microRNA Purification Kit

Norgen's microRNA Purification Kit provides a rapid method for the isolation and purification of small RNA molecules (< 200 nt) from cultured animal cells, small tissue samples, bacterial cells, plants and blood. These small RNAs include regulatory RNA molecules such as microRNA (miRNA) and short interfering RNA (siRNA), as well as tRNA and 5S rRNA. Small RNA molecules are often studied due to their ability to regulate gene expression. For example, miRNAs and siRNAs, which are typically 20-25 nucleotides long, regulate gene expression by binding to mRNA molecules and affecting their stability or translation.

Purification is based on spin column chromatography using Norgen's proprietary resin as the separation matrix. Norgen's resin binds RNA in a manner that depends on ionic concentrations. The small RNA molecules are preferentially purified from other cellular components such as ribosomal RNA and proteins, without the use of phenol or chloroform. The process involves the use of two separate spin columns for the isolation of small RNA molecules. First, the large RNA molecules are removed through binding to the Large RNA Removal Column, while the smaller RNA molecules species will pass through into the flow-through. Next, the small RNA species are isolated and purified through binding to the Small RNA Enrichment Column. If desired, the large RNA species can also be eluted and separately purified. The RNA isolated using Norgen's microRNA Purification Kit can be used in various downstream applications related to gene regulation and functional analysis, including northern blotting and microarray assays.

Kit Specifications

Column Binding Capacity	50 µg	Maximum Amount of Starting Material:	
Maximum Column Loading Volume	650 µL	Animal Cells	3 x 10^6 cells
Minimum Elution Volume	200 µL	Animal Tissues	5-25 mg
Size of RNA Purified	<200 nt	Bacteria	1 X 10^9 cells
Time to Complete 10 Purifications	25 minutes	Plant Tissues	50 mg
		Blood	100 µL

microRNA Purification Kit Benefits

Fast and easy processing	Rapid spin-column format allows for the processing of 10 samples in 25 minutes.
No phenol:chloroform extractions	Norgen's microRNA Purification Kit isolates RNA without the use of harmful chemicals such as phenol or chloroform.
Isolate all small RNA molecules	All small RNA species can be isolated including miRNA, siRNA, tRNA, and 5S rRNA (Figure 1).
Optional purification of large RNA molecules	Large RNA molecules >200 nt can also be easily purified using an optional protocol.
Minimal contamination from large RNA molecules and genomic DNA	Efficient isolation of small RNA species using a 2 column process, resulting in minimal contamination of larger RNA and genomic DNA (Figure 2).
Recovered RNA is suitable for downstream applications	Purified RNA can be used in a number of downstream applications relating to gene regulation and functional analysis, including northern blotting and microarray analysis.

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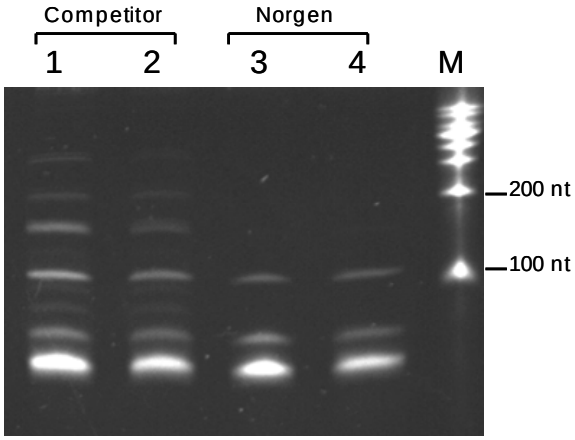

Figure 1. Isolate Only Small RNA Species Using Norgen's Kit
Small RNA was isolated from cultured HeLa cells using Norgen's microRNA Purification Kit (Lanes 3 and 4) and a competitor's kit (Lanes 1 and 2). Samples of the purified small RNA were run on an 8% urea-acrylamide gel. Lane M is Norgen's 100b RNA Ladder. Note that Norgen's kit is isolating only the small (<200 nt) RNA species, with no contaminating larger RNA fragments present.

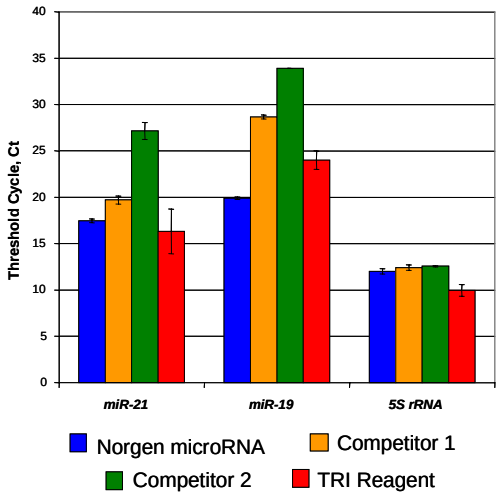

Figure 2. Better Recovery of miRNAs by Norgen's microRNA Purification Kit. Small RNA was isolated from HeLa cells using Norgen's microRNA Purification Kit and a competitors' kits. Relative expression of (A) miR-21, (B) miR-19 and (C) 5S rRNA was determined by RT-qPCR of polyadenylated total RNA samples. The resulting threshold cycle (Ct) values were summarized in the graph. Blue = Norgen's microRNA Purification Kit; orange = Silica-based Competitor micro-RNA Kit; green = Silica-based Competitor Total RNA Kit; red = Phenol-based reagent protocol. Norgen's microRNA Purification Kit recovered more miRNAs (lower Ct) than competitor's microRNA-specific kit.

microRNA Purification Kit Contents

1. Lysis Solution
2. Wash Solution
3. Elution Buffer
4. Large RNA Removal Columns
5. microRNA Enrichment Columns
6. Collection Tubes
7. Elution Tubes
8. Product Insert

Shipping Conditions

The microRNA Purification 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.

Cat #	Description	Quantity
21300	microRNA Purification Kit	25 preps

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