Fluorescence Protein Measurements using the Thermo Scientific NanoDrop™ 3300 Fluorospectrometer

Q: Can I quantify Proteins using the NanoDrop 3300?
A: Yes. For measuring dye-labeled proteins, pre-configured methods on the NanoDrop 3300 include Quant-iT Protein, Fluorescamine, FluoroProfile and Fluoraldehyde-OPA. In addition, the broad range of excitation wavelengths and broad range in detecting emission wavelengths allow the flexibility of setting up custom methods using virtually any fluorophore (400-750 nm).

Q: What are the advantages of using the NanoDrop 3300?
A: The compact NanoDrop 3300 allows for highly sensitive protein concentration measurements. Coupled with the fact that only a very small sample size is needed, this is a unique, accurate and quick (2-10 seconds) way to make measurements when only limited (ultra-low) sample mass is available for testing.

Q: What are the sample size requirements?
A: We recommend using a 2 µL sample size for protein measurements. Proteins and/or protein buffers may alter the surface tension properties of the solution and using the larger sample size is recommended to ensure proper column formation.

Q: I have not used fluorescence techniques. Is the NanoDrop 3300 easy to use?
A: The system is very user-friendly, even for those with limited fluorescence experience. There are no filter changes and the software is designed to make establishing and saving a standard curve quick and easy. Measuring a sample is as simple as pipetting a 2uL sample onto the sample pedestal and clicking a button on the computer screen to initiate the measurement.

Q: Can I use the NanoDrop 3300 if I do not know what excitation source to use for my sample?
A: Yes. The Fluorescence Profiler feature allows LED excitation selection guidance when you are unsure of the excitation source and/or emission profile of a specific or unknown fluorophore.

Q: I have heard that fluorescence-based instruments allowing so much flexibility are very expensive.
A: The NanoDrop 3300 is very affordable compared to high-end fluorescence instruments, primarily because the NanoDrop 3300 does not use costly monochromators.

Q: What is the dynamic range for proteins that can be measured on the NanoDrop 3300?
A: Using a 2uL sample, the range using the Quant-iT™ protein assay is 0.01 micrograms – 1.0 micrograms (BSA). The range using the fluoroscein assay is > 4 logs . Detailed performance data using other fluorophores may be found on our website.

Q: Is simply wiping the pedestal surface enough to prevent carryover?
A: Yes. The highly polished quartz and stainless steel surfaces of the sample retention system are resistant to sample adherence, making the use of dry laboratory wipes very effective in removing the sample.

Q: What additional analytes or biomolecules are routinely analyzed using the NanoDrop 3300?
A: The NanoDrop 3300 is routinely used for the following :

- Determine the concentration of nucleic acids (some of the pre-configured methods are dsDNA Hoechst dye, dsDNA PicoGreen® dye and RNA RiboGreen® dye)
- Characterize molecular beacon probes labeled with different fluorophores
- Assess the fluorescence of dyes such as Alexa, Cy and DyLights
- Measure fluorescence of a wide variety of inherent fluorophores