

## Low Abundance RNA Quantification Kit

The amount of RNA that can be extracted from different biological or clinical samples varies greatly. For example, while a few micrograms of RNA could be easily purified from tissues and cells in excess amount (such as from a few milligrams of tissue), many liquid biopsy samples may yield very low amounts of RNA. In fact, samples such as urine or plasma may yield 1 - 100 ng or less RNA per 100  $\mu$ L of sample. The most commonly used technique for measuring RNA concentration is the determination of absorbance at 260 nm ( $A_{260}$ ). However, even with the new generation of spectrophotometers, the detection limit of this method is still above 2 - 10 ng per  $\mu$ L. Additional technologies, such as the use of fluorescent nucleic acid stains, has enabled the quantification of RNA at the lower ng or sub-ng per

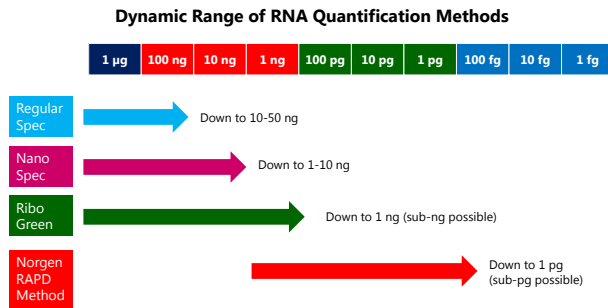


$\mu$ L range. However, this may not completely overcome the difficulties in quantifying RNA from liquid biopsies where the expected RNA yield could be in the lower pg or sub-pg per  $\mu$ L range.

Norgen's Low Abundance RNA Quantification Kit offers a PCR-based detection procedure to quantify RNA of a wide spectrum of concentrations, including the lower ng per  $\mu$ L, pg per  $\mu$ L and sub-pg per  $\mu$ L range. The kit has two main enzymatic components – reverse transcription using Norgen's microScript Reverse Transcription system and Real-Time PCR Master Mix used in conjunction with a specially formulated primer mixture, to amplify human RNA from different types of inputs (such as various liquid biopsies). The unknown RNA is accurately quantified using a standard curve constructed from the provided RNA Standards on a Real-Time PCR System.

### Urine Cell-Free Circulating RNA Purification Mini Kit Benefits

Wide Spectrum	Quantify RNA of a wide spectrum of concentrations, including the lower ng per $\mu$ L, pg per $\mu$ L and sub-pg per $\mu$ L range
Flexible	Compatible with any Real-Time PCR system
Accurate	RNA is accurately quantified by using a standard curve constructed from the provided RNA standard



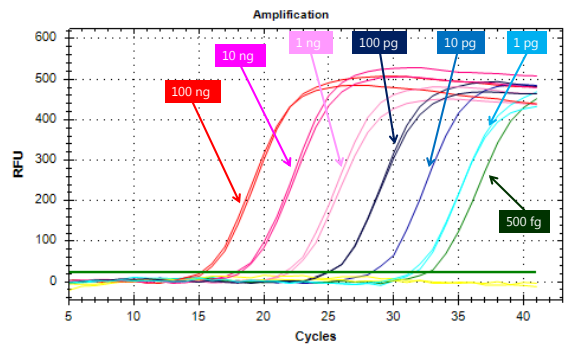
**Figure 1. Sensitivity of RNA Quantification with the Low Abundance RNA Quantification Kit compared to Other Methods.** A diagram representing the dynamic range of different RNA quantification method is presented here. The Low Abundance RNA Quantification Kit can quantify purified RNA from low abundance samples in the pg and sub-pg range.

**Low Abundance RNA Quantification Kit Contents:**

1. microScript microRNA Enzyme Mix
2. 2x microScript Reverse Transcriptase Reaction Mix
3. 2X PCR Master Mix
4. RNA Quantification Primer Set Mix
5. Quantified RNA Standard
6. Nuclease-Free Water
7. Product Insert

**Storage Conditions**

Upon receipt, store Norgen's Low Abundance RNA Quantification Kit at -20°C or lower. Avoid multiple freeze-thaw cycles. If needed, prepare smaller working aliquots and store at -20°C or lower.



**Figure 2. Sensitivity of RNA Quantification in the Picogram Range using the Low Abundance RNA Quantification Kit.** A representative qPCR Baseline Graph showing the amplification of an RNA standard dilution series. The Low Abundance RNA Quantification Kit can quantify purified RNA from low abundance samples such as liquid biopsies (plasma or urine). As little as 500 fg of RNA can be quantified using Norgen's kit.

*Customer-Supplied Reagents and Equipment*

- Appropriate Real-Time PCR Instrument
- Nuclease-Free PCR Tubes compatible with PCR Instrument
- RNA Purification Kit
  - ◊ The kit is compatible with all RNA purification kits that yield high quality, inhibitor-free total RNA (including microRNA)
  - ◊ Recommended Purification Kit: Norgen Biotek's purification kits for RNA isolation, including:
    - Plasma/Serum RNA Purification Mini Kit - Cat# 55000
    - Urine Cell-Free Circulating RNA Purification Mini Kit - Cat# 56900
- Disposable powder-free gloves
- Benchtop microcentrifuge
- Micropipettors
- Sterile pipette tips with filters
- PCR tubes
- Ice

Cat #	Description	Quantity
58900	Low Abundance RNA Quantification Kit	48 rxns