



Technical Note 162

dsDNA Assay Concentration Limits

Introduction

DeNovix Fluorescence Assays enable dsDNA quantitation over a broad range of concentrations using three distinct fluorescence assays kits.

Assay Selection

dsDNA Assay

Broad Range

Ideal for measuring sample concentrations of **0.1 – 2000 ng/μL**, with an extended upper range to 4000 ng/μL.

High Sensitivity

Used to measure samples with concentrations ranging between **5 pg/μL– 250 ng/μL**.

Ultra High Sensitivity

This Assay is optimized to enable the quantification of very low concentrations of dsDNA **0.5 – 300 pg/μL**

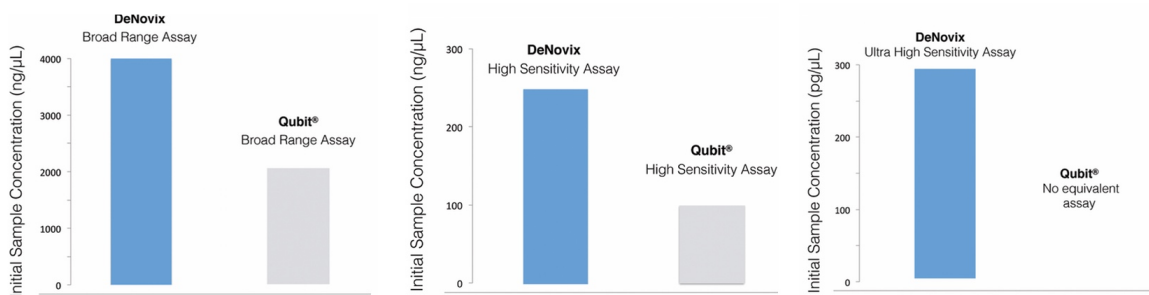


Figure 1: DeNovix dsDNA Assay Ranges. Total assay range is 0.5 pg/μL to 4000 ng/μL. [Click to enlarge](#)

Note: When comparing reported concentration ranges for kits made by various manufacturers, it is important to review specifications based upon common nomenclature. Specifications may be reported as initial sample concentration, concentration after dilution in the assay tube or total mass of biomolecule of interest in the tube.

Concentration vs. Total Mass

Fluorescent assays are generally designed to work over the specified core assay ranges using 10 μL of sample in 190 μL of working dye reagent for a total volume of 200 μL. For some assays, the range can be extended by varying the volume ratios. The key is to stay above the minimum and below the maximum kit specific recommended total mass of dsDNA in each tube.

Example Minimum Kit Concentration:

Using 10 μL of the lowest initial sample concentration covered by a kit with a stated lower limit of 10 $\text{pg}/\mu\text{L}$ results in a minimum absolute mass of 100 pg in 200 μL . This can also be stated as 0.5 $\text{pg}/\mu\text{L}$ after dilution in the assay tube.

Note: Lower initial sample concentrations may be measured by increasing the volume (e.g., 20 μL of a 5 $\text{pg}/\mu\text{L}$ sample) as long as the total mass per assay tube is not less than the lower specification equivalent.

Example Maximum Kit Concentration:

Using 10 μL of the highest initial sample with a stated upper limit of 25 $\text{ng}/\mu\text{L}$ results in a maximum absolute dsDNA mass of 250 ng in 200 μL . This can also be stated as 1.25 $\text{ng}/\mu\text{L}$ after dilution in the assay tube.

Note: Higher initial sample concentrations may be measured by decreasing the volume (e.g., 1 μL of a 250 $\text{ng}/\mu\text{L}$ sample) as long as the total mass per assay tube is not more than the upper specification equivalent.

Summary

The DeNovix suite of dsDNA Fluorescence Assays include three highly-specific, highly-sensitive kits for dsDNA quantification. Assay protocols are optimized for easy 2 Point Standard Curves, but they also offer the flexibility of using multi-point standard options. Assays are available in evaluation and larger sizes.

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