

# PolyFacts

## Microspheres / Particles

Vol. 2 | No. 1

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# ProMag™

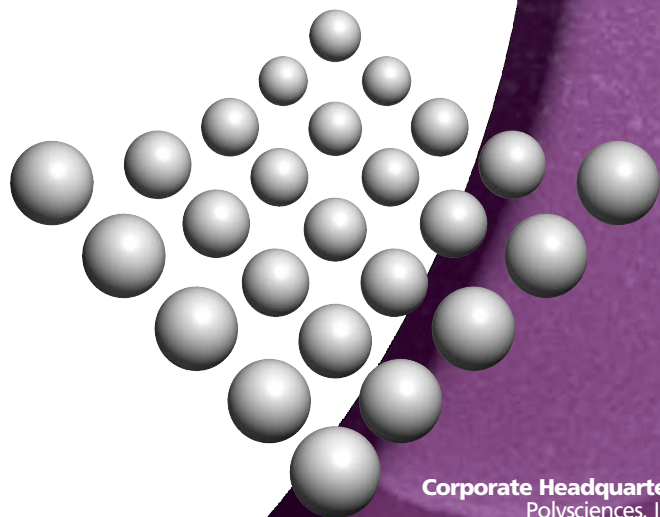
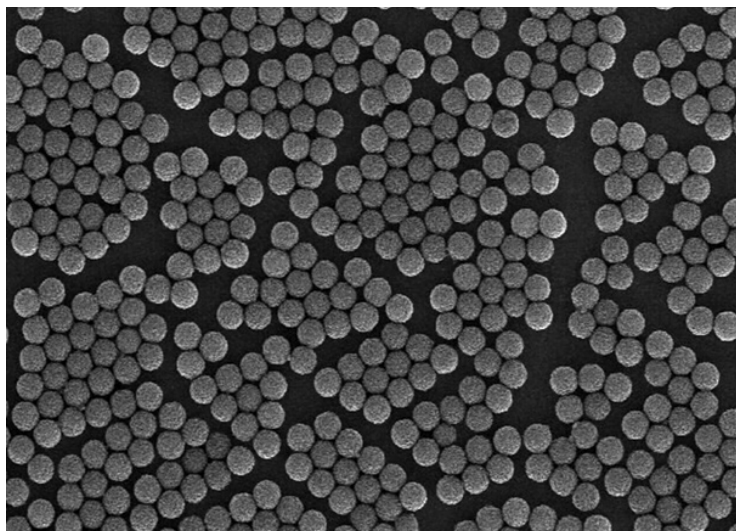
**Introducing our VERY BEST superparamagnetic microspheres yet!**

ProMag are our highly uniform 3µm polymer-based magnetic spheres that we're sure you'll love. A hydrophilic surface means low nonspecific binding in protein-based systems, and superior handling without the use of surfactant. These high-binding beads are suitable for use across a range of research and diagnostic applications, whether you're working at laboratory scale or have the more stringent requirements of high throughput applications.

We'd love for you to try them, so for a limited time, we're offering a 5ml trial of the **COOH** version. Contact us for special pricing.

**You'll get noticeably decreased separation times, without breaking the bank!**

<u>Catalog Code</u>	<u>Description</u>
86055	ProMag™ 3 Series • COOH Surfactant-Free
86056	ProMag™ 3 Series • Streptavidin



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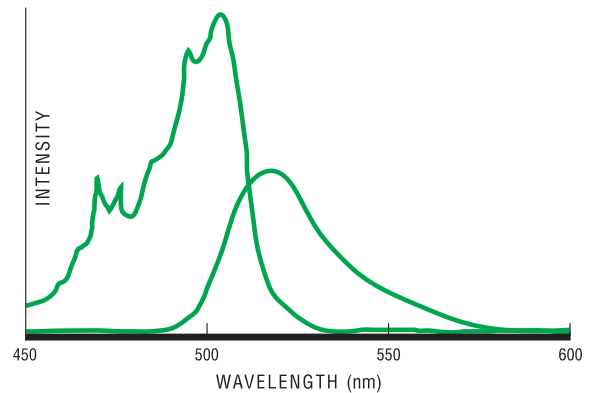
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# Dragon Green Intensity Standard

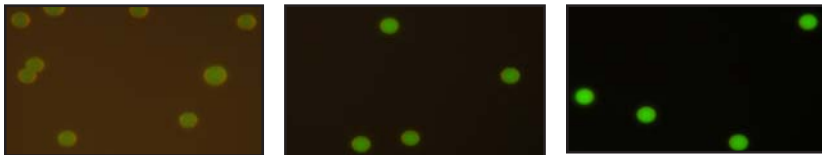
We are incredibly enthused about our new Dragon Green Intensity Standard. This kit consists of five populations of ~8µm microspheres dyed with increasing amounts of Dragon Green fluorophore. The different intensity populations may serve as relative intensity standards for applications in fluorescence microscopy, and as internally-dyed beads, they will stand up to the rigors of imaging. Dragon Green is an excellent spectral surrogate for fluorescein, and is suitable for use with fluorescein filter sets.

The beads may also serve as very bright relative intensity or linearity standards for flow cytometry; ask about the QuickCal® Linearity Template if this is your interest.

Dragon Green (480, 520)



Cat. No.	Description
<b>BLIDG06M</b>	<b>Dragon Green Intensity Standard</b>



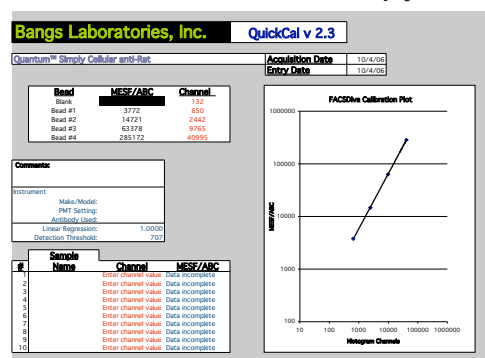
Dragon Green Intensity Standard populations 3-5.

# You Dirty Rat

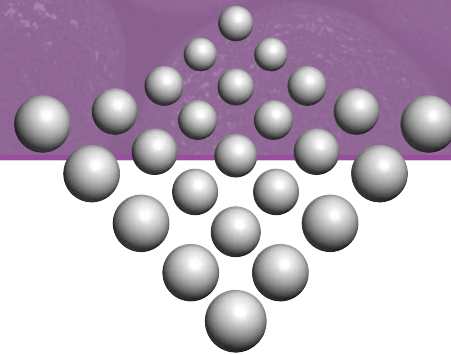
Anti-Rat beads for your Flow Cytometry Quantitative needs

For the newest addition to our Quantum™ Simply Cellular® line of quantitative kits, we introduce QSC anti-Rat IgG. The kit consists of 5 bead populations: one unlabeled bead population and four populations labeled with anti-Rat IgG antibody, designed to bind calibrated amounts of your rat monoclonal antibodies. Like its QSC anti-Mouse IgG and anti-Human IgG counterparts, the kit allows you to establish a standard curve that may be used to directly quantitate antibody binding capacity (ABC) of stained cell samples.

Cat. No.	Description
<b>BLI817A</b>	<b>Quantum™ Simply Cellular® anti-Rat IgG (20 tests)</b>
<b>BLI817B</b>	<b>Quantum™ Simply Cellular® anti-Rat IgG (100 tests)</b>
<b>BLI817C</b>	<b>Quantum™ Simply Cellular® anti-Rat IgG (280 tests)</b>



Flow cytometric analysis may be utilized to quantitate fluorescence intensity using QuickCal®; available, free, at [www.bangslabs.com](http://www.bangslabs.com).



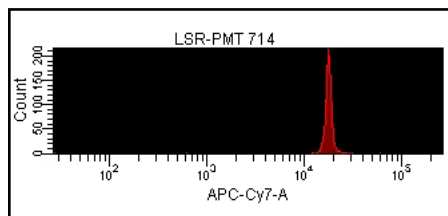
# Particle Perplexities

## Questions & Answers pertaining to Polysciences' Microspheres / Particles

**Q** : We just purchased a customized cytometer, and need additional bead standards for the UV and violet lasers. We would also like something for the red laser with far-red detection. Can you direct us to suitable products?

**A** : Living life on the edge of the visible spectrum, eh? No problem—we're edgy; we can help. Our line of Fluorescence Reference Standards includes a number of products for UV excitation, such as DAPI, Hoechst, Indo-1, etc. We also recently expanded our offerings to include specific products for excitation with red lasers for far-red emission (APC-Cy7).

Our new surface-labeled APC-Cy7 standard is our dedicated standard for red excitation with far-red emission.



Single-color Fluorescence Reference Standards may be used to QC a specific path of the optical system (laser / filter / PMT), to optimize filter and mirror sets for fluorophores, and to establish a test-specific Target Channel Value for instrument set-up.

### Cat. No. Description

- BLI914A APC-Cy-7 Ref. Std (20 tests)**
- BLI914B APC-Cy-7 Ref. Std (100 tests)**
- BLI914C APC-Cy-7 Ref. Std (280 tests)**

**Q** : What is the structure of the melamine bead? Is it composed only of melamine? Are there aromatic C-H groups? And, what is the surface charge?

**A** : Melamine has three pendant -NH<sub>2</sub> groups. If one of the amines is reacted with formaldehyde, a methylolamine group (-NH-CH<sub>2</sub>-OH) is formed. Up to six methylol groups can be formed on a single melamine molecule.

During synthesis, methylolmelamine self-crosslinks to create network polymer structures that precipitate in the form of beads. The beads are highly crosslinked, and typically contain more methylolamine groups than amine groups.

We have not evaluated the charge of the beads, though they may bear a weak positive charge. The beads are highly hydrophilic.

### Cat. No. Description

- 23579 Polybead® Melamine Particles**

**Q** : I am developing a bead-based flow assay for use in our laboratory and other clinical research laboratories, and could use some pointers on quality assurance and standardization. Where can I find information?

**A** : The Bangs Laboratories' Flow Cytometry Supplement, including a technical reference guide, outlines a basic program for quality assurance and standardization in the flow cytometry laboratory, and provides some references that pertain to the clinical research laboratory in particular. (Supplement available on request at Bangs Laboratories, [www.bangslabs.com](http://www.bangslabs.com).) The Clinical and Laboratory Standards Institute ([www.nccls.org](http://www.nccls.org)) and the International Society for Analytical Cytology (ISAC, [www.isac-net.org](http://www.isac-net.org)) are excellent sources for information. If you're not already a subscriber, you might also sign up for the Purdue University Cytometry mailing list, which is basically an email forum for all things cytometric. You may submit

questions regarding protocols, products, instrumentation, regulatory issues, etc., which will be zealously addressed by "flow-ers" from all over the world (<http://www.cyto.purdue.edu/hmarchiv/cytomail.htm>). Email archives are also available for searches.

**Q** : We are a contract lab that receives many requests for magnetic particle-based DNA isolation services, particularly for genomic DNA from whole blood. We need a product that will provide exceptional yield, and is amenable for use on our high throughput automated platform. Can you help?

**A** : Our SNARe™ Whole Blood Genomic DNA Purification System (Cat.# 85080) features our patent-pending DNA Separation Particles for the efficient isolation of dsDNA. We offer protocols for both manual (microcentrifuge tube) and automated (96-well plate) formats so that you may scale up with ease. Both protocols result in exceptional yield, 20µg DNA / 200µl tube whole blood, or 5-20µg DNA per well (100µl lysate from fresh or frozen whole blood, WBCs or MNCs). Protocols are provided in Technical Data Sheets 710 (microcentrifuge tubes) and 710A (96-well plate).

We also offer a variety of rare earth magnetic separators for use before scale-up to a high throughput system. Our separators are designed to accommodate a complete range of magnetic separation applications, including cell sorting, mRNA and DNA isolation, and purification of biomolecules. Please check online or in the print catalog for a complete listing of magnetic separators.

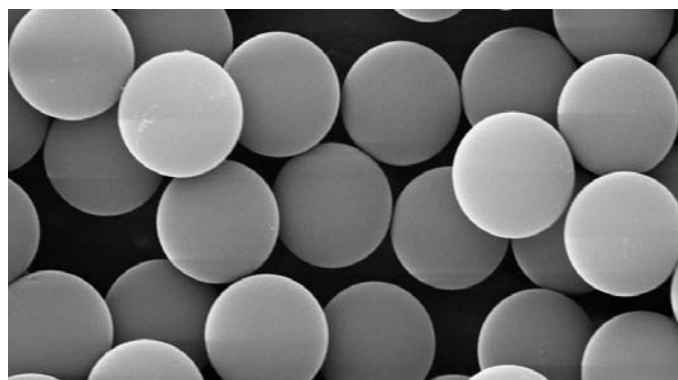
# Functionalized Silica

## Offering You Even GREATER Flexibility

You all know by now the beauty of using silica microspheres and that this inorganic support offers the combined benefits of working with a bead platform and the unique properties of a silica substrate. If you choose to use a silica support, we now have standard offerings of ~0.5µm, ~1.0µm and ~5.0µm silica microspheres with carboxyl, amine or streptavidin functionality. Antibodies may be covalently coupled to functionalized supports, or biotinylated antibodies may be immobilized to streptavidin-coated spheres.

Our current offerings can be located within the catalog codes identified below.

<u>Cat. No.</u>	<u>Description</u>	<u>Size</u>
24756	Silica Amine, 0.5µm	1g
24757	Silica Amine, 1.0µm	1g
24758	Silica Amine, 5.0µm	1g
24753	Silica Carboxyl, 0.5µm	1g
24754	Silica Carboxyl, 1.0µm	1g
24755	Silica Carboxyl, 5.0µm	1g
24759	Silica Streptavidin, 0.5µm	2ml
24760	Silica Streptavidin, 1.0µm	2ml
24761	Silica Streptavidin, 5.0µm	2ml



Scanning Electron Microscope image of Polysciences' silica microspheres.

# ViaCheck™

## Don't forget: Viability Instrument Standards

Trypan blue dye exclusion is a common method for the determination of cell viability. It is used extensively in cell and tissue culture programs, and for a range of research studies including apoptosis, cytopathic effects of viral infection, and effects of sample processing methods on cell viability and concentration.

Instrumental methods for cell viability analysis provide significant advantages over manual determinations, offering high accuracy, precision and throughput. However, as with any analytical instrument, it is important to implement a QC program to ensure confidence in results.

ViaCheck Viability Instrument Standards are the latest addition to our extensive line of microsphere standards for instrument QC. ViaCheck standards mimic the light scattering characteristics of live and dead cells in the trypan blue dye exclusion method, and may be used to confirm the capabilities and verify the performance of image-based cell viability instruments. The standards are available in a range of common concentrations and live / dead ratios.

<u>Cat. No.</u>	<u>ViaCheck Viability Control</u>
24622	0% Viability
24623	50% Viability
24624	75% Viability
24625	90% Viability
24626	100% Viability

<u>Cat. No.</u>	<u>ViaCheck Concentration Control</u>
24627	(1 x 10 <sup>6</sup> ) Concentration
24628	(4 x 10 <sup>6</sup> ) Concentration
24629	(8 x 10 <sup>6</sup> ) Concentration