder available
- Precise sizing of a wide range of RNA molecules using native or denaturing gels
- Discrete bands ranging from 100 to 4000 bases
- Higher intensity reference bands
- Affordable price and tremendous savings enabling you to do more on your project
- No need for staining or destaining as loading dye contains ethidium bromide
- Convenient lyophilized format provides better product stability

Product Name	Size	Cat. #
100 b RNA Ladder	50 Loads	15002
1kb RNA Ladder	50 Loads	15003

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For more data and technical specifications please visit **norgenbiotek.com** or scan the **QR code.**

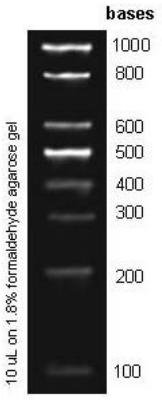

Figure 4. 100 b RNA Ladder

INTERNAL LANE STANDARDS

IDEAL FOR USE WITH VARIOUS FLUORESCENCE-DETECTION INSTRUMENTS

- Ready-to-use
- Highly stable and precise
- 22 discrete bands from 60 bp to 600 bp

Product Name	Size	Cat. #
Internal Lane Standard (60bp - 600bp, ROX) for ABI Genetic Analyzer	150 µL	53210

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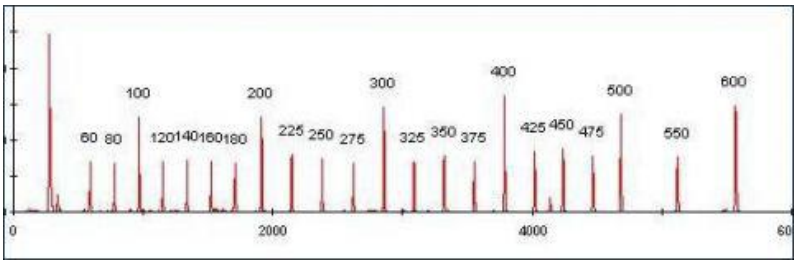

Figure 1. Internal Lane Standard (60bp 600bp, ROX) resolved on an Applied Biosystems® 3130XL Genetic Analyzer. Fragments are evenly spaced at 20-, 25- or 50-base intervals for precise size determination

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ENZYMES

SIMPLE, RELIABLE, COST-EFFECTIVE

- High quality enzymes for use in RNA and DNA preparation
- Pure and free from contaminants
- RNase-Free DNase I Kit for on-column or in-solution DNase treatment
- Optimized on-column DNase treatment for use with Norgen's RNA Purification Kits
- Affordable price and tremendous savings enabling you to do more on your project
- Stable, ready-to-use Proteinase K
- DNase-free RNase A from bovine pancreas for the removal of RNA from DNA preparations

Product Name	Size	Cat. #
RNase-Free DNase I Kit	50 Reactions & 200 Reactions	25710 & 25720
Proteinase K in storage buffer (20mg/mL)	5 x 1 mL	28229
RNase A	28,000 Units	26260

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BUFFERS, REAGENTS, AND NUCLEASE-FREE WATER

HIGH QUALITY, RELIABLE AND CONSISTENT

- Includes Nuclease-Free Water and biotechnology grade Agarose
- Agarose is highly pure and free from nucleases, providing exceptional DNA and RNA separation
- Nuclease-Free Water is free of all DNases, RNases and nucleic acids
- All buffers, reagents and water are high purity; free from contaminants
- Manufactured under strict quality controls for reliability and consistency

Buffers, Reagents, and Nuclease-Free Water	Size	Cat. #
Nuclease-Free Water	4 x 1.25 mL, 100 x 1.25 mL, 100 mL, 500 mL & 1000 mL	28001, 28002, 28014, 28015 & 28016
Agarose - Biotechnology Grade	100 g, 500 g	28034 & 28035
Sputum Liquification Buffer	10 mL	28289

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RBC LYSIS BUFFER

FOR EFFICIENT LYSIS OF RED BLOOD CELLS

- Rapid and differential lysis of red blood cells
- Faciliates removal of abundant proteins and RNAs present in red blood cells
- Resulting leukocyte pellets can be used for subsequent RNA, DNA or protein purification

RBC Lysis Buffer	Size	Cat. #
RBC Lysis Buffer	500 mL & 1000 mL	21205 & 21207

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PLASTICS AND FILTRATION DEVICES

HIGH QUALITY LABORATORY ESSENTIALS FOR SAMPLE PREPARATION APPLICATIONS

- Wide range of plastics and filtration devices available
- Spin columns with 0.22 µM and 0.45 µM nylon filters to quickly and easily clarify samples prior to downstream applications
- Mini and Maxi filtration columns available as well as 96-well plates for high throughput application
- Bead tubes for the rapid and efficient lysis and homogenization of biological samples including Bacteria, Yeast, Soil, Stool etc.
- Collection and elution tubes for use during spin column procedures

Product Name	Size	Cat. #
Mini Filter Spin Column, 0.22 µm nylon membrane, with 2 mL Capped Collection Tube	50 Columns & 500 Columns	40000 & 40001
Mini Filter Spin Column, 0.45 µm nylon membrane, with 2 mL Capped Collection Tube	50 Columns & 500 Columns	40002 & 40003
Mini Filter Spin Column, 0.22 µm nylon membrane	50 Columns & 500 Columns	40012 & 40013
Mini Filter Spin Column, 0.45 µm nylon membrane	50 Columns & 500 Columns	40014 & 40015
Maxi Filter Spin Column, 0.22 µm nylon membrane	20 Columns & 100 Columns	40004 & 40005
Maxi Filter Spin Column, 0.45 µm nylon membrane	20 Columns & 100 Columns	40006 & 40007
96-Well Filter Plate, 0.45 µm nylon membrane	6 x 96-Well Plates, 30 x 96-Well Plates	40008 & 40018
Bead Tubes	50/bag & 100/bag	26533 & 26534
2 mL Centrifuge Tubes	1000/bag & 5000/ bag	40009 & 40010
2 mL Collection Tubes	1000/bag, 5000/bag	40016, 40017
1.7 mL Elution Tubes	500/bag	40028

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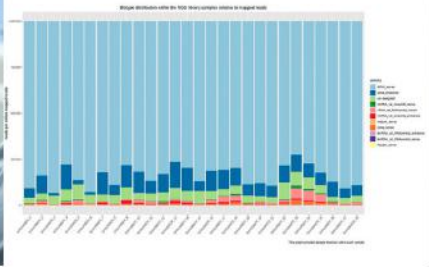
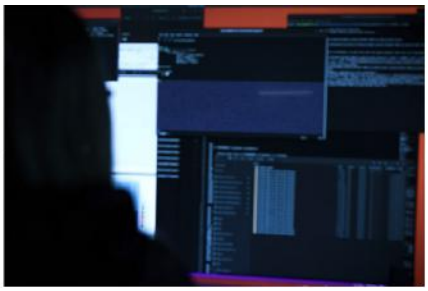
Next Generation Sequencing

Designed To Discover

Next Generation Sequencing is an important tool used in the field of genomic research allowing for high throughput and massively parallel sequencing of thousands of molecules simultaneously. NGS provides researchers with fast, scalable solutions for a clear, complete picture of their samples to advance their scientific discoveries.





Bioinformatics has quickly advanced to become an important and powerful tool in biological research. It involves a combination of computational and statistical methods to better understand and analyze scientific data, guiding the research community to new opportunities and novel discoveries. As an emerging discipline, bioinformatics continues to be an essential tool for researchers in many fields including modern molecular biology and clinical research, with its applications leading to significant medical advancements and developments in future research to come.

Norgen Biotek offers comprehensive NGS services for small RNA, RNA, and metagenomics. Each service comes with a bioinformatics report tailored to your project's needs.

YOUR CUSTOM WORKFLOW STARTS WITH NORGEN

- **STEP 1:** Book your FREE Consultation
- **STEP 2:** Sample Submission & Shipping
- **STEP 3:** Sample Isolation
- **STEP 4:** Quality Control
- **STEP 5:** Library Preparation
- **STEP 6:** Sequencing
- **STEP 7:** Bioinformatics Analysis

SMALL RNA (microRNA) SEQUENCING

- Sequence ultra-low inputs from liquid biopsies and exosomes
- Illumina® NextSeq sequencing platform
- Understand post-transcriptional gene regulation with bioinformatics analysis service
- Examine differential expression and discover novel biomarkers
- Fast turn around time | 3 - 4 weeks

CAPTURE A **COMPLETE RANGE** OF **SMALL RNA** AND **miRNA SPECIES**

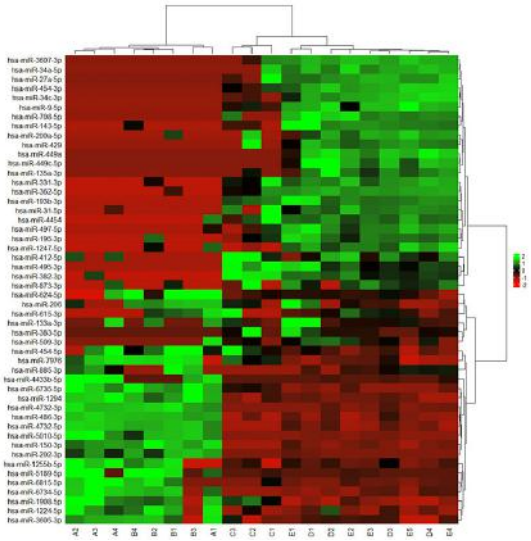


Figure 1. (Advanced Analysis) Heat map displaying the hierarchal clustering of miRNAs and samples based on their expression levels. The graph was generated by using 50 miRNAs that have the highest %CV. The color scale indicates the relative expression level of a miRNA to the mean, where green and red indicate higher or lower expression, respectively.

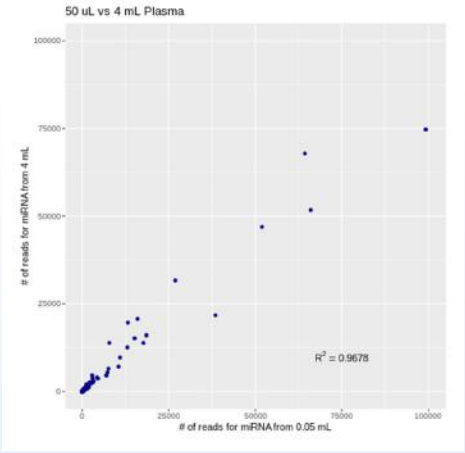


Figure 2. Graph illustrating that the relative expression level of each microRNA detected is highly correlated between 50 µL and 4 mL of plasma.

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RNA (mRNA) SEQUENCING

- Easy to challenging sample types including liquid biopsies
- Illumina® NextSeq sequencing platform
- Discover a complete view of coding transcriptome with bioinformatics analysis service
- Quantify gene expression and reveal novel transcripts
- Fast turn around time | 3 - 4 weeks

COMPREHENSIVE SERVICE FOR TRANSCRIPTOME SEQUENCING

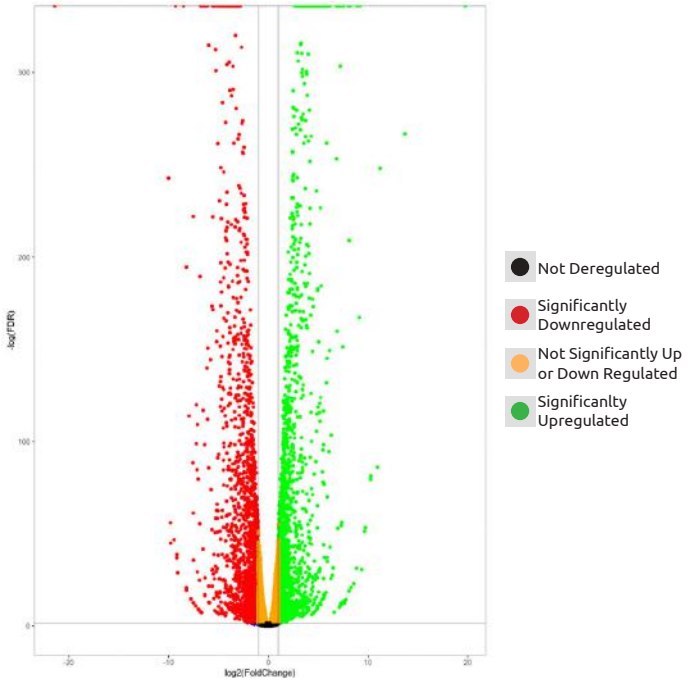

Figure 1. (Advanced Analysis) Volcano plot illustrating the relation between –log10 FDR and log2 fold change between the control and treatment groups. Highly deregulated genes have a fold change of ≥2 (log2 fold change of ≥1 or ≤-1) while significantly deregulated genes have an FDR of ≤0.05 (-log10 FDR of ≥1.30103).

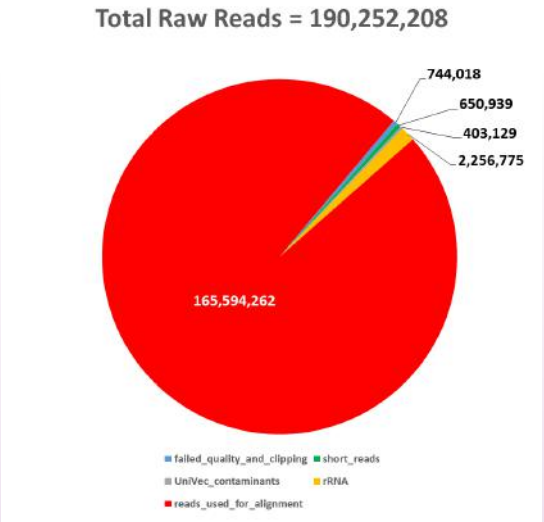

Figure 2. Overview of the sequencing run.

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METAGENOMICS SEQUENCING

- Target any of the 9 variable regions of the 16s rRNA gene
- Illumina® MiSeq sequencing platform
- Analyze entire bacterial communities with comprehensive bioinformatics analysis
- Identify phylogenetic or taxonomic classifications
- Fast turn around time | 3 - 4 Weeks

COMPREHENSIVE SERVICE FOR 16S rRNA & DNA EXTRACTION SERVICE INCLUDED

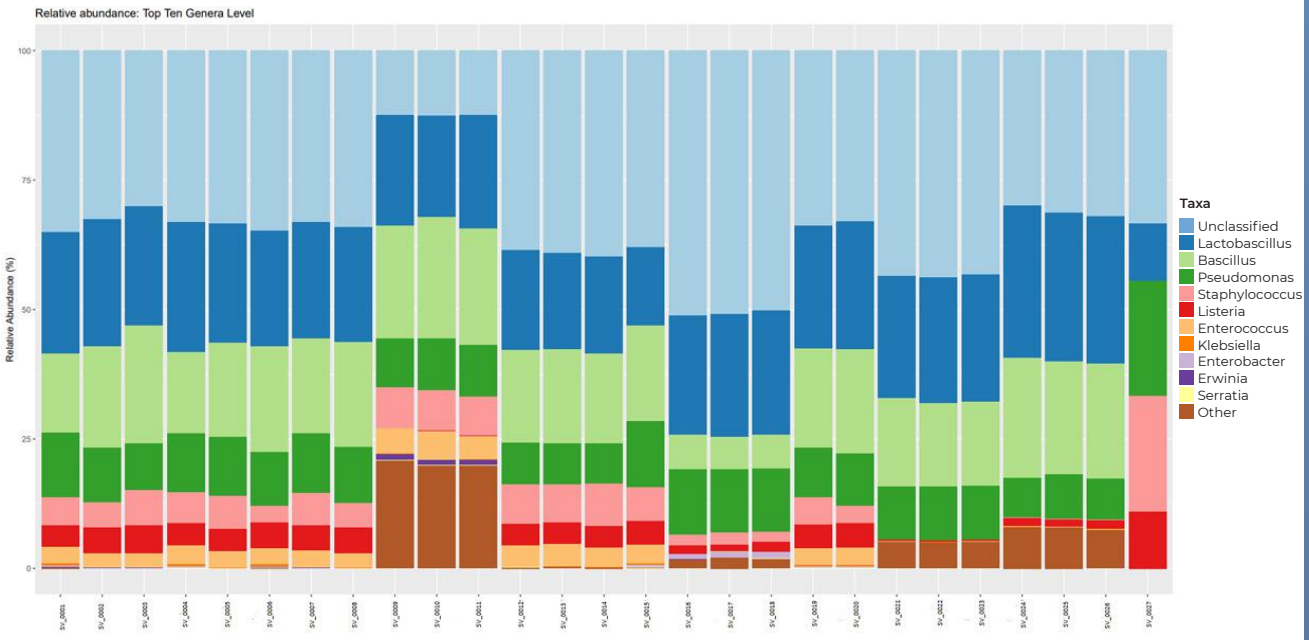

Figure 1. Illumina MiSeq 16S rRNA data from saliva samples preserved for over 6 years using Norgen's Saliva DNA Collection and Preservation Device (Cat. RU49000). The saliva DNA was isolated using Norgen's Saliva DNA Isolation Kit (Cat. RU45400) from saliva that had been preserved for various periods of time up to 6 years at room temperature. The relative abundance (%) is shown per each sample, and shows the top 10 most abundant by Genus.

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Isolation Services

Norgen Biotek offers nucleic acid isolation services for both **DNA, RNA** and **Exosome Purification** from any sample type. Norgen's experienced team of scientists and technicians will select an optimized purification method based on your sample type to ensure we deliver the highest quality for your downstream application.

For all RNA and exosomal RNA isolation services, Norgen uses their patented **Silicon Carbide** based resin which enables purification of total RNA of the highest quality and integrity. All sizes of RNA will be captured, from large mRNA down to microRNA, without the use of phenol or chloroform or bias to GC content. We have extensive expertise specifically working with **ultra-low concentration liquid biopsy** samples such as plasma, serum, urine and CSF.

Sample Type

Isolate DNA or RNA from many different starting materials including (but not limited to):

- ☑ Plasma/Serum/Blood
- ☑ Cells
- ☑ Tissues (All types)
- ☑ Exosomes
- ☑ FFPE Samples
- ☑ LCM Samples
- ☑ Saliva
- ☑ Plant Tissues
- ☑ Viruses/Viroids
- ☑ Bacteria
- ☑ Fungi/Yeast
- ☑ Soil
- ☑ Water
- ☑ Conditioned Media

Quality Control

We will run quality control measures for every isolation to measure the yield and quality of the sample. Confirmation of DNA or RNA concentration will be measured by NanoDrop spectrophotometer, Agilent Bioanalyzer (pico or nano chip), Qubit RiboGreen or PicoGreen depending on your sample type. We will deliver the QC report for each of your samples upon completion of your project.

Book Your Free Consultation Today

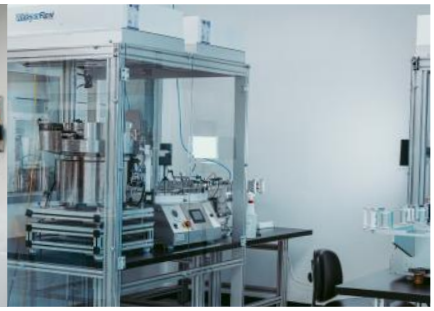
Discover more by scanning the QR code or visiting norgenbiotek.com/services

SCAN ME WITH YOUR SMART PHONE

Contract R&D and Manufacturing

Norgen Biotek is an ISO 9001:2015 and ISO 13485:2016 certified fully-integrated Canadian Biotechnology company with extensive Contract Manufacturing, Contract R&D and Clinical Research capabilities. Norgen operates out of a 50,000 square-foot facility, including an ISO 15189:2012 Medical Laboratory and is also equipped with ISO Class 6 and 7 Clean Room environments and High Throughput Liquid Filling machines. Norgen specializes in offering a wide range of laboratory services for Clinical Trials, including Next Generation Sequencing Services in an Illumina-trained lab with full bioinformatics capabilities and an expertise in handling ultra-low concentration samples types. Additionally, Norgen offers purification services for RNA, DNA, Proteins and Exosomes from a variety of biological specimens, including liquid biopsies, as well as offers qPCR-based Molecular Diagnostic assays. Norgen Biotek Corp. is committed to creating customized research experiences for clients worldwide by providing innovative solutions that inspire new discoveries.





Contract R&D

Core competencies:

- Highly Experienced PhD-Level Scientists & Project Management Team
- High Quality Laboratory Instruments
- Full Experimental Design and Protocol Development
- Complete Report of Results and Data

We specialize in these core areas:

- Development of Quality Control Assays/Protocols for End Products
- Nucleic Acid Purification Studies
- Sterility Testing
- Performance Evaluation Studies for Regulatory Bodies
  a. Shelf Life Stability
  b. Shipping Stability
- Novel qRT-PCR Assay Development
- Cell Line Development
- AAV Production

And More!

Contract Manufacturing

Core competencies:

- Extensive Experience in Contract Manufacturing under both Quality Management Systems: ISO9001:2015 (Standard), ISO13485:2016 (Medical Devices)
- Manufactured to the highest industry standards
- Strictly Controlled SOPs, Batch Consistency, and Traceability for all Manufactured Products and Medical Devices
- State-of-the-Art Laboratory and Facilities
- ISO Class 7 Certified Clean Room
- Filamatic Liquid Filling Machine for High Throughput Filling

Get Started

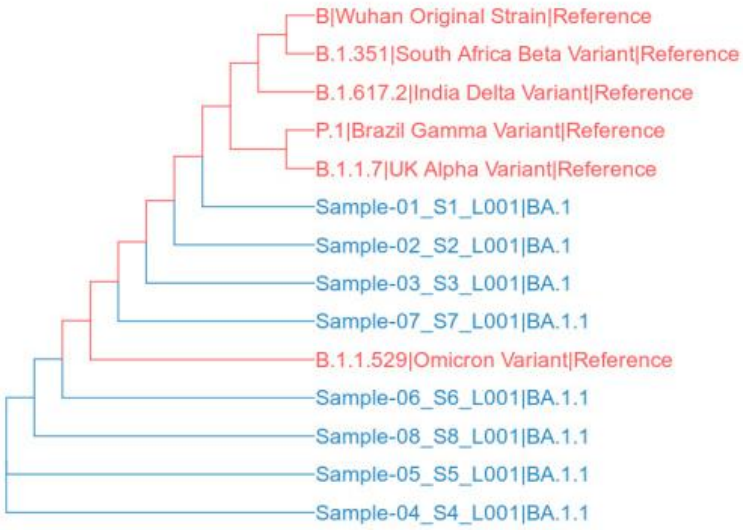
Book A Meeting With Us Today!

Email: services@norgenbiotek.com
Phone: 1-866-NORGENB
norgenbiotek.com/services

SARS-CoV-2 SEQUENCING

- Sequence the entire SARS-CoV-2 Viral Genome from various sample types
- Detect novel SARS-CoV-2 variants utilizing COVID-19 ARTIC[i] amplicon sequencing protocol
- Illumina® MiSeq platform
- Examine inter-individual and intra-individual variations of the SARS-CoV-2 virus
- Fast Turn Around Time

DETECT SARS-COV-2 VARIANTS FROM SWAB, SALIVA & ENVIRONMENTAL SAMPLE TYPES



Red colour tips refer to the references of the orginal SARS-CoV-2 and the Variants of Concern.
Blue colour tips refer to customer samples.

Norgen's **Saliva RNA Collection and Preservation Device** used for non-invasive saliva collection for COVID-19 testing.

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Discover more by scanning the QR code or visiting norgenbiotek.com/ngs

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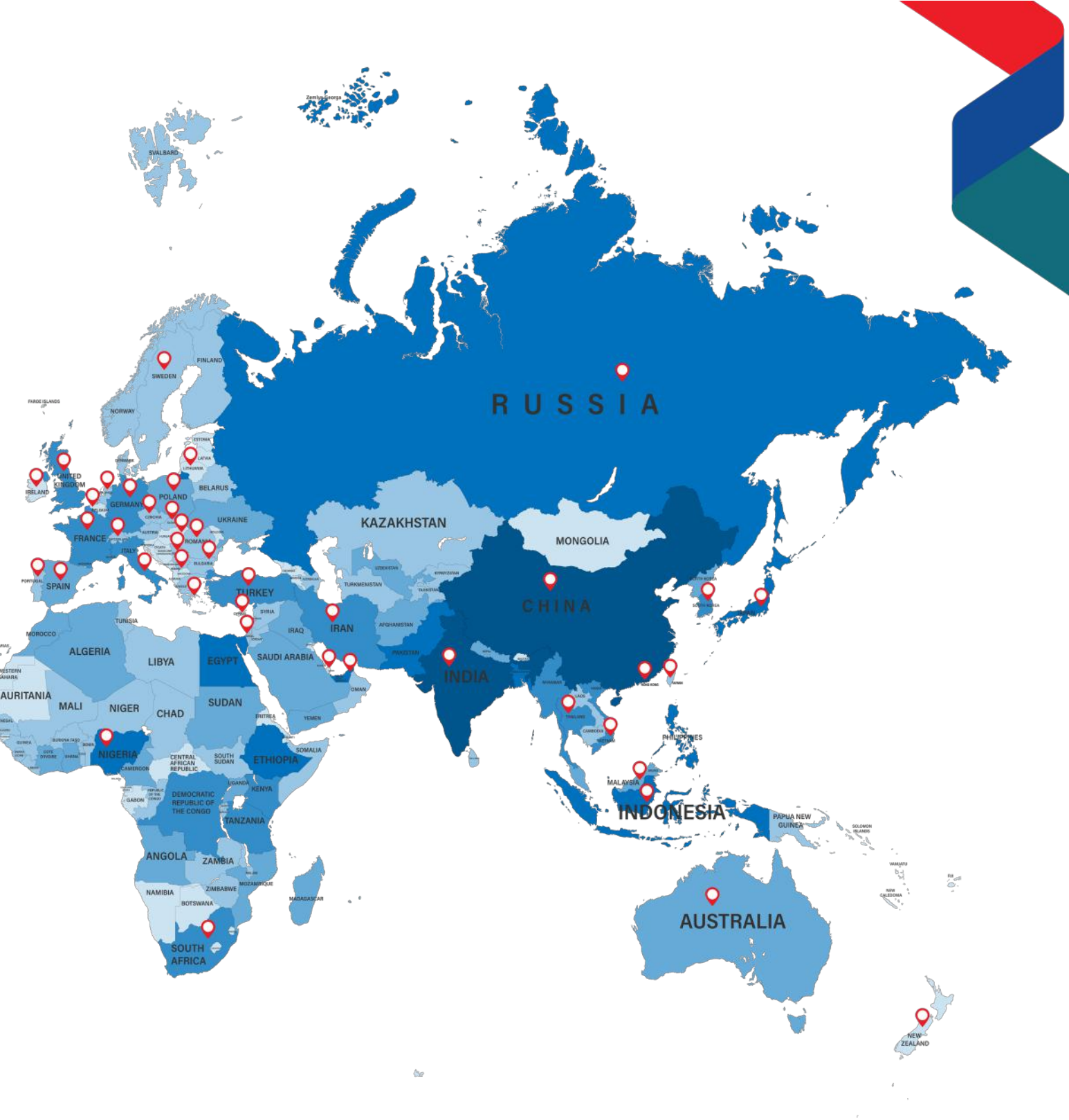

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Norgen is an ISO registered company, indicating our commitment to quality

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