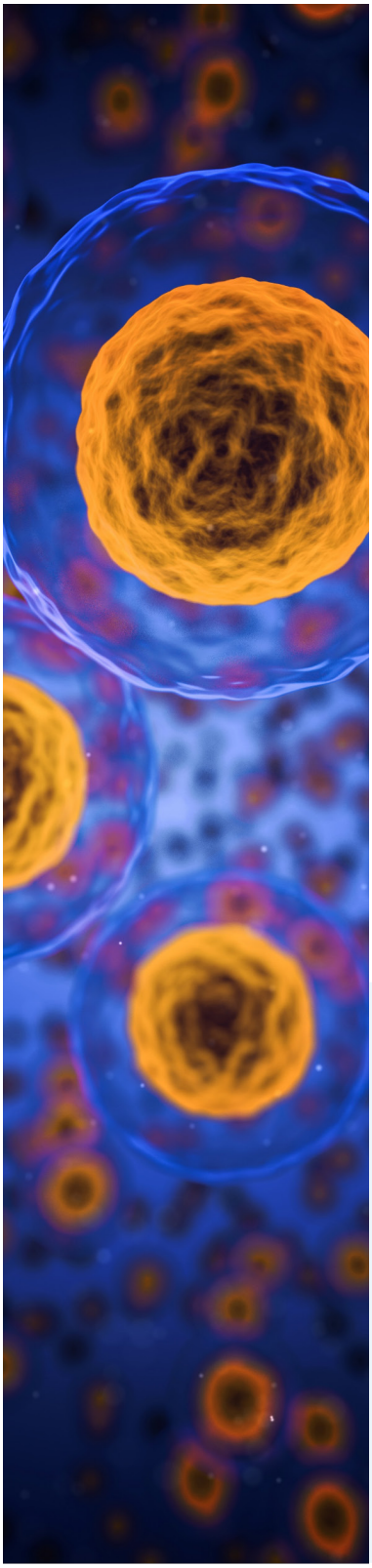


Urine Exosome RNA Isolation Kit

CAT. 47200

A RAPID PROCEDURE FOR THE ISOLATION OF EXOSOMAL RNA FROM URINE SAMPLES

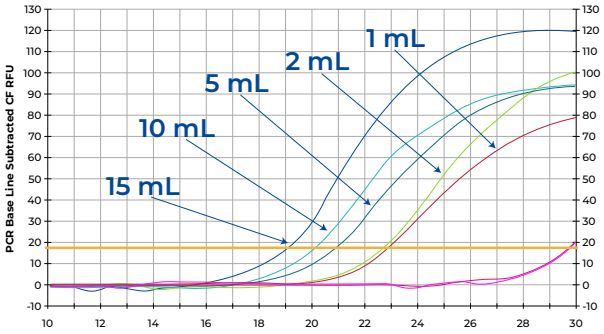
- Isolation of exosomal RNA from urine samples
- Rapid and convenient spin-column protocol
- Isolate inhibitor-free urinary microRNA for most downstream applications, including Small RNA Sequencing.
- Optional protocol for purification of exosomal proteins for western blot analysis
- Users can simultaneously concentrate and isolate high quality exosomal RNA, including microRNA, for use in sensitive downstream assays such as RT-PCR, qRT-PCR, NGS, microarrays and more

NORGEN BIOTEK

ISO 9001:2015 CERTIFIED QUALITY · ISO 13485:2016 CERTIFIED QUALITY · GMP COMPLIANT

norgenbiotek.com

Advantages You Will Bring to Your Lab



5S rRNA WAS SUCCESSFULLY DETECTED AND AMPLIFIED FROM EXOSOMAL RNA ISOLATED FROM DIFFERENT URINE VOLUMES

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 rRNA. 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 rRNA from exosomal RNA isolated from different urine volumes, indicating its high quality.

HIGH CONCENTRATION & QUALITY

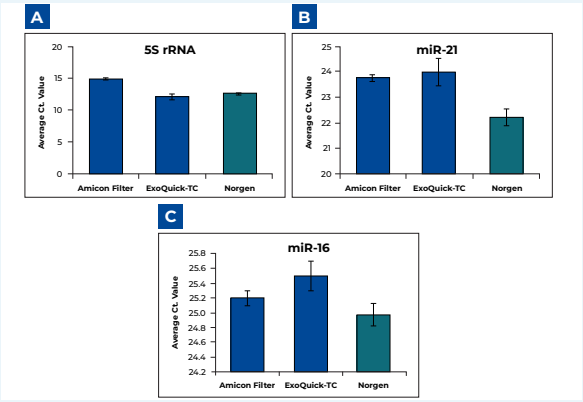
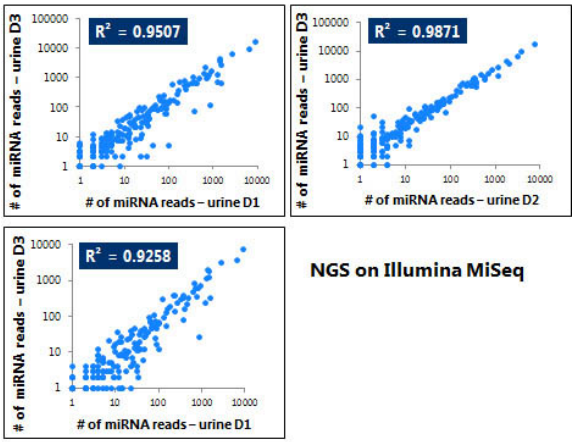


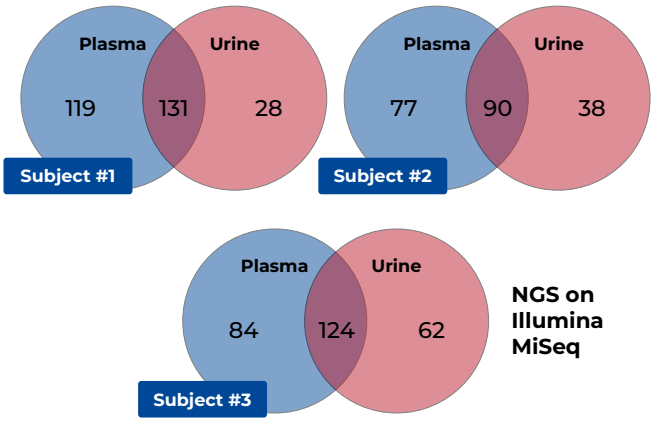
Figure 2. Effective and Consistent Detection of Urine Exosome RNA. Urine exosome RNA was isolated from 5 mL of human cell-free urine using Norgen's Urine Exosome RNA Isolation Kit (green), ExoQuick-TC Exosome Precipitation Reagent (blue) and Amicon® Ultra-15 Filter (blue). Stem loop RT-qPCR using primers specific to miR-21 and miR-16 as well as the housekeeping 5S rRNA was performed. In brief, three microliters of the 100 µL isolated RNA was then subjected to a 20 µL reverse transcription reaction using 5S rRNA, miR-21 and miR-16 stem-loop reverse primer or reverse primer. 3 µL from the reverse transcription reaction was used in a 20 µL real-time PCR reaction with primers to detect the human miR-21, human miR-16 and the 5S rRNA. Norgen's Urine Exosome RNA Isolation Kit is the only product that showed consistent detection of all tested transcripts with the highest quality.



NGS on Illumina MiSeq

RNA PURIFICATION WORKFLOW RECOVERS CONSISTENT PROFILES OF SMALL RNAS

Figure 3. High Diversity and Consistency of miRNA Recovered from Urine. Mid-stream urine was collected from three different healthy individuals. RNA was isolated from 20 mL of each sample using Norgen's Urine Exosome RNA Purification Kit (Cat. 47200). Small RNA Libraries were then generated using an Illumina TruSeq Small RNA Library Preparation Kit and subsequently sequenced on an Illumina MiSeq system. The normalized read counts of the mapped miRNAs were then compared between each individual sample. The scatter plots showed that the miRNA diversity was highly conserved among all individuals tested (R2 ≥ 0.92). This suggests that Norgen's RNA purification workflow recovers consistent profiles of small RNAs. This could enhance the possibility of detecting potential urine-based small RNA biomarkers.



MIRNA PROFILES HAVE A HIGH DEGREE OF OVERLAP BETWEEN URINE AND PLASMA.

Figure 4. High Degree of Overlapping of miRNA profiles between Urine and Plasma. Plasma and mid-stream urine was collected from three different healthy individuals. RNA was isolated from 20 mL of each urine sample using Norgen's Urine Exosomal RNA Purification Kit (Cat. 47200) and 200 µL of each plasma sample using Norgen's Plasma/Serum RNA Purification Mini Kit (Cat. 55000). Small RNA Libraries were then generated using an Illumina TruSeq Small RNA Library Preparation Kit and subsequently sequenced on an Illumina MiSeq system. The list of mapped miRNAs from plasma and urine from the same individual was then compared. The Venn diagrams showed that the miRNA profiles have a high degree of overlapping between urine and plasma within each individual.

Technical Specifications

Description	Specifications
Minimum Urine Input	1mL
Maximum Urine Input	10mL
Size of RNA	Small exosomal RNA specie
Time to Complete Purification	~50 Minutes

Storage Conditions and Product Stability
All buffers should be kept tightly sealed and stored at room temperature. This kit is stable for 2 years after the date of shipment.

Select Publications

Yu, Jiayin, et al. **"Unveiling potential: Urinary exosomal mrnas as non-invasive biomarkers for early prostate cancer diagnosis."** BMC Urology, vol. 24, no. 1, 1 Aug. 2024, https://doi.org/10.1186/s12894-024-01540-6.

Pathak, Abhay Kumar, et al. **"Development of a robust and generalizable algorithm 'gQuant' for accurate normalizer gene selection in QRT-PCR analysis."** Scientific Reports, vol. 14, no. 1, 13 Aug. 2024, https://doi.org/10.1038/s41598-024-66770-y.

Fang, Yixuan, et al. **"Alterations in the levels of urinary exosomal microrna-183-5p and MicroRNA-125A-5p in individuals with type 2 diabetes mellitus."** Biomedicines, vol. 12, no. 11, 14 Nov. 2024, p. 2608, https://doi.org/10.3390/biomedicines12112608.

Ordering Information

Select Publications

Description	Preps	Cat. #
Urine Exosome RNA Isolation Kit	50 Prep	47200

Related Publication

Description	Prep Size	Cat. #
Urine Exosome Purification and RNA Isolation Kits	25 Prep	58700
Exosomal RNA Isolation Kit	Variable	58000
Norgen Next Generation Sequencing Services	Call 1-866-Norgenb or Visit norgenbiotek.com	

Order Today!

Order Norgen's Urine Exosome RNA Isolation Kit today to help improve your research performance and workflow.

Three ways to order

Visit **norgenbiotek.com**
Call at **1-866-NORGENB** or **905-227-8848**
Email at **orders@norgenbiotek.com**

Enhance your lab with the complete workflow solutions from Norgen.

COLLECTION & PRESERVATION

EXTRACTION

APPLICATION

For more information SCAN HERE

NORGEN BIOTEK

ISO 9001:2015 CERTIFIED QUALITY

ISO 13485:2016 CERTIFIED QUALITY

GMP COMPLIANT

norgenbiotek.com