Portelite™ Total DNA Quantification Assay Kit *4-2000 ng Broad Range*

Catalog number: 17632
Unit size: 100 Tests

Component	Storage	Amount (Cat No. 17632)
Component A: Helixyte™ Green DNA BR	Freeze (< -15 °C), Minimize light exposure	1 Vial (0.25 mL, 100X in DMSO)
Component B: DNA Assay Buffer	Refrigerated (2-8 °C)	1 Bottle (50 mL)
Component C: DNA Standard BR #1	Refrigerated (2-8 °C)	1 Vial (1 mL, Calf thymus DNA: 0 ng/µL)
Component D: DNA Standard BR #2	Refrigerated (2-8 °C)	1 Vial (1 mL, Calf thymus DNA: 100 ng/µL)

OVERVIEW

The Portelite™ Total DNA Quantification Assay Kit *4–2000 ng Broad Range* is specifically optimized for the precise and reliable quantitation of total DNA, offering exceptional selectivity for double-stranded DNA (dsDNA) over RNA and protein contaminants. This assay addresses key limitations of traditional DNA quantitation methods by providing superior stability, a broad linear dynamic range, and enhanced sensitivity, making it highly suitable for rigorous scientific applications.

The kit includes a concentrated quantitation reagent, an optimized dilution buffer, and pre-calibrated dsDNA standards to ensure accuracy and reproducibility. The protocol is straightforward: dilute the quantitation reagent with the provided buffer, add a sample volume ranging from 1 to 20 µL, and measure fluorescence using a fluorometer. The assay is highly robust, demonstrating strong tolerance to interference from common contaminants such as proteins, salts, organic solvents, and detergents, thereby enabling consistent performance across diverse sample types.

When paired with the Qubit Fluorometer, the Portelite™ kit enables precise quantitation of initial dsDNA concentrations from 0.2 to 2,000 ng/µL, corresponding to an assay detection range of 4–2,000 ng. This broad quantification range, combined with its high selectivity and reliability, makes the kit an indispensable tool for a wide range of molecular biology applications, including next-generation sequencing (NGS) library preparation, genomic DNA analysis, and diagnostic workflows.

AT A GLANCE

Protocol Summary

1. Prepare Helixyte™ Green DNA BR working solution.
2. Add 190 µL of 1X Helixyte™ Green DNA BR working solution to each 0.2 mL PCR tube.
3. Add 10 µL of DNA standards or test samples to each tube.
4. Incubate at room temperature for 2 minutes.
5. Monitor fluorescence with CytoCite™ Fluorometer or Qubit™.

Note: Bring all the kit components at room temperature before starting the experiment.

KEY PARAMETERS

Qubit Fluorometer

Emission	530 nm
Excitation	480 nm

Recommended plate: 0.2 mL PCR vial

PREPARATION OF WORKING SOLUTION

Helixyte™ Green DNA BR working solution

1. Make a 100-fold dilution of Helixyte™ Green DNA BR (Component A) in DNA assay buffer (Component B). For example, to prepare enough working solution for 100 samples, add 200 µL of Helixyte™ Green BR (Component A) into 20 mL of DNA Assay Buffer (Component B).

   Note: Protect the working solution from light by covering it with foil or placing it in the dark.

   Note: We recommend preparing this solution in a plastic container rather than glass, as the dye may adsorb to glass surfaces.

   Note: Use this solution within a few hours of preparation to ensure optimal results.

SAMPLE EXPERIMENTAL PROTOCOL

Sample Volume: The acceptable sample volume can range from 1~20 µL depending on the estimate concentration of DNA sample. The recommended sample volume is 10 µL with DNA concentration of 4–2000 ng. If a different sample volumes is used, adjust the dilution factor accordingly when calculating the concentration.

The following protocol is based on 10 µL sample volume with the DNA concentration in 0.2~100 ng /µL range:

1. Add 190 µL of 1X Helixyte™ Green DNA BR working solution to each Cytocite™ sample tube (#CCT100) or equivalent 0.2 mL PCR tube.

   Note: Use thin-wall, polypropylene, clear 0.2 mL PCR tubes such as #CCT100.

2. Add 10 µL of DNA standards or test samples to each tube, then mix by vortexing for 2~3 seconds.
3. Incubate all tubes at room temperature for 2 minutes.
4. Insert the samples into CytoCite™ or Qubit™ and monitor the fluorescence using the green fluorescence channel. Follow the appropriate procedure for CytoCite™ Fluorometer. See the link below for detailed instructions:

   https://devices.aatbio.com/documentation/user-manual-for-cytocite-fluorometer

Preparation of Standard Calibration Curve

For Portelite™ assays, you have the choice to make a calibration curve with the DNA standards with the lower concentrations. Here is a brief protocol to generate a customized DNA standard curve:

1. Perform 1/3 serial dilution with 100 ng/ µL with DNA Standard BR #2 (Component D) in DNA Assay Buffer (Component B) to obtain 30, 10, 3, 1, 0.3, 0.1 and 0 ng/µL DNA standard dilutions.
2. Add 190 µL of Helixyte™ Green DNA BR working solution to each tube.
3. Add 10 µL standards or 10 µL samples to a 0.2 mL PCR tube.
4. Incubate the reaction at room temperature for 2 minutes.
5. Insert the samples into CytoCite™ and monitor the fluorescence using the green fluorescence channel.

EXAMPLE DATA ANALYSIS AND FIGURES

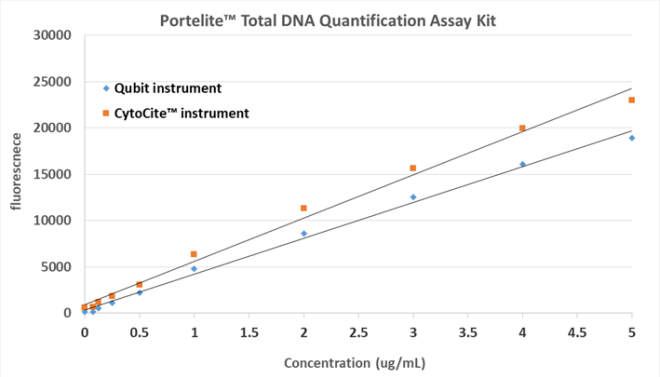

Figure 1. Comparison of DNA dose response using the Qubit™ Fluorometer (Blue) or CytoCite™ Fluorometer (Orange).

DISCLAIMER

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