Bangs Laboratories
BEADS ABOVE THE REST

March 1, 2022

In 2000, with our acquisition of Flow Cytometry Standards Corporation (FCSC), Bangs Laboratories began to apply our expertise in microspheres to the development of particle-based standards for flow cytometry. In the more than 20 years that have followed, we've grown the original catalog to a broad range of standards supporting routine instrument configuration and QC, and systems for use with fluorescence-based assays, such as those measuring cellular expression, transfection efficiency and receptor occupancy.

Flow cytometry has been and remains an excellent means to conduct sensitive fluorescence assays. Reagents and instrumentation are highly accessible, and the technology has continued to evolve, offering exceptional throughput, dynamic range, resolution and sensitivity. As with any reporter-based system, there are limitations, and this is the case with fluorescent reporters, some of which are impacted to varying degrees by changes in / exposure to pH, temperature, light, etc. While we have in place robust manufacturing and quality assurance programs for the production of consistent, stable standards, we continually evaluate the rigor of our program in the context of prevailing views surrounding fluorescence measurements as well as current customer needs. To these ends, we will both adjust calibration curves of our Quantum™ products and introduce an additional calibrator to our primary calibration process. The former will correct for measurement error from earlier instrumentation and drift over time, and the latter will safeguard against future drift.

We have prepared a technical reference document to provide additional detail about the nature of the change for specific product lines, resources that will be made available to assist clients with the transition and answers to anticipated questions.

We thank you for the trust that you've placed in Bangs Laboratories' flow cytometry standards, and we invite you to contact us with any questions or concerns regarding this transition.

The Bangs Team

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QUANTUM™ PRODUCT QUALITY INITIATIVE, SUPPLEMENT

We are updating the way we assign values to our Quantum™ fluorescence quantitation products. This update is a reflection of technological advancements we have seen in recent years. The following summary provides details on the change and who may be impacted.

CALIBRATION PROCEDURE

Quantum™ MESF kit assignments are traceable to primary calibrations that involve the assignment of fluorescence intensity in Molecules of Equivalent Soluble Fluorochrome (MESF) units through direct comparison of fluorescence measurements from solutions of the pure fluorochrome with those from suspensions of a precise number of microspheres surface-labeled with the same fluorochrome. As suspensions contain a precisely counted number of microspheres, we are able to determine the fluorescence signal per microsphere (equivalent to some number of molecules of fluorochrome in solution, or its MESF value). Quantum™ Simply Cellular® and Simply Cellular® products are labeled with FITC-labeled antibody and assigned from the FITC MESF curve.

What is the update and who will be affected?

Users of Quantum™ products (Quantum™ MESF, Quantum™ Simply Cellular® and Simply Cellular®) may be affected. We will be incorporating a hard dyed bead as an additional calibrator in QC assessment to best safeguard against drift over time. QuickCal® sheets with new bead assignments will be utilized for analysis going forward. These updates will not alter the process of data acquisition and analysis. Users will acquire the channel values and enter them into the QuickCal sheet in the same manner. What will change is the expected values from samples and controls that utilized old bead assignments. We don't expect new studies or short-term studies to be significantly impacted; however, there may be a change in controls and expected values for long term studies that span both bead assignments. In such instances, we provide legacy bead assignments for a defined period of time for those clients that request it. In an effort to provide the most accurate and stable products we feel it is better to implement these modifications at this time.

Why are we making this update?

We are making this update to improved data quality and stability. There have been tremendous advancements in flow cytometer and fluorospectrometer instrumentation since the introduction of Quantum™ products more than two decades. Employing more advanced instruments allows us to increase the dynamic range when generating bead assignment values resulting in better data quality and stability.

In addition to instrument advances, the challenges of temperature, pH, and light sensitivities when working with fluorophores are well documented. Since there is no universal standard for quantifying fluorescent signals, we have proactively moved forward with internal processes that will yield robust consistent results into the future. We use the best available surface-labeled fluorochromes to provide stable Quantum MESF beads for the assignments and incorporated hard dyed beads into our QC assessment to guard against sources of variation associated with fluorophores.

When will the updates go into effect and how will we help you in this process?

Updates take effect March 1, 2022. We know that many of our valued customers have ongoing long-term projects. For those clients needing additional support, we offer both legacy and updated bead assignment values to make the transition as smooth as possible. We acknowledge this product update will be difficult for some of our clients and apologize for any disruption in data continuity with long-term ongoing studies. Please let us know if you have questions regarding this update.