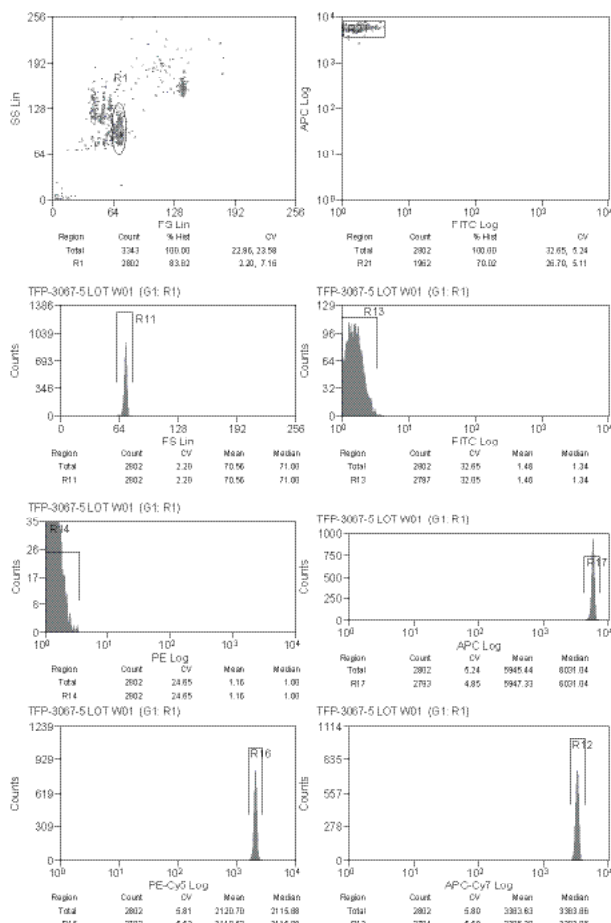


SPHERO™ Coated Fluorescent Particles

Spherotech offers a wide variety of fluorescent particles coated with antibodies, Avidin, Biotin, Protein A and Protein G for the convenience of our customers. Please refer to https://www.spherotech.com/tech_SpheroTech_Note_I.html for more detailed technical information and coating procedures. In addition, please see the Fluorescent Particle Page 14 for the excitation and emission spectra of the fluorophores used to produce the SPHERO™ Coated Fluorescent Microparticles.

SPHERO™ Biotin Coated Fluorescent Particles

- Biotinylated particles exhibits high affinity noncovalent interaction with streptavidin
- Blue Fluorescent Biotin Particles may be used in Flow Cytometry Bead Assays since they exhibit limited FITC and PE fluorescence, but are fluorescent in PE-Cy5, APC, and APC-Cy7 channels
- Biotin beads with a 0.5µm diameter have been used in FACS phagocytosis assay and immunofluorescence procedure in macrophages.



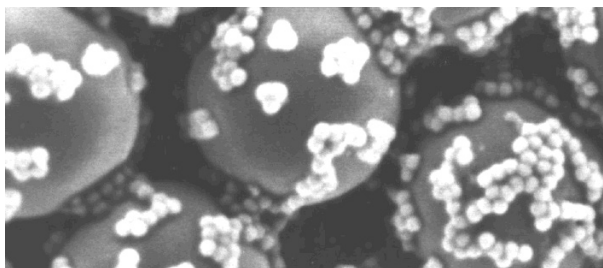
Histograms of TFP-3067-5

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Biotin, Fluorescent ,Yellow	0.05-0.15	0.1	TFP-00852-5	5 mL
Biotin, Fluorescent ,Yellow	0.4-0.6	0.1	TFP-0552-5	5 mL
Biotin, Fluorescent, Nile Red	0.4-0.6	0.1	TFP-0556-5	5 mL
Biotin, Fluorescent, Pink	0.7-0.9	0.1	TFP-0858-5	5 mL
Biotin, Fluorescent, Pink	1.7-2.2	0.1	TFP-2058-5	5 mL
Biotin, Fluorescent, Blue	3.0-3.9	0.1	TFP-3067-5	5 mL
Biotin, Fluorescent, Pink	5.0-5.9	0.1	TFP-5058-5	5 mL
Biotin, Fluorescent, Blue	5.0-5.9	0.1	TFP-5067-5	5 mL
Biotin, Fluorescent, Yellow	7.0-7.9	0.1	TFP-7052-5	5 mL
Biotin, Fluorescent, Nile Red	7.0-7.9	0.1	TFP-7056-5	5 mL
Biotin, Fluorescent, PAK Blue	7.0-7.9	0.1	TFP-7067-5	5 mL

SPHERO™ Glutathione Coated Fluorescent Particles

- Prepared by covalently coupling
- Used to purify and detect glutathione-s-transferase (GST) fusion proteins.

Particle Type and Surface	Size, µm	Catalog No.	Unit
Glutathione, Fluorescent, PAK Blue, 10 ⁷ /mL	10.0-14.0	GSHFP-10067-2	2 mL

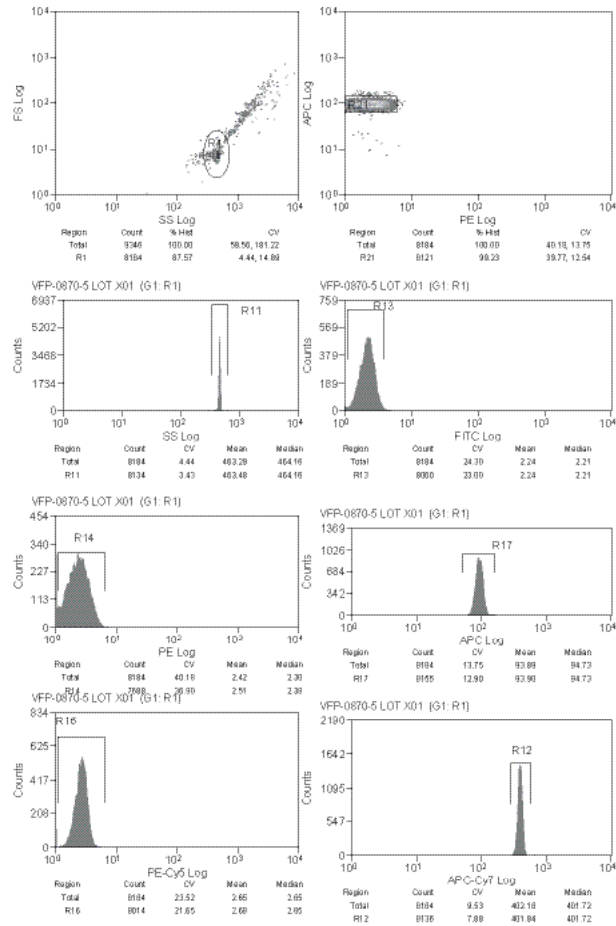


0.4µm Avidin fluorescent beads binding to the surface of 6.0µm Biotin polystyrene beads

SPHERO™ Avidin Coated Fluorescent Particles

- Strong and specific affinity for Biotin
- Extensive chemical modification during coupling to beads has little effect on activity, making Avidin specifically useful for detection and purification of proteins.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Avidin, Fluorescent, Yellow	0.4-0.6	0.1	VFP-0552-5	5 mL
Avidin, Fluorescent, Pink	0.4-0.6	0.1	VFP-0558-5	5 mL
Avidin, Fluorescent, Purple	0.4-0.6	0.1	VFP-0562-5	5 mL
Avidin, Fluorescent, Yellow	0.7-0.9	0.1	VFP-0852-5	5 mL
Avidin, Fluorescent, Nile Red	0.7-0.9	0.1	VFP-0856-5	5 mL
Avidin, Fluorescent, Purple	0.7-0.9	0.1	VFP-0862-5	5 mL
Avidin, Fluorescent, Sky Blue	0.7-0.9	0.1	VFP-0870-5	5 mL
Avidin, Fluorescent, Yellow	1.7-2.2	0.1	VFP-2052-5	5 mL
Avidin, Fluorescent, Pink	1.7-2.2	0.1	VFP-2058-5	5 mL



SPHERO™ Streptavidin Coated Fluorescent Particles

- Streptavidin fluorescent particles provide a universal binding reagent that simplifies clinical diagnostics, immuno/histological studies and research applications
- Streptavidin fluorescent beads with a diameter of 0.5 μm immobilized with fusion proteins have been used to quantitatively analyze low-affinity interactions at the cell surface by determining its binding to cells using flow cytometry.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Streptavidin, Fluorescent Yellow	0.4-0.6	0.1	SVFP-0552-5	5 mL
Streptavidin, Fluorescent Nile Red	0.4-0.6	0.1	SVFP-0556-5	5 mL
Streptavidin, Fluorescent Blue	1.0-1.9	0.1	SVFP-1068-5	5 mL
Streptavidin, Fluorescent Nile Red	5.0-7.9	0.1	SVFP-6056-5	5 mL
Streptavidin, Fluorescent Purple	5.0-7.9	0.1	SVFP-6062-5	5 mL

SPHERO™ Oligo (dT) Coated Fluorescent Particles

- Used for the capture of mRNA when fluorescent beads are needed.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Oligo (dT)25, Fluorescent Yellow	8.0-12.9	0.5	ODT(25)FP-10052-4	4 mL

SPHERO™ Protein A Coated Fluorescent Particles

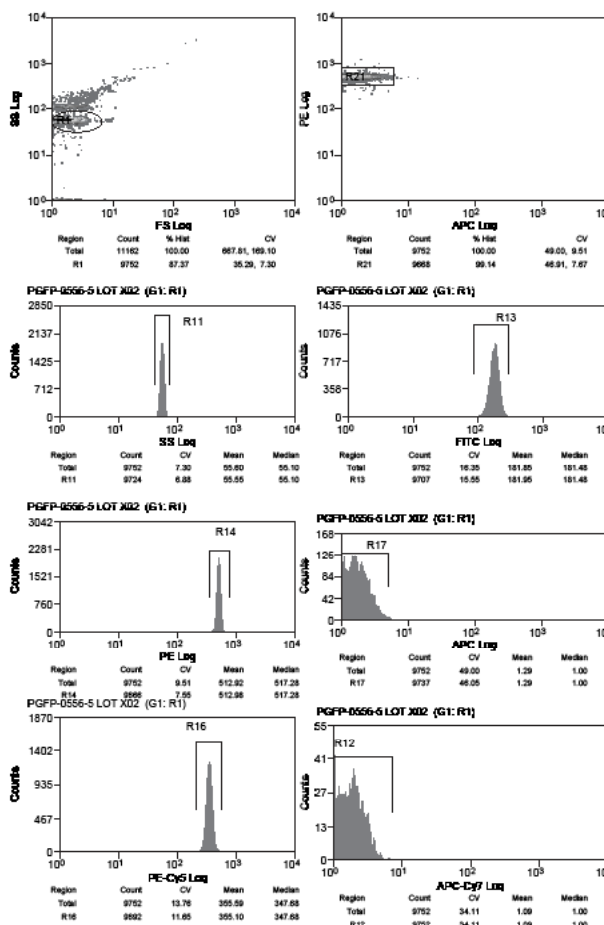
- Interacts with the Fc region of IgGs of several species - (see Table on Page 72)
- See Page 14 for the excitation/emission spectra of the fluorophores used by Spherotech.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Protein A, Fluorescent Yellow	0.4-0.6	0.1	PAFP-0552-5	5 mL
Protein A, Fluorescent Nile Red	0.4-0.6	0.1	PAFP-0556-5	5 mL
Protein A, Fluorescent Pink	0.4-0.6	0.1	PAFP-0558-5	5 mL
Protein A, Fluorescent Purple	0.4-0.6	0.1	PAFP-0562-5	5 mL
Protein A, Fluorescent Yellow	38.0-44.0	1.0	PAFP-40052-5	5 mL

SPHERO™ Protein G Coated Fluorescent Particles

- Powerful tool for binding and detecting both monoclonal and polyclonal antibodies
- Contains Protein G, a bacterial cell wall protein, isolated from group G streptococci
- Binds to IgG with Fc region specificity.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Protein G, Fluorescent, Yellow	0.4-0.6	0.1	PGFP-0552-5	5 mL
Protein G, Fluorescent, Nile Red	0.4-0.6	0.1	PGFP-0556-5	5 mL
Protein G, Fluorescent, Pink	0.4-0.6	0.1	PGFP-0558-5	5 mL
Protein G, Fluorescent, Purple	0.4-0.6	0.1	PGFP-0562-5	5 mL
Protein G, Fluorescent, Pink	5.0-5.9	0.1	PGFP-5058-5	5 mL
Protein G, Fluorescent, PAK Blue	5.0-7.9	0.1	PGFP-6067-5	5 mL
Protein G, Fluorescent, PAK Blue	13.0-17.9	0.1	PGFP-15067-5	5 mL
Protein G, Fluorescent, Yellow	38.0-44.0	1.0	PGFP-40052-5	5 mL



Histograms of PGFP-0556-5

SPHERO™ Protein A/G Coated Fluorescent Particles

- Prepared by covalently coupling
- Convenience of IgG binding domains of both Protein A and Protein G on one bead.

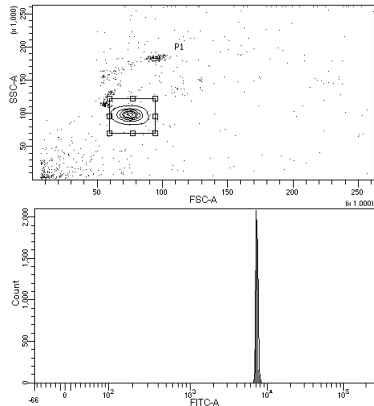
Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Protein A/G, Fluorescent, Yellow	38.0-44.0	1.0	PAGFP-40052-5	5 mL

SPHERO™ Goat anti-Mouse IgG Coated Fluorescent Particles

- Offers both Goat anti-Mouse IgG H&L and Fc_γ Fragment Specific coated fluorescent particles
- IgG Fc Fragment Specific antibody reacts with Fc portion of Mouse IgG heavy chains but not with the Fab portion
- Available in a wide variety of sizes and fluorophores
- Used in FACS based cell-binding analysis method for detecting protein-protein interaction
- Used in phagocytosis studies where the number of internalized microspheres per cell was determined from flow cytometry fluorescence histograms.

Selected Reference:

Leonetti, M., Grimaldi, A., Ghirga, S. et al. Scattering Assisted Imaging. *Sci Rep* 9, 4591 (2019) doi:10.1038/s41598-019-40997-6



Dot plot and histogram of MFP-2052-5

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Goat anti-Mouse IgG (Fc) Fluorescent, Yellow	2.5-4.5	0.1	MFCP-3052-5	5 mL
Goat anti-Mouse IgG (Fc) Fluorescent, Nile Red	2.5-4.5	0.1	MFCP-3056-5	5 mL
Goat anti-Mouse IgG (Fc) Fluorescent, Pink	2.5-4.5	0.1	MFCP-3058-5	5 mL
Goat anti-Mouse IgG (Fc) Fluorescent, Blue	2.5-4.5	0.1	MFCP-3068-5	5 mL
Goat anti-Mouse IgG (Fc) Fluorescent, Ocean Blue	2.5-4.5	0.1	MFCP-3069-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Yellow	0.1-0.3	0.1	MFP-0252-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Yellow	0.4-0.6	0.1	MFP-0552-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Nile Red	0.4-0.6	0.1	MFP-0556-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Purple	0.4-0.6	0.1	MFP-0562-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Yellow	0.7-0.9	0.1	MFP-0852-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Nile Red	0.7-0.9	0.1	MFP-0856-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Pink	0.7-0.9	0.1	MFP-0858-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Purple	0.7-0.9	0.1	MFP-0862-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Yellow	1.7-2.2	0.1	MFP-2052-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Nile Red	1.7-2.2	0.1	MFP-2056-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Pink	1.7-2.2	0.1	MFP-2058-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Purple	1.7-2.2	0.1	MFP-2062-5	5 mL
Goat anti-Mouse IgG (H&L) Fluorescent, Sky Blue	1.7-2.2	0.1	MFP-2070-5	5 mL

SPHERO™ Goat anti-Human IgG Coated Fluorescent Particles

- Reacts with whole molecule Human IgG
- Reacts with light chains of other human immunoglobulins.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Goat anti-Human IgG (H&L), Fluorescent, Yellow	0.7-0.9	0.1	HFP-0852-5	5 mL
Goat anti-Human IgG (H&L), Fluorescent, Nile Red	0.7-0.9	0.1	HFP-0856-5	5 mL
Goat anti-Human IgG (H&L), Fluorescent, Purple	0.7-0.9	0.1	HFP-0862-5	5 mL

SPHERO™ Rat anti-Mouse IgM Coated Fluorescent Particles

- Coated with Rat monoclonal anti-Mouse Immunoglobulin IgM by covalent coupling
- Reacts with Mouse mu heavy chain of immunoglobulin.

Particle Type and Surface	Size, μm	% w/v	Catalog No.	Unit
Rat anti-Mouse IgM Fluorescent, Nile Red	0.7-0.9	0.1	MFPiGM-0856-5	5 mL