

# Instruction Insert

## VWR RNA Broad Range Quantification Kit

Cat. No. VWRI210-000165.

### Product Description

The VWR RNA Broad Range (BR) Quantification Kit enables precise and reliable RNA quantification. This assay exhibits high specificity for RNA over single-stranded and double-stranded DNA (see figure below), allowing for the detection of RNA concentrations ranging from 1 ng/μL to 1000 ng/μL. Designed for enhanced sensitivity and stability, the VWR RNA BR Quantification Kit outperforms conventional broad-range RNA measurement methods. Additionally, the assay demonstrates robustness against common contaminants, including proteins, free nucleotides, salts, solvents, and detergents. The assay is conducted at ambient temperature, requiring minimal preparation. The protocol involves diluting the RNA BR reagent in the RNA BR buffer, adding standards or samples, and measuring RNA concentration using a fluorometer or a plate reader.

### Contents and Storage:

| Material                          | Amount | Concentration          | Storage                         | Stability                                                    |
|-----------------------------------|--------|------------------------|---------------------------------|--------------------------------------------------------------|
| VWR RNA BR Reagent (Component A)  | 100 μL | 200X in DMSO           | 4 °C<br>Protected<br>From Light | Product Stable for at least 6 months when stored as directed |
| VWR RNA BR Buffer (Component B)   | 25 mL  | 1X                     |                                 |                                                              |
| VWR RNA Standard #1 (Component C) | 100 μL | 0 ng/μL in TE Buffer   |                                 |                                                              |
| VWR RNA Standard #2 (Component D) | 100 μL | 100 ng/μL in TE Buffer |                                 |                                                              |

### Critical Assay Parameters:

**Incubation Time:** For optimal detection of RNA, incubate the samples and standards with the working solution for 2–3 minutes in the dark at room temperature.

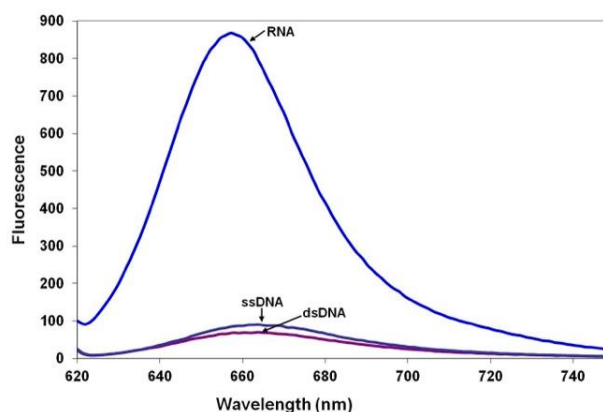
**Fluorometer Calibration:** Users may use a previous calibration or perform a new one. However, we recommend calibrating the fluorometer before each assay to minimize variability in results.

**Assay Temperature:** The VWR RNA BR Quantification Kit performs optimally at room temperature. Therefore, all reagents must be fully equilibrated to room temperature before use.

**RNase-Free Environment:** RNA is inherently unstable. To preserve sample integrity, we recommend minimizing freeze-thaw cycles and performing RNA quantification in an RNase-free environment.

**Effect of Contaminants:** The VWR RNA BR Quantification Kit exhibits tolerance to common contaminants, including proteins, salts, solvents, nucleotides, and detergent.

Figure 1: VWR RNA BR Quantification kit selectivity for RNA over ssDNA and dsDNA.



## Reagent, Standards and Sample Preparation

*This protocol provides instructions for using the VWR RNA BR Quantification Kit with the VWR and Qubit fluorimeters.*

1. Allow all components of the VWR RNA BR Quantification Kit to reach room temperature.
2. Prepare the required number of assay tubes, ensuring inclusion of the two standards (Use ONLY 0.5 mL thin-wall PCR tubes).
3. Label the sample and standard tubes on the lid.
4. Prepare the working solution immediately before use by diluting the VWR RNA BR Reagent 1:200 in 1X VWR RNA BR Buffer. For example, for eight samples plus two standards, dilute 10  $\mu$ L of VWR RNA BR Reagent in 1,990  $\mu$ L of VWR RNA BR Buffer.
5. Add working solution to the standard and sample tubes according to the figure on the reverse side. Add 10  $\mu$ L of Standard 1 and Standard 2 to the appropriately labeled tubes according to the figure on the reverse side.
6. Add 1–50  $\mu$ L of unknown samples to the appropriately labeled tubes for the final volume of 200  $\mu$ L (refer to the diagram on reverse side).
7. Thoroughly mix the samples and standards, then incubate the tubes at room temperature in the dark for 2–3 minutes.

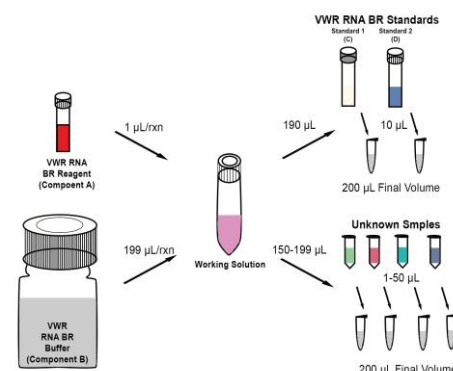


Figure 2: Reagents, Standards and Sample Preparation

## Standards and Sample Measurements

### Standard Curve:

1. On the VWR Fluorometer Home screen, select **RNA**, then choose **RNA Broad Range**.
2. Follow the on-screen instructions to insert Standard 1, then select **Read Standard 1**.
3. Once the reading is complete, remove Standard 1, and insert Standard 2. After the reading is complete, remove Standard 2.

Note: On the screen, fluorescence readings for both Standard 1 and Standard 2 will be displayed. Select Chart to view a standard curve that plots Relative Fluorescence Units (RFU) as a function of concentration ( $\mu$ g/mL).

### Sample Quantification:

1. On the Fluorometer screen, select **Read Tube**, then choose the volume of the unknown sample in the test tube and select the appropriate units.
2. Select **Start Experiment**.
3. Once the fluorometer completes the quantification, the sample concentration will be displayed on the screen.
4. Remove the sample, insert the next sample into the test chamber, and select **Read Tube**.
5. Repeat Step 4 until all samples have been quantified.

## Quantification Kits Available from VWR

| Cat No.                | Description                                                  | Qty        |
|------------------------|--------------------------------------------------------------|------------|
| <b>VWRI210-000159.</b> | VWR dsDNA High Sensitivity Quantification Kit                | 100 Assays |
| <b>VWRI210-000160.</b> | VWR 1X dsDNA High Sensitivity Quantification Kit, 100 Assays | 100 Assays |
| <b>VWRI210-000161.</b> | VWR dsDNA Broad Range Quantification Kit, 100 Assays         | 100 Assays |
| <b>VWRI210-000162.</b> | VWR 1X dsDNA Broad Range Quantification Kit, 100 Assays      | 100 Assays |
| <b>VWRI210-000163.</b> | VWR ssDNA Quantification Kit, 100 Assays                     | 100 Assays |
| <b>VWRI210-000164.</b> | VWR RNA High Sensitivity Quantification Kit, 100 Assays      | 100 Assays |
| <b>VWRI210-000165.</b> | VWR RNA Broad Range Quantification Kit, 100 Assays           | 100 Assays |
| <b>VWRI210-000166.</b> | Fluorometer Tubes, 0.5 mL Pack of 250                        | 250 tubes  |

## VWR Fluorometer Instrument

| Cat No.                | Description              |
|------------------------|--------------------------|
| <b>VWRI210-000157.</b> | VWR Fluorometer 115-230V |