Bangs Laboratories, Inc.
A DIVISION OF POLYSCIENCES, INC.
Global Newsletter Volume 28, # 1, September 2016

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BANGS BEADINARS:

Magnetic Microsphere Coating
Coming Soon

Coating Optimization
Stay Tuned

Microsphere Coating
On Demand

UPCOMING EVENTS

GLIIFCA
www.gliifca.org
September 16-18 2016
Troy, Michigan

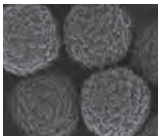
SLAS 2017
Booth 1613
www.slas2017.org
February 4-8
Washington D.C.

Painless Particles®

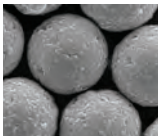
THE CHOICE IS EASY. CHOOSE OUR NEW MAGNETIC PARTICLE SAMPLE PACK!

Not all magnetic particle-based applications are the same, so why would the particles be? Fortunately, they're not! With our **NEW Magnetic Particle Sample Packs,** now you can test different particles to find which yield optimal performance characteristics in your specific system, whether it is cell isolations, affinity purifications, immunoassays or molecular assays. Choose from carboxylated *(cat code 21940)* or streptavidin *(cat code 21950)* coated sample packs.

BioMag®Plus
BioMagPlus are silanized iron oxide clusters that offer extremely high surface area for efficient isolations and depletions. As the original DNA SPRI particle, they have proven themselves in nonspecific nucleic acid isolations, and when coated with an appropriate affinity ligand or antibody, they are also used extensively for protein purification and cell isolations.



ProMag™
ProMag 1 Series microspheres from our original ProMag line offer high surface area, fast and uniform separations and a hydrophilic surface. They have been used in magnetic particle assays, and for precision isolations.



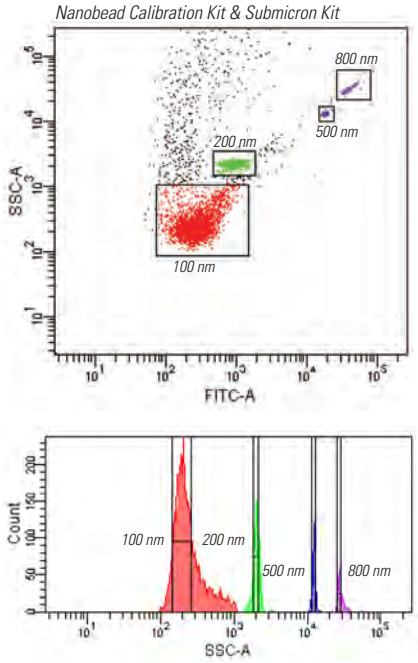
ProMag™ HP
ProMag HP 3 Series microspheres have a highly optimized composition that offers superior handling and fast separation rates in addition to lowest autosignal, particularly with respect to chemiluminescence and exposed iron. They offer the most hydrophilic surface for low NSB and precise capture of target.

Have You Reached Your Limit….?!

Introducing our NEW Nanobead Kit for Flow Cytometry

Investigations into the roles that extracellular vesicles play in both normal physiological processes and disease development are pushing flow cytometry (and frankly, flow cytometrists) to new limits. Where traditional immunophenotyping and sorting applications have focused on the analysis of 5-10µm cells, latest applications involve the interrogation of 50-500nm extracellular vesicles.

A bold endeavor? Yes! Foolhardy? Perhaps. Ending in tears? There is that chance. But we are unafraid—where other particles fear to tread, our new Nanobead Calibration Kit forges ahead. Its 50nm and 100nm fluorescent microspheres can help you determine instrument capabilities, establish appropriate settings / gates, and generally probe the detection limits of your cytometer. And because it's not an easy thing to live on the edge, we've even prepared a collection of references and best practices to help you navigate life at the nanoscale.



Cat Code	Description	PDS
832	Submicron Bead Calibration Kit (0.2 µm, 0.5 µm, 0.8 µm)	832
833	Micron Bead Calibration Kit (1.0 µm, 3.0 µm, 6.0 µm)	832
834	Nanobead Calibration Kit (50 nm & 100 nm)	834

World Domination!

Ok, so maybe not world domination, but we've acquired the adjacent property, which brings opportunities for expanded services and production. Stay tuned...

P(articles)^2 = Particle Articles

What can ViaCheck™ Standards do for you?
ViaCheck™ Standards validate image-based viability instruments (e.g. Vi-CELL®) confirming live / dead ratios and counts. Here they're used to support the development of Shigella whole-cell vaccine.

Kaminski RW, Wu M, Turbyfill KR, Clarkson K, Tai B, Bourgeois AL, et al. (2014) *Development and preclinical evaluation of a trivalent, formalin-inactivated Shigella whole-cell vaccine*, Clin Vaccine Immunol;21(3):366–382.

Quantum™ MESF for Receptor Occupancy of labeled cells.
Enabling the quantitation of fluorescence intensity, Quantum MESF beads were used in this receptor occupancy study.

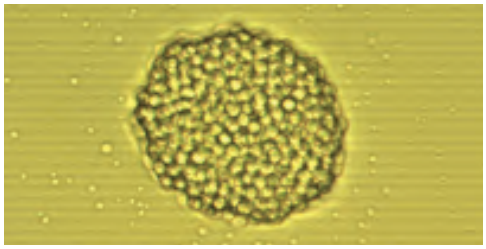
Quadrini KJ, Hegelund AC, Cortes KE, Xue C, Kennelly SM, Ji H, Högerkorp CM and Mc Closkey TW. (2016) *Validation of a flow cytometry-based assay to assess C5aR receptor occupancy on neutrophils and monocytes for use in drug development.* Clin Cytom; 90B:177–190.

Ask *"The Particle Doctor®"*

Q. I need to suspend microspheres in an organic solvent like xylene. Can I use polymer or silica? How do I go about doing this when they're supplied as a suspension in water?

A. Like many organic solvents, xylene is expected to dissolve PS and PMMA spheres. Depending on the specific polymer composition, crosslinking (e.g. the inclusion of divinylbenzene [DVB] in the bead composition) may prevent full dissolution in solvents like xylene, however, the beads are expected to swell markedly. In addition to increasing the diameter, swelling can cause bead deformation, sticking, and release of an internal label such as dye or fluorophore.

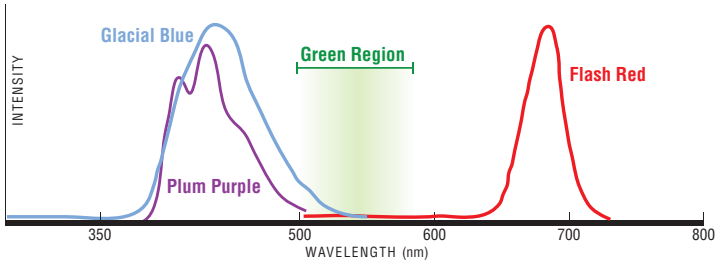
Silica spheres will not dissolve in organic solvents, however, it may be difficult to create a monodisperse suspension. Silica beads are highly hydrophilic, and in the absence of an additive or surface modification, they are expected to aggregate in xylene. This image demonstrates the immediate behavior of plain silica spheres in xylene; they sequester into aggregates to avoid the hydrophobic environment.



A listing of common solvents and non-solvents of polystyrene is provided on our website (Tech Support Doc 0023); this may help you select a more appropriate system. For example, alcohols (ethanol, methanol) will not swell polystryene, and may present a better "solvent" choice if compatible with your system. Microspheres may be gradually transitioned from water to alcohol, e.g. 100% H_20 --> 75%H_20 : 25% EtOH --> 50%H20 : 50% EtOH, and so on, using centrifugation or other appropriate method to separate the spheres during the transition.

Q. I want to image two different fluorescent beads with a cell sample that's labeled with GFP. Which of your fluorescent beads would work?

A. As a general recommendation, we suggest choosing fluorophores that are as far away as possible from the (in this case) green portion of the spectrum to minimize bleed-over between regions. Given that you're imaging on a microscope, we'll presume that you have UV/Violet and Red filter sets. For this scenario, we'd suggest Glacial Blue or Plum Purple for the UV/Violet and Flash Red for the Red. None of these fluorophores exhibit significant carryover into the green, so they should be good candidates for you to screen.



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Bangs Laboratories, Inc.
9025 Technology Dr. • Fishers, IN 46038-2886

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"You cannot teach a man anything; you can only help him discover it in himself." – Galileo Galilei

PAINLESS PARTICLES

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