Fluorescence Intensity Calibration

Quantum™ MESF kits provide a system for quantitative fluorescence determinations.

What is MESF?

MESF stands for Molecules of Equivalent Soluble Fluorochrome. Each microsphere population in a Quantum™ MESF kit is assigned an MESF value. The MESF unit corresponds to the fluorescence intensity of a given number of pure fluorochrome molecules in solution. For example, a Quantum™ FITC microsphere with an MESF value of 10,000 possesses fluorescence intensity equivalent to solution containing 10,000 FITC molecules.
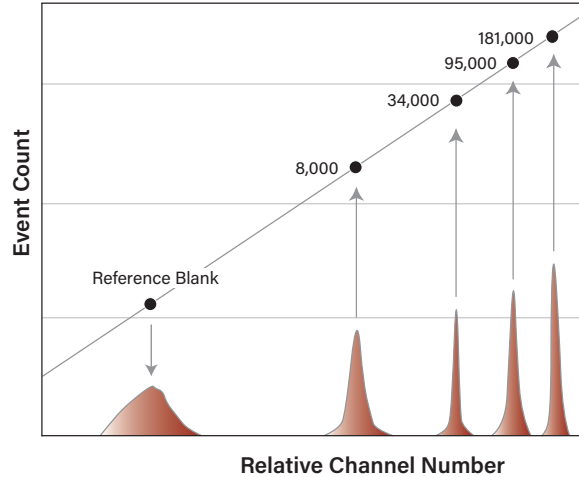
Linearity Calibrations

Each Quantum™ MESF kit contains a series of fluorescent microsphere populations labeled with varying amounts of Alexa Fluor® 488, Alexa Fluor® 647, APC, R-PE, or FITC. In addition to the fluorescent standards, each kit includes a blank population. MESF beads are run on the cytometer, and corresponding channel values entered into the QuickCal template to generate a regression curve. The fit of the curve (e.g. $r^2 = 1.0$) provides an indication of detector linearity.

Quantum MESF microspheres are used to generate a curve associating fluorescence intensity (MFI) with a standardized MESF value.

Spectral Matching

Quantum™ MESF microspheres are surface-labeled with the same fluorochrome used to label cells. As the fluorochromes are on the surface of the bead, they are free to interact with the environment as do the fluorochromes on a stained cell. The result is a standard that exhibits the same excitation and emission properties as your stained samples, under a variety of different conditions.

Quantitative Determinations

Quantum MESF microspheres provide a system to make standardized fluorescence determinations for the assessment of surface marker expression. By plotting each population's fluorescence intensity versus its assigned MESF value, a standard curve is generated and the MESF value of stained cell samples may be easily determined.
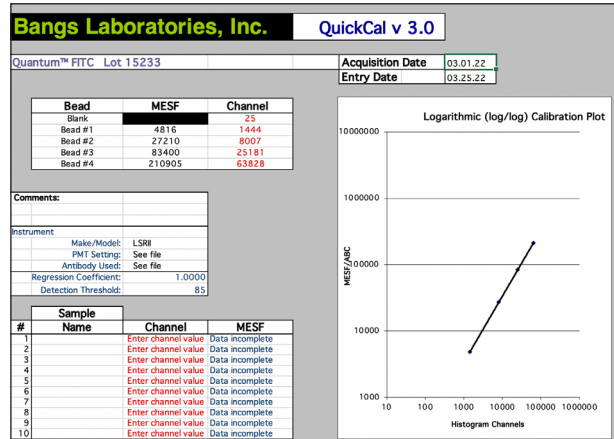
QUICKCAL® v. 3.0

QuickCal is a pre-formatted template that is used to calculate MESF or ABC values of stained samples that have been run against Quantum™ MESF or Quantum™ Simply Cellular® kits, standard curves from your Quantum™ MESF or Quantum™ Simply Cellular® kits and to calculate sample MESF or ABC values.

Obtain a template by logging into the QuickCal portion of BangsLabs. com and entering the Access Number provided with your MESF kit.

The QuickCal® regression template is used to make MESF assignments to stained samples.

ORDERING INFORMATION

Cat. #	Description
488	Quantum™ Alexa Fluor® 488 MESF Kit
647	Quantum™ Alexa Fluor® 647 MESF Kit
823	Quantum™ APC MESF Kit
555	Quantum™ FITC-5 MESF Kit
555p	Quantum™ FITC-5 MESF Kit (Premix)
827	Quantum™ R-PE MESF Kit
Free Flow Cytometry Data Analysis QuickCal® v. 3.0	

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