

Urine DNA/Protein Isolation Kit

Norgen's Urine DNA/Protein Isolation Kit provides a fast, reliable and simple procedure for isolating DNA and proteins sequentially from a single urine sample. Due to the fact that urine can be collected non-invasively in large amounts, it provides an attractive alternative to blood plasma as a potential source of disease biomarkers. Purification is based on spin column chromatography using Norgen's proprietary resin as the separation matrix. The urinary DNA and urinary proteins are isolated from a 1 - 3 mL urine sample using 2 separate spin columns in 15 minutes using this kit.



DNA found in urine can be divided into 2 basic categories. The larger species, genomic-DNA (gDNA), is generally greater than 1 kb in size, and appears to be derived mainly from exfoliated cells. The second species is smaller, generally between 150 and 250 bp (apoptotic-DNA), and derives, at least in part, from the circulation. Both types of DNA can be isolated reliably using this kit. The kit also allows for the isolation of genomic DNA from both Gram negative and Gram positive bacteria, including *E. coli*, *Proteus* spp., *Klebsiella* spp., *Enterobacter* spp., *Serratia* spp., *Pseudomonas* spp., *Clostridial* spp. and *Leptospiriosis* spp., as well as *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. Therefore this kit can isolate all 3 types of DNA: exfoliated cell gDNA, apoptotic DNA and urine bacterial DNA. Furthermore, each spin column is able to concentrate and desalt up to 200 µg of urine proteins. The purified urine DNA is compatible with most molecular biological applications such as PCR, q-PCR, Southern Blot and Methylation-sensitive PCR. Purified urine proteins can be used in downstream proteomic applications including SDS-PAGE, 2D SDS-PAGE gels, whole protein mass spectrometry, and protein microarrays.

Kit Specifications			
Minimum Urine Input	1 mL	Protein Yield	Up to 200 µg
Maximum Urine Input	3 mL	Time to Complete 12 Purifications	15 minutes (plus a 20 minute incubation)
Maximum Input of Exfoliated / Bacterial Cells	1 x 10 ⁶		

Urine DNA / Protein Isolation Kit Benefits

Isolate a diversity of DNA species	The kit allows for the isolation of all DNA species found in urine, including exfoliated cell genomic DNA, apoptotic DNA and urine bacterial DNA
Fast and easy processing	Rapid spin-column format allows for the processing of 12 samples in 15 minutes.
Versatile urine input volume	Isolate urinary DNA and urinary proteins from 1 - 3 mL of urine samples.
Isolate inhibitor-free DNA	Purified urinary DNA can be used in a number of sensitive downstream applications including PCR, q-PCR, Southern blot and Methylation sensitive PCR.
Concentrate and desalt urinary proteins	Simultaneously concentrate and desalt up to 200 µg of urinary proteins

Urine DNA/Protein Isolation Kit

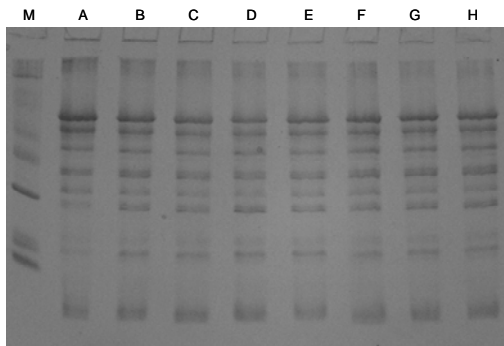


Figure 1. Consistent Isolation of Total Proteins
Seven urine samples were collected, and 1 mL from each sample were spiked with increasing amounts of *E.coli*. The spiked urine samples were processed using the Urine DNA/Protein Isolation Micro Kit. The concentrated urinary proteins were eluted in 100 µL of Elution Buffer, and 10 µL of each elution was resolved on a 12% SDS-PAGE gel. As it can be seen, consistent protein recovery was observed in each case.

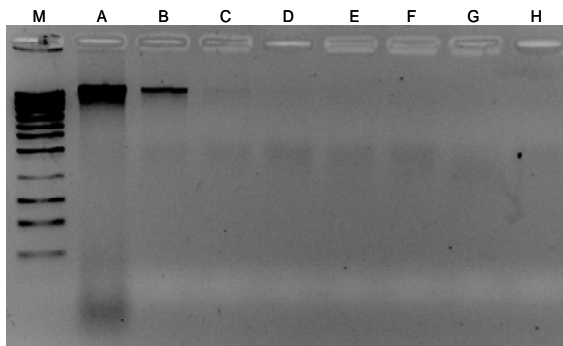


Figure 2. Isolation of Genomic DNA from Urine Spiked with Different Amounts of *E.coli*. Norgen's Urine DNA/Protein Isolation Micro Kit was used to isolate genomic DNA from 1 mL urine samples spiked with different amounts of *E.coli*. The purified DNA was eluted in 100 µL of Elution Buffer, and one tenth of the first elution was loaded on a 1.2% agarose gel. Genomic DNA could be detected in all cases. Lane M is Norgen's MidRanger 1kb DNA Ladder.

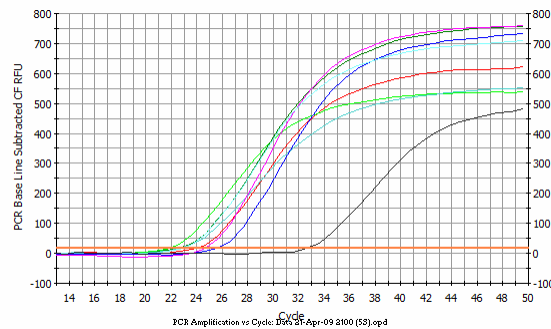


Figure 3. Real-time PCR Amplification of the Human 5S Gene. The urine DNA that was isolated from *E.coli*-spiked urine samples using Norgen's Urine DNA/Protein Isolation Kit (Figure 2) was used as the template in a real-time PCR reaction to detect the human 5S gene. Three microlitres of the isolated DNA was used as the template. As it can be seen, the PCR was able to successfully detect and amplify the 5s gene in all cases, indicating the high quality of the isolated urine DNA.

Customer-Supplied Reagents and Equipment

- Benchtop microcentrifuge
- 96-100% ethanol
- 55°C water bath or heating block
- Lysozyme

Shipping Conditions

The Urine DNA/Protein Isolation Kit is shipped at room temperature.

Storage Conditions

All solutions should be kept tightly sealed and stored at room temperature. These reagents should remain stable for 1 year in their unopened containers. The lyophilized Proteinase K should be stored at -20°C upon arrival and after reconstitution.

Cat #	Description	Quantity
27400	Urine DNA/Protein Isolation Kit	25 preps