

## Plasma/Serum RNA Purification Midi Kit

This kit provides a fast, reliable and convenient method to purify and concentrate high quality, high purity and inhibitor-free cell-free circulating and exosomal RNA using a two column method. This kit can purify RNA from fresh or frozen serum or plasma samples prepared from blood collected on either EDTA or Citrate, from volumes ranging from 250  $\mu$ L to 1.5 mL. Plasma samples prepared from blood collected on heparin should not be used, as heparin can significantly interfere with many downstream applications such as RT-PCR.



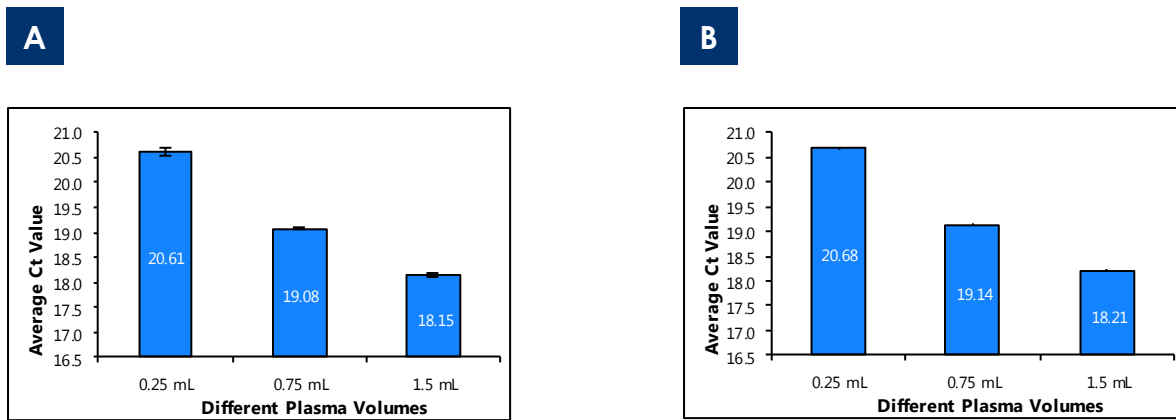
The first column will handle the large volume input of bodily fluids that is followed by a concentration on a mini column for a final elution of 50  $\mu$ L to 100  $\mu$ L. All components for the purification and concentration are provided in one convenient and fast kit for the easy processing of large input volumes of bodily fluids.

Kit Specifications			
Minimum Plasma/Serum Input	250 $\mu$ L	Maximum Plasma/Serum Input	1.5 mL
Time to Complete Purification	35-40 minutes	Size of RNA Purified	All sizes, including miRNA and small RNA (< 200 nt)

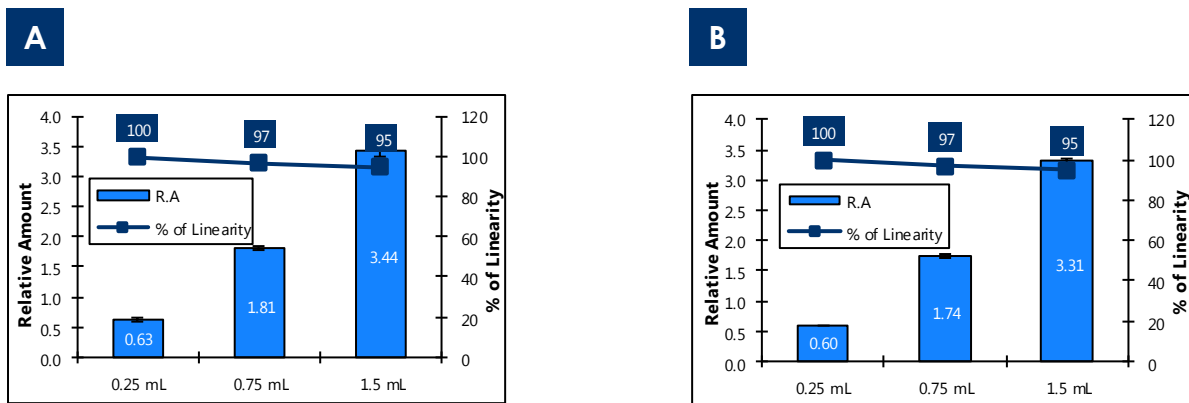
### Plasma/Serum RNA Purification Midi Kit Benefits

No phenol:chloroform extractions	Circulating RNA and Exosomal RNA are isolated without the use of harmful chemicals such as phenol or chloroform .
Isolate all sizes of circulating RNA and exosomal RNA	The kit allows for the isolation of all sizes of fragmented circulating RNA and exosomal RNA, including microRNA .
Fast and easy processing	Rapid spin column format allows for the processing of multiple samples in under 35-40 minutes.
Small input volume	Isolate circulating RNA and exosomal RNA from 250 $\mu$ L to 1.5 mL of plasma/serum.
Concentrate circulating RNA and Exosomal RNA	Circulating and exosomal RNA present in input volumes of 250 $\mu$ L to 1.5 mL are concentrated into final elution volume of 50 $\mu$ L to 100 $\mu$ L.
Isolate inhibitor-free RNA	Purified RNA can be used in a number of sensitive downstream applications including reverse transcription qPCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, and expression array assays.

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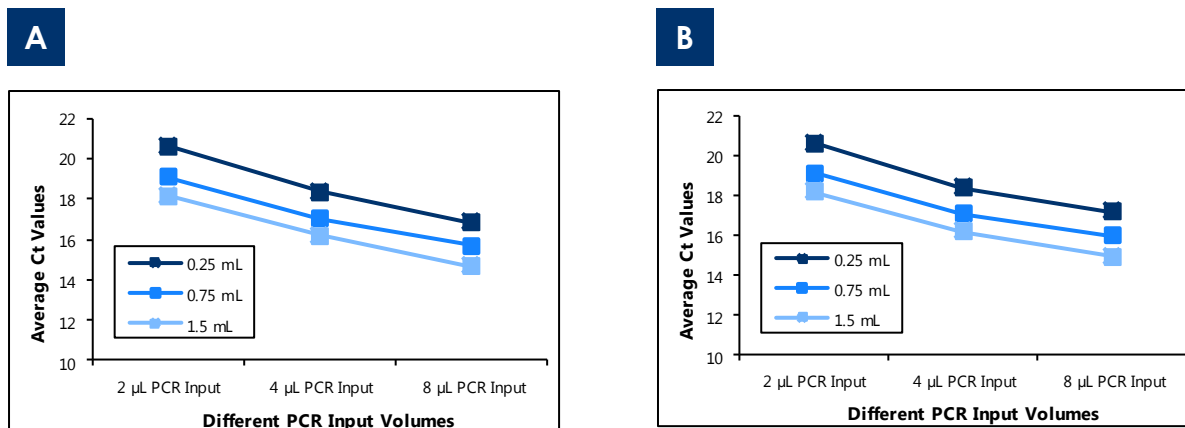


**Figure 1. Purification of cell-free circulating RNA and exosomal RNA from different plasma volumes.** Norgen's Plasma/Serum RNA Purification Midi Kit (Cat# 56100) was used to purify cell-free circulating and exosomal RNA from 0.25 mL, 0.75 mL and 1.5 mL plasma prepared from blood collected on citrate as an anticoagulant. Two microlitres of the purified RNA was then used as the template in RT-qPCR reactions to assess the amplification of the (A) housekeeping 5S rRNA transcript and (B) miR-21. The average Ct value for both the 5S rRNA transcript and the miR-21 is linearly decreasing with increasing the sample input volume.



**Figure 2. Linearity of RNA purified from increasing plasma volumes using Norgen's Plasma/Serum RNA Purification Midi Kit.** Norgen's Plasma/Serum RNA Purification Midi Kit (Cat# 56100) was used to purify RNA from 0.25 mL, 0.7 mL and 1.5 mL plasma prepared from blood collected on citrate as an anticoagulant. Two microlitres of the purified RNA was then used as the template in RT-qPCR reactions to assess the linearity of the housekeeping (A) 5S rRNA transcript and (B) miR-21 from the different plasma volumes. Norgen's Plasma/Serum RNA Purification Midi Kit was able to recover 97% of both the 5S rRNA transcript and the miR-21 transcript from 0.75 mL plasma relative to the amount that is present in 0.35 mL plasma. Moreover, 95% of the 5S rRNA transcript and the miR-21 was recovered from 1.5 mL plasma relative to the amount that is present in 0.75 mL plasma.

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**Figure 3. Determination of the amount of inhibition present in plasma RNA samples when detecting the human 5S transcript and miR-21.** RNA was isolated from 0.25 mL, 0.75 mL and 1.5 mL plasma using Norgen's Plasma/Serum RNA Purification Midi Kit (Cat# 56100). 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.

### Plasma/Serum RNA Purification Midi Kit Contents:

1. Lysis Buffer A
2. Wash Solution A
3. Elution Solution A
4. Elution Solution F
5. Mini Spin Columns
6. Midi Spin Columns
7. Collection Tubes
8. Elution tubes (1.7 mL)
9. Product Insert

### Customer-Supplied Reagents and Equipment

- Benchtop microcentrifuge
- Micropipettors
- 96 – 100% ethanol
- β - Mercaptoethanol

### Shipping Conditions

The Plasma/Serum RNA Purification Midi Kit is shipped at room temperature.

### Storage Conditions

All buffers should be kept tightly sealed and stored at room temperature (15-25°C) for up to 2 years without showing any reduction in performance. It is recommended to warm Lysis Buffer A for 20 minutes at 60°C if any salt precipitation is observed.

Cat #	Description	Quantity
56100	Plasma / Serum RNA Purification Midi Kit	20 preps