

Flow Cytometry Quality Control & Standardization

Quality control and daily standardization ensure optimal and reproducible instrument performance.

In flow cytometry, a comprehensive quality assurance program is essential for achieving accurate and consistent results within a study, and generating comparable data between instruments and laboratories. Bangs Laboratories' flow cytometry catalog includes instrument standards that support the various aspects of quality assurance programs, from general instrument QC to study-specific standardization. The below tables are intended to provide a framework to aid in product selection for both instrument validation and management, and for specific applications.

Category	Purpose	Frequency	Products
Daily QC	General check of instrument stability/status	Daily	Quantum™ QC (multi-intensity, multifluor) Full Spectrum™ (multi) Fluorescence Reference Standards (single)
Daily QC	General check of instrument optical system	Daily	Quantum™ QC Full Spectrum™ (multi) Fluorescence Reference Standards (single)
Daily QC	Optical Alignment	Daily	Right Reference Standard™
Daily QC	Fluidics check	Daily	Surface-labeled fluorescent microspheres, e.g. Fluorescence Reference Standards Quantum™ MESF
Weekly QC	Optical System Sensitivity, Resolution for Linearity (for specific lasers/PMTs)	Weekly	Quantum™ QC Quantum™ MESF
Daily Set-Up	Standardized instrument set-up	Daily, or Between runs if settings are changed	Quantum™ QC
Daily Set-Up	Standardized compensation settings for multi-color analyses	Daily, or between runs if settings are changed	FITC / PE Compensation Standard Simply Cellular® Compensation Standard Quantum™ Simply Cellular®

Applications/Study Standardization

We advocate comprehensive standardization in flow cytometric studies. This is particularly important for longitudinal studies and studies involving multiple instruments or centers. The program should encompass reagents, protocols, instrument configuration, and, for qualitative analysis, fluorescence intensity units.

Category	Purpose	Frequency	Products
Application	Fluorescence quantitation in cellular expression studies or bead-based assays	Daily when quantitative analyses are performed, or between different applications if fluorescence PMT or compensation settings are changed	Quantum™ MESF Quantum™ Simply Cellular®
Application	F:P Ratio determination for quantitative fluorescence analyses	As needed, i.e. with each new Lot of fluorochrome-conjugated antibody	Simply Cellular® (used in conjunction with Quantum™ MESF)
Application	Compensation for multi-color flow cytometry	Daily, or between different applications if fluorescence PMT or compensation settings are changed	FITC / PE Compensation Standard Simply Cellular® Compensation Standard Quantum™ Simply Cellular® Viability Dye Compensation Standard Protein A / Protein G Ab Binding Beads
Application	Cell Counting	As needed	Flow Cytometry Absolute Count Standard™
Application	Cell Size Estimation	As needed	Size Calibration Standards Kit Small Bead Calibration Kits
Application	Suspension Array	Platform for development of bead-based flow cytometric assays	QuantumPlex™ QuantumPlex™™

Instrument	
Instrument configuration	PMT settings
Assay	
Reagents	Antibodies - Clone, Purity, Concentration & Labeling density, i.e. Fluorophore: Protein (F/P) ratio Fixatives Lysing agents Anticoagulants
Scale	Window of Analysis Fluorescence Intensity Units
Protocols	Sample collection - Anticoagulant Sample storage conditions - Time, Temperature Sample preparation - Lysis, Fixation, Cooling / warming, Staining

Notes

When designing a flow cytometry QC program, the unique needs of the department or facility should be considered. Some products may satisfy multiple tasks, such as a single product used for basic daily QC and set-up of dedicated instruments. In other instances, combinations of products may be appropriate to meet the unique requirements of specific studies, or for instruments with shared use. Please contact us to discuss what products are available to support the unique requirements of your QC program or study.

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Bangs Laboratories manufactures magnetic, polymeric and silica microsphere products setting the standards for diagnostic, research, and flow cytometry applications. No matter the project, we have a product that serves or we'll work to custom-design a solution to fit. And that's not the half of it.


We also stand behind our products. Regardless of the size of your question or the size of your company, we offer tech support, absolutely free.

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