

## Cytoplasmic & Nuclear RNA Purification Kit

Norgen's Cytoplasmic & Nuclear RNA Purification Kit provides a rapid method for the isolation and purification of both cytoplasmic and nuclear RNA from cultured animal cells and small tissue samples. In certain circumstances it is desirable to isolate fractionated RNA as opposed to total RNA. For example, it may be preferable to isolate only mature, cytoplasmic RNA for some studies on expression profiling, or nuclear RNA in order to study pre-processed RNA. Furthermore, this kit can be used to isolate RNA for downstream applications where it is necessary to avoid DNA contamination, since the cytoplasmic fraction has been shown to be free of all traces of genomic DNA.



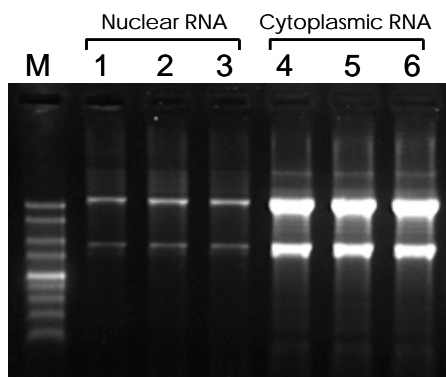
Purification is based on spin column chromatography using Norgen's proprietary resin as the separation matrix. Norgen's resin binds RNA in a manner that depends on ionic concentrations. The cytoplasmic RNA is preferentially purified from the nuclear RNA and the other cellular components such as genomic DNA and proteins, without the use of phenol or chloroform. The purified RNA is of the highest quality and can be used in a number of downstream applications.

Kit Specifications			
Column Binding Capacity	50 µg	Size of RNA Purified	All sizes
Maximum Column Loading Volume	600 µL	Time to Complete 10 Purifications	45 minutes
Maximum Amount of Starting Material:		Average Yield:	
Animal Cells	3 x 10 <sup>6</sup> cells	HeLa Cells (1 x 10 <sup>6</sup> cells) - cytoplasmic	15 µg
Animal Tissues	25 mg	HeLa Cells (1 x 10 <sup>6</sup> cells) - nuclear	≤ 3.5 µg

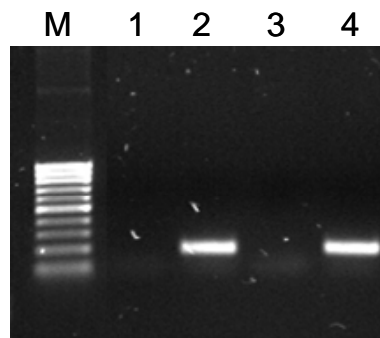
### Cytoplasmic and Nuclear RNA Purification Kit Benefits

Fast and easy processing	Rapid spin-column format allows for the processing of 10 samples in 45 minutes.
No genomic DNA contamination in cytoplasmic fraction	Purified cytoplasmic RNA can be used directly in RT-PCR reactions with no DNase treatment required (Figure 2).
No phenol:chloroform extractions	Cytoplasmic and nuclear RNA is isolated without the use of harmful chemicals such as phenol or chloroform.
Isolate a diversity of RNA species	All nuclear and cytoplasmic RNA species can be isolated, from large mRNA species down to microRNA (miRNA) and small interfering RNA (siRNA).
Recovered RNA is suitable for downstream applications	Purified RNA can be used in a number of downstream applications including real-time PCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, and expression array analysis requiring the use of intact RNA.

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**Figure 1. High Quality Cytoplasmic & Nuclear RNA**  
RNA isolated using Norgen's Cytoplasmic & Nuclear RNA Purification Kit is of the highest integrity and quality, with no degradation occurring. Both cytoplasmic and nuclear RNA was isolated from HeLa cells, and 10  $\mu$ L of each elution was run on a 1.5% formaldehyde-agarose gel. Lane M is Norgen's 1 kb RNA Ladder, Lanes 1-3 contain nuclear RNA and Lanes 4-6 contain cytoplasmic RNA.



**Figure 2. No Genomic DNA in Cytoplasmic RNA**  
RT-PCR was performed using human beta actin primers and cytoplasmic RNA isolated from HeLa cells using Norgen's Cytoplasmic & Nuclear RNA Purification Kit. Lane M is Norgen's PCRRanger 100bp DNA Ladder, Lanes 1 and 3 are the negative control and contain no reverse transcriptase, and Lanes 2 and 4 show the expected 166 bp RT-PCR product. The lack of a product in Lanes 1 and 3 indicate that no genomic DNA contamination is present in the isolated cytoplasmic RNA.

### Cytoplasmic & Nuclear RNA Kit Contents

1. Lysis Solution
2. Binding Solution
3. Wash Solution
4. Elution Buffer
5. Micro Spin Columns
6. Collection Tubes
7. Elution Tubes
8. Product Insert

### Customer-Supplied Reagents and Equipment

- Benchtop microcentrifuge
- 95% ethanol
- $\beta$ -mercaptoethanol
- Homogenizer (Animal Tissues)

### 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.

### Shipping Conditions

The Cytoplasmic & Nuclear RNA Purification Kit is shipped at room temperature.

Cat #	Description	Quantity
21000	Cytoplasmic & Nuclear RNA Purification Kit	50 samples