

# Product Information

## AccuGreen™ Broad Range dsDNA Quantitation Solution

For use with handheld fluorometers such as the Qubit®

### Kit Contents

Catalog No.	Size
31070	500 assays (250 mL)
31070-T	100 assays (50 mL)

### Reagents to be supplied by user

0.5 mL clear PCR tubes

### Storage and Handling

Store Solution at 4°C, protected from light. The Solution is also stable for storage at room temperature for at least 6 months. Product is stable for at least 6 months from date of receipt when stored as recommended.

### Spectral Properties

Ex/Em: 500/530 nm (bound to dsDNA).

### Product Description

The AccuGreen™ Broad Range dsDNA Quantitation Solution is designed for use with handheld fluorometers such as the Qubit® fluorometer from Thermo Fisher. Unlike absorbance-based measurements, AccuGreen™ Solution is highly selective for double-stranded DNA over single-stranded DNA or RNA.

The linear range of the AccuGreen™ broad range assay is 2 to 1000 ng of DNA per tube. DNA samples with concentrations between 100 pg/uL and 1000 ng/uL may be quantified using sample volumes between 1 and 20 uL (for example, 1 uL of 1000 ng/uL is 1000 ng total, and 20 uL of 100 pg/uL is 2 ng total, which will both fall within the linear range of the assay). If you use the most common sample volume of 10 uL, the sample concentration range is 200 pg/uL to 100 ng/uL.

The AccuGreen™ solutions provide enough reagents to quantify approximately 100 samples (31069-T) or 500 samples (31069), plus two standards. There are enough reagents for 250 reactions (31069-T) or 1,250 reactions (31069) including standards.

Biotium also offers the AccuGreen™ Broad Range dsDNA Quantitation Kit (31069). The AccuGreen™ Kit comes with a calf thymus DNA standard, while the AccuGreen™ Solution does not provide a DNA standard. It is intended for those who wish to use their own standard.

Biotium also offers the AccuGreen™ High Sensitivity dsDNA Quantitation Kit (31066) for use with the Qubit® fluorometer. The high sensitivity kit is linear between 0.1 and 100 ng of dsDNA per assay.

### Protocol for reading the AccuGreen™ broad range assay on the Qubit® Fluorometer

This protocol describes how to measure AccuGreen™ fluorescence on a Qubit® 3.0 Fluorometer using the pre-programmed dsDNA Broad Range program. Instructions may vary for older Qubit® models.

**Note:** The linear range for this assay on the Qubit® 3.0 is 2-1000 ng DNA in the assay tube. However, samples even slightly below 2 ng will return the error message "Out of Range." Therefore for best results use more than 2 ng DNA per assay.

1. Prepare or obtain a 100 ng/uL DNA standard in 1X TE buffer using the dsDNA of your choice (see Considerations for Data Analysis, next page). The DNA concentration can be determined on the basis of absorbance at 260 nm in a cuvette with a 1 cm path length. An  $A_{260}$  value of 2.0 corresponds to a concentration of 100 ng/uL. Use 1X TE buffer as the zero DNA standard. DNA standards can be stored at 4°C. For long term storage we recommend adding sodium azide to a final concentration of 2 mM.
2. Warm the AccuGreen™ solution to room temperature before use. You can place all kit components in a 37°C water bath for rapid warming; be sure to allow solutions to cool to room temperature before using.
3. For each sample and standard, pipette 190 uL of the Quantitation Solution into a clear 0.5 mL PCR tube (if using the Qubit® fluorometer).
4. Into one tube, pipet 10 uL of AccuGreen™ Standard 1 (0 ng/uL).
5. Into a second tube, pipet 10 uL of AccuGreen™ Standard 2 (100 ng/uL).
6. Pipette 1-20 uL of each DNA sample to be quantified into its own tube.
7. Incubate the tubes at room temperature for at least 2 minutes.
8. Turn on the Qubit™ 3.0 instrument. On the home screen select dsDNA. Choose the Broad Range assay.
9. Follow the prompts on the screen, and first read the AccuGreen™ Standard 1 and then the AccuGreen™ Standard 2. The program will use these values to quantify your unknown samples.
10. One at a time, measure each of your samples.
11. The data can be recorded manually or exported as a csv file.

### Considerations for Data Analysis

Calf thymus DNA can serve as a reference for most plant and animal DNA because it is double-stranded, highly polymerized and is approximately 58% AT (42% GC). Lambda dsDNA yields similar results. You may wish to use a standard similar to your unknown samples in DNA length, structure (i.e., linear vs. circular), or GC content. For bacterial DNA, a species-specific standard may be desired because the GC content varies widely depending on the species.

## Related Products

Catalog number	Product
31069	AccuGreen™ Broad Range dsDNA Quantitation Kit
31066	AccuGreen™ High Sensitivity dsDNA Quantitation Kit
31068	AccuGreen™ High Sensitivity dsDNA Quantitation Solution
31060	AccuBlue® NextGen dsDNA Quantitation Kit
31028	AccuClear® Ultra High Sensitivity dsDNA Quantitation Kit with 7 DNA Standards
31007	AccuBlue® Broad Range dsDNA Quantitation Kit with 9 DNA Standards
31065	RNase-Free Calf Thymus DNA, 1 mg/mL
31073	AccuBlue® Broad Range RNA Quantitation Kit
41003	GelRed® Nucleic Acid Gel Stain, 10,000X in water
41005	GelGreen® Nucleic Acid Gel Stain, 10,000X in water
31041	Forget-Me-Not™ EvaGreen® qPCR Master Mix (2-Color Tracking)
31045-T	Forget-Me-Not™ EvaGreen® qPCR Master Mix (low ROX)
31046-T	Forget-Me-Not™ EvaGreen® qPCR Master Mix (high ROX)
31043	Forget-Me-Not™ Universal Probe Master Mix
41024-4L	Water, Ultrapure Molecular Biology Grade
31030	DNA Gel Extraction Kit
CD501	RNAstorn™ Kit for Isolation of RNA from FFPE Tissue Samples
CD502	DNAstorn™ Kit for Isolation of RNA from FFPE Tissue Samples

Please visit our website at [www.biotium.com](http://www.biotium.com) for information on our life science research products, including environmentally friendly EvaGreen® qPCR master mixes, fluorescent CF® dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology research.

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