Quantitative Cytometry

Tools for Expression Analysis, Standardize measurements to ensure accurate and comparable results.

Applications

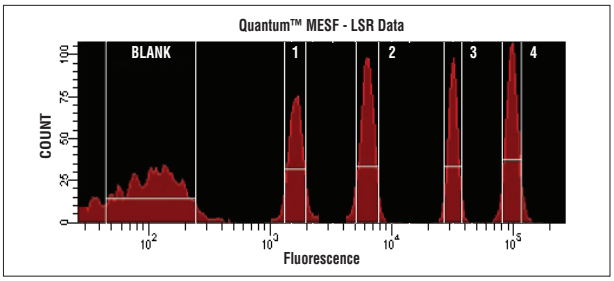
Fluorescence cytometry is an important tool for investigations in cell and molecular biology. This technology is routinely used for immunophenotyping and an expansive array of research applications, such as the study of protein phosphorylation and the determination of telomere length.

Although fluorescence cytometry has proven to be a very powerful and versatile technology, it is not without limitations. Notably, without a standardized measure of fluorescence intensity, results of analyses can be described only in relative terms, such as negative / positive, dim / intermediate /bright, or in arbitrary fluorescence intensity units. The interpretation of fluorescence intensity measurements can be further complicated by factors such as daily instrument variation, differences in hardware (laser power, filter sets), PMT voltages, software, environmental factors such as buffer pH, and fluorochrome labeling density of antibodies (F/P ratio).

Tools for Quantitation

Bangs' tools for quantitative flow cytometry provide the means to standardize fluorescence intensity measurements, thereby permitting truly quantitative analyses. Our products include Quantum™ MESF (Molecules of Equivalent Soluble Fluorochrome) and Quantum™ Simply Cellular® (ABC, Antibody Binding Capacity) kits. Fluorochrome-labeled microspheres are used to generate a standard curve relating fluorescence intensity to standardized MESF or ABC values from Quantum™ MESF or Quantum™ Simply Cellular® beads. The MESF or ABC values of labeled cell samples may be determined by measuring their fluorescence intensities, and "reading" the corresponding MESF or ABC values from the standard curve using the QuickCal® analysis template that is provided with the kit.

Bangs' Quantum™ kits are uniquely qualified for applications in quantitative fluorescence cytometry:



Quantum™ MESF LSRII data

- Precise MESF or ABC values are assigned to bead populations through meticulous primary calibrations.
- MESF and ABC values provide standardized units of fluorescence intensity. The MESF unit has been formally adopted by NIST and NCCLS as a standardized measure of fluorescence intensity.
- Quantum™ microspheres are labeled with the actual fluorochromes used in flow cytometry, ensuring that quantitative assignments are truly relevant.
- Surface-labeled microspheres are environmentally-responsive: the fluorochrome on the bead responds to the buffer (pH, ionic strength) in the same manner as the fluorochrome on the labeled cell. The fluorescence intensity of beads thus mirrors that of cells, preserving the calibration when quantitative assignments are made.

Procedure

1. Run Quantum™ MESF or Quantum™ Simply Cellular® microspheres on the same day, same instrument, and at the same instrument settings (PMT and compensation) as labeled cell samples.

2. Gate on each peak within the fluorescence histogram.

3. Enter the median channel value of each fluorescence peak against its calibrated MESF or ABC value that appears within the QuickCal® analysis template. A calibration curve will be drawn automatically.

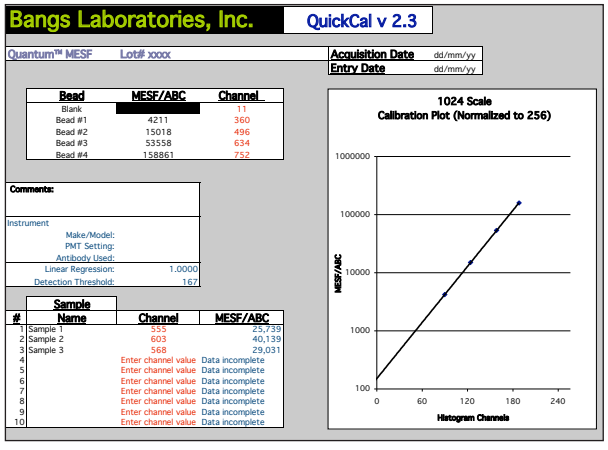
4. Enter median channel values of labeled samples for the assignment of MESF or ABC values.

QUICKCAL® V. 2.3 DATA ANALYSIS PROGRAM

What is QuickCal?

QuickCal® v. 2.3 utilizes pre-programmed spreadsheet templates to generate standard curves from your Quantum™ MESF kits or Quantum™ Simply Cellular® kits and to calculate sample MESF or ABC values.

Access the FREE QuickCal® v. 2.3 quantitative analysis program by logging into our website at www.bangslabs.com/products/quickcal and entering the Access Number provided with your standards.



QuickCal® performs regression analysis to analyze instrument performance and make standardized fluorescence intensity assignments to stained samples.

QUANTITATION

Cat. #	Product Description
488	Quantum™ Alexa Fluor® 488 MESF
647	Quantum™ Alexa Fluor® 647 MESF
823	Quantum™ APC MESF
822	Quantum™ Cy™5 MESF
555	Quantum™ FITC-5 MESF
555p	Quantum™ FITC-5 MESF (Premix)
821	Quantum™ Pacific Blue™ MESF
828	Quantum™ PE-Cy™5 MESF
827	Quantum™ R-PE MESF
815	Quantum™ Simply Cellular® anti-Mouse IgG
816	Quantum™ Simply Cellular® anti-Human IgG
817	Quantum™ Simply Cellular® anti-Rat IgG