

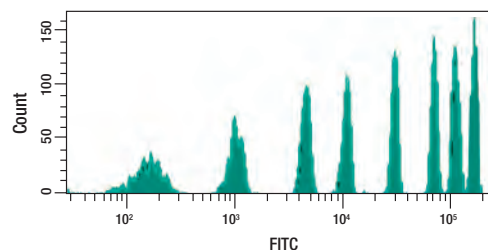
DESCRIPTION

Quantum™ QC is a 8 peak multi-intensity, multi-fluorescent standard that is intended for use as an in-depth tool for daily cytometer QC, and is appropriate for use with all lasers and detectors. It may be used to determine detection thresholds, understand resolution, and assess and track linearity of detectors. It can aid in providing confidence that the system is suitable for use, or alert operators to potential problems before samples are run.

Quantum™ QC may also be used for instrument set-up to achieve standardized PMT settings and define the window of analysis for relevant detectors.

CHARACTERISTICS

Mean Diameter: ~5µm
 Particle Concentration: Bottle 1 (mixed, 7 fluorescent intensity populations), 1 x 10⁷ beads / mL
 Bottle B (Blank), 2 x 10⁶ beads / mL
 Storage Buffer: De-ionized water + 0.01% Tween®20 + 2mM Na₃



PROCEDURE

Daily QC:

Quantum™ QC may be used on a routine basis to assess the resolution, linearity and threshold for most detectors on the cytometer. Our QuickCal Linearity tool provides templates for 7 detectors: VIO-450, VIO-525, FITC, PE, PE-Cy™5, APC, and APC-Cy™7.

1. Go to bangslabs.com/quickcal to download the QuickCal®- Linearity template.
2. Select the file for download.
3. Select the appropriate version based on the resolution of your instrument:
 - Semi-Log (e.g. 1024 channels)
 - Log / Log (e.g. FACSDiva)
4. The template will download to your computer.
5. Adjust PMT voltages for each detector to standard daily settings.
6. Place one drop of the blank (bottle B) and one drop of the mixed fluorescent population (bottle 1) in a tube. Dilute with ~800µL DI water. (The Blank may also be run separately from the fluorescent populations to improve resolution.)
7. Run on LOW to achieve a count rate of 100-150 events/sec; low run rates aid in achieving lowest fluorescence CV's.
8. For each detector, gate on individual peaks, and record channel values (Median or Geo. Mean). Enter these values in the appropriate tables of the QuickCal® Linearity template. A Detection Threshold and Regression Coefficient (r²) will be calculated for each detector.

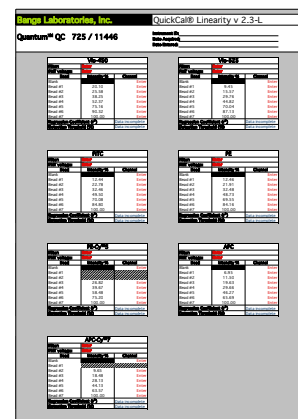


Figure 1

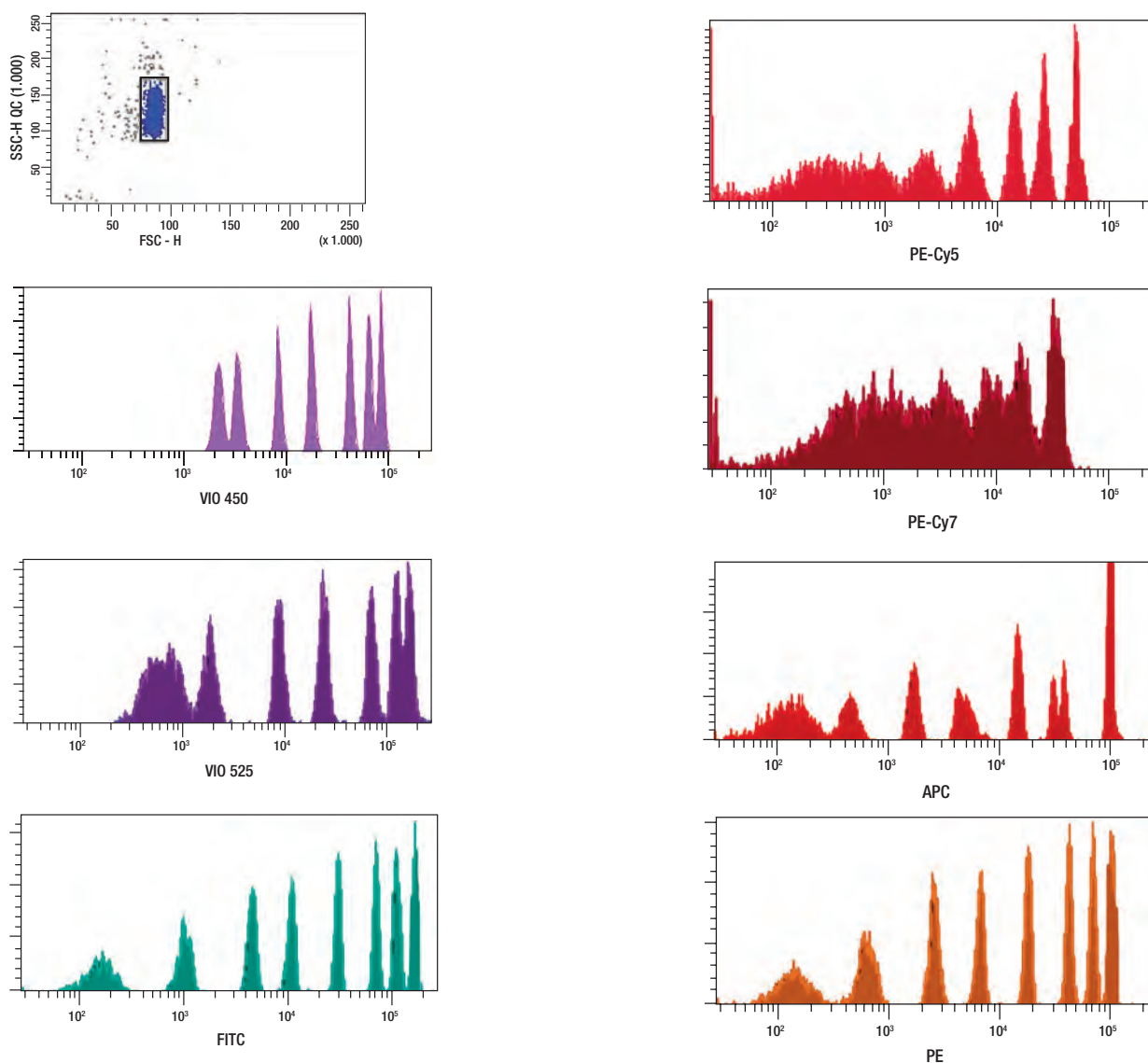
Instrument Set up:

Quantum™ QC may be used to set up the window of analysis for detectors by positioning a specific peak at a target channel value. Percentage assignments were made as an LSR II (FACSDiVa) with the following optics.

Laser	Detector	Dichroic mirror	Bandpass filter
405nm	VIO 450	-	450/50
	VIO 525	555 LP	525/50
488nm	FITC	505 LP	530/30
	PE	555 LP	575/26
	PE - Cy™ 5	635 LP	670/14
633nm	APC	-	660/20
	APC - Cy™7	735 LP	780/60

NOTE: Due to the nature of fluorescence detectors (cytometer) and fluorescence carryover (fluorophores), we anticipate varying resolution capabilities for different detectors. This is reflected in the example histograms provided in "Expected Results," page 2, as well as the QuickCal Linearity template (Fig. 1), which features channels in which the blank and a minimum of 5 fluorescence peaks were resolved.

Figure 2 : Expected Results (LSRII, FACSDiVa) Note: For additional detectors (e.g. UV and green lasers), see PDS 725A www.bangslabs.com.



NOTES

Manually shake bottle before use. The prepared tube may be briefly (pulse) vortexed if needed to increase % singlets.

STORAGE AND STABILITY

Store at 2-8°C. Freezing, drying, or centrifuging particles may result in irreversible aggregation. This product is warranted to be stable for 12 months from the date of purchase, provided that it is handled in accordance with the manufacturer's recommendations. The product should be stored in its opaque bottle to safeguard against photobleaching.

SAFETY

This particle suspension contains sodium azide. Sodium azide may react with lead and copper plumbing to form explosive metal azides. Upon disposal of material, flush with a large volume of water to prevent azide accumulation. Please consult the Safety Data Sheet for more information.

TRADEMARKS

1. Quantum™ QC is a trademark of Bangs Laboratories, Inc.
2. QuickCal® is a registered trademark of Bangs Laboratories, Inc.
3. Tween® is a registered trademark of ICI Americas, Inc.
4. Cy™ is a trademark of GE Healthcare Limited.

This product is for research use only and is not intended for use in humans or for *in vitro* diagnostic use.

ORDERING INFORMATION

Cat. Code	Description	Size
725	Quantum™ QC, 8 Peak Beads	5mL

Order online anytime at www.bangslabs.com.