SPHERO™ Coated Magnetic Particles

- Available with a variety of ligands such as Streptavidin, Avidin, Neutravidin, Protein A, Protein G, and Biotin
- Also available coated with highly specific recognition groups such as polyclonal antibodies
- Used in nucleic acid isolation, protein purification, immunology, and cell separations
- Available impregnated with fluorophores for flow cytometry or easy particle location identification in phagocytosis assays.

Magnetic particles coated with Avidin, Streptavidin, Biotin, Protein A and various antibodies are available from Spherotech. All of the proteins used are covalently coupled to the magnetic particles. The coated magnetic particles are supplied as a suspension in phosphate buffer, pH 7.4 with 0.02% sodium azide (some products also contain 0.1% BSA). Please refer to the recommended coating procedures on page 88 for more detailed technical information and coating.

Similarly to the magnetic particles offered on page 58-64, Spherotech coated magnetic particles are offered as the classic, encapsulated, or crosslinked magnetic microsphere. See pages 58 for benefits of each type.

SPHERO™ Biotin Coated Magnetic Particles

- Used to take advantage of the high affinities of the biotin–streptavidin and biotin–avidin interactions (Ka in the order of 10^{13}–10^{15} M^{-1})
- Provides one of the strongest biomolecular interactions when exposed to streptavidin conjugates to a form stable complexes.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Biotin	1.0-1.4	0.5	TM-10-10	10 mL
Biotin	4.0-4.5	1.0	TM-40-10	10 mL
Biotin	6.0-7.9	1.0	TM-60-5	5 mL
Biotin	14.0-17.9	0.5	TM-150-10	10 mL
Biotin, Crosslinked, granules, non-uniform	~1-2 µm	0.5	TMX-10-10	10 mL

SPHERO™ Avidin Coated Magnetic Particles

- Used for Genome isolation when coated with a biotinylated genome capture probe for E.coli and B.subtilis*
  **S. Yeung, T. Ming-Hung Lee, H. Cai, and I-Ming Hsing. " A DNA biochip for on-the-spot multiplexed pathogen identification." Nucleic Acids Res., Vol 34, No. 18, e118 (Oct 2006)*
- See pages 69-70 for uses of streptavidin and avidin coated particles.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Avidin	1.0-1.4	0.5	VM-10-10	10 mL
Avidin	4.0-4.5	1.0	VM-40-10	10 mL
Avidin	6.0-8.0	1.0	VM-60-10	10 mL
Avidin	8.1-9.9	1.0	VM-80-5	5 mL
Avidin, Smooth Surface	3.0-3.9	1.0	VMS-30-10	10 mL
Avidin, Smooth Surface	4.0-5.0	1.0	VMS-40-10	10 mL
Avidin, Crosslinked, granules, non-uniform	~1-2 µm	0.5	VMX-10-10	10 mL

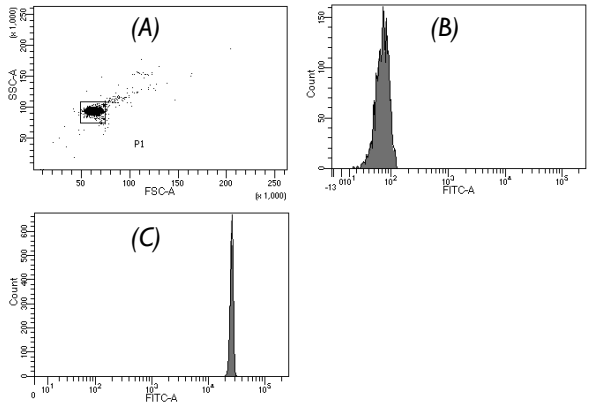
SPHERO™ Neutravidin Coated Magnetic Particles

- Provide very low non-specific binding since they do not contain any carbohydrates and have a near-neutral isoelectric point of 6.3
- Used for diagnostic and molecular biology applications
- Have a binding capacity of ~5100 pmol/mg.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Neutravidin	2.0-2.9	1.0	NVM-20-5	5 mL

SPHERO™ Streptavidin Coated Magnetic Particles

- Streptavidin magnetic particles have found widespread use as detection reagents in immunology, biochemistry and cellular biology due to their high affinity binding to biotin
- Biotin–streptavidin interaction have been exploited in many applications including the development of new reagents for diagnostics such as sandwich magnetic particle enzyme-linked immunosorbent assay (MPEIA) and molecular biology studies involving nucleic acids.



(A) Dot plot of SVM-200-4 (B)Histogram of SVM-200-4 before exposure to biotin-FITC (C) Histogram of SVM-200-4 after exposure to biotin-FITC.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Streptavidin, High Iron	0.2-0.39	0.5	SVM-025-5H	5 mL
Streptavidin	0.4-0.69	0.5	SVM-05-10	10 mL
Streptavidin, High Iron	0.4-0.69	0.5	SVM-05-5H	5 mL
Streptavidin	0.7-0.9	0.5	SVM-08-10	10 mL
Streptavidin	1.0-1.4	0.5	SVM-10-10	10 mL
Streptavidin	1.5-1.9	0.5	SVM-15-10	10 mL
Streptavidin	2.0-2.9	0.5	SVM-20-10	10 mL
Streptavidin	3.0-3.9	1.0	SVM-30-10	10 mL
Streptavidin	4.0-4.5	1.0	SVM-40-10	10 mL
Streptavidin	4.6-5.9	1.0	SVM-50-5	5 mL
Streptavidin	6.0-7.9	1.0	SVM-60-5	5 mL
Streptavidin	8.0-9.9	1.0	SVM-80-5	5 mL
Streptavidin	18.0-22.9	0.5	SVM-200-4	4 mL
Streptavidin	38.0-44.0	0.5	SVM-400-4	4 mL
Streptavidin, High Iron	38.0-44.0	0.5	SVMH-400-4	4 mL
Streptavidin, High Iron	45.0-52.0	0.5	SVMH-500-4	4 mL
Streptavidin, Smooth Surface	3.0-3.9	1.0	SVMS-30-10	10 mL
Streptavidin, Smooth Surface	4.0-5.0	1.0	SVMS-40-10	10 mL
Streptavidin, Crosslinked	1.0-2.0	0.5	SVMX-10-10	10 mL
Streptavidin, Crosslinked	25.0-37.0	0.5	SVMX-300-4	4 mL

SPHERO™ Protein G Coated Magnetic Particles

- Used to capture species-specific anti-IgG to magnetic microspheres
- Directly binds immunoglobulins from ascites fluids or concentrated hybridoma supernatants to facilitate purification.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Protein G	4.0-4.5	1.0	PGM-40-5	5 mL
Protein G, Smooth Surface	3.0-3.9	1.0	PGMS-30-5	5 mL
Protein G, Smooth Surface	4.0-5.0	1.0	PGMS-40-5	5 mL
Protein G	6.0-7.9	1.0	PGM-60-5	5 mL
Protein G, Crosslinked	18.0-24.9	1.0	PGMX-200-5	5 mL
Protein G, Crosslinked	38.0-52.0	0.5	PGMX-400-4	4 mL
Protein G, Crosslinked	70.0-89.0	1.0	PGMX-800-5	5 mL
Protein G, Crosslinked	1.0-2.0	1.0	PGMX-10-5	5 mL

SPHERO™ Protein A Coated Magnetic Particles

- Used for the immunomagnetic separation (IMS) and real-time PCR to detect Escherichia coli*

  **Fu, Z., S. Rogelj, et al. (2005). "Rapid detection of Escherichia coli O157:H7 by immunomagnetic separation and real-time PCR." International Journal of Food Microbiology 99(1): 47-57.*

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Protein A, High Iron	0.2-0.39	0.5	PAM-025-5H	5 mL
Protein A, High Iron	0.4-0.69	0.5	PAM-05-5H	5 mL
Protein A	4.0-4.9	1.0	PAM-40-5	5 mL
Protein A, Smooth Surface	3.0-3.9	1.0	PAMS-30-5	5 mL
Protein A, Smooth Surface	4.0-5.0	1.0	PAMS-40-5	5 mL
Protein A, Crosslinked	1.0-2.0	1.0	PAMX-10-5	5 mL

SPHERO™ Sheep anti-Rat IgG Coated Magnetic Particles

- Consists of uniform, paramagnetic polystyrene beads coated with polyclonal Sheep anti-Rat IgG antibodies.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Sheep anti-Rat IgG (H&L)	4.0-4.5	2.0	SRM-40-5	5 mL

SPHERO™ Donkey anti-Goat IgG Coated Magnetic Particles

- Ideal for direct or indirect isolation of proteins and cells during immunomagnetic separation.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Donkey anti-Goat IgG (H&L) Cross adsorbed	4.0-5.0	1.0	GMXA-40-10	10 mL

SPHERO™ Goat anti-Rabbit IgG Coated Magnetic Particles

- Used in immunomagnetic separation (IMS)*

  * Antognoli, M. C., M. D. Salman, et al. (2001). "A one-tube nested polymerase chain reaction for the detection of mycobacterium bovis in spiked milk samples: an evaluation of concentration and lytic techniques." J Vet Diagn Invest 13(2): 111-116.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Goat anti-Rabbit IgG (H&L)	4.0-4.9	1.0	RM-40-10	10 mL
Goat anti-Rabbit IgG (Fc)	4.0-4.5	1.0	RMFc-40-10	10 mL
Goat anti-Rabbit IgG (H&L), Smooth Surface	3.0-3.9	1.0	RMS-30-10	10 mL
Goat anti-Rabbit IgG (H&L), Smooth Surface	4.0-5.0	1.0	RMS-40-10	10 mL
Goat anti-Rabbit IgG (Fc), Smooth Surface	3.0-3.9	1.0	RMSFc-30-10	10 mL
Goat anti-Rabbit IgG (H&L), Crosslinked, granules, non-uniform	~1-2 µm	0.5	RMX-10-10	10 mL

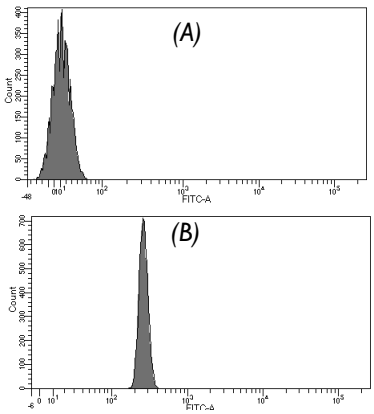
SPHERO™ Goat anti-Mouse IgG Coated Magnetic Particles

Attributes

- Uniform particle size
- Paramagnetic in nature
- Rapid magnetic responsiveness
- Low non-specific binding
- High binding capacity
- Consistent lot-to-lot performance.

Applications

- Automated immunoassays
- Immunoprecipitation
- IP-western blots.



(A) Histogram of MM-40-10 before exposure to Mouse IgG-FITC
(B) Histogram of MM-40-10 after exposure to Mouse IgG-FITC

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Goat anti-Mouse IgG (H&L)	4.0-4.9	1.0	MM-40-10	10 mL
Goat anti-Mouse IgG (Fc)	4.0-5.0	1.0	MMFc-40-10	10 mL
Goat anti-Mouse IgG (H&L) , Cross adsorbed	4.0-4.5	1.0	MMXA-40-10	10 mL
Goat anti-Mouse IgG (H&L), Smooth Surface	3.0-3.9	1.0	MMS-30-10	10 mL
Goat anti-Mouse IgG (H&L), Smooth Surface	4.0-5.0	1.0	MMS-40-10	10 mL
Goat anti-Mouse IgG (Fc), Smooth Surface	3.0-3.9	1.0	MMSFc-30-10	10 mL
Goat anti-Mouse IgG (Fc), Smooth Surface	4.0-5.0	1.0	MMSFc-40-10	10 mL
Goat anti-Mouse IgG (H&L), Smooth Surface, Cross adsorbed	3.0-3.9	1.0	MMSXA-30-10	10 mL
Goat anti-Mouse IgG (H&L), Smooth Surface, Cross adsorbed	4.0-5.0	1.0	MMSXA-40-10	10 mL
Goat anti-Mouse IgG (H&L), Crosslinked, granules, non-uniform	~1-2 µm	0.5	MMX-10-10	10 mL
Goat anti-Mouse IgG (H&L), Cross adsorbed, Crosslinked, granules, non-uniform	~1-2 µm	0.5	MMXA-10-10	10 mL

SPHERO™ Goat anti-Human IgG Coated Magnetic Particles

- Ideal for the capture and/or detection of target analytes by direct or indirect isolation during immunomagnetic separation
- Improves the performance of ELISAs by enhancing sensitivity and shortening incubation times.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Goat anti-Human IgG (H&L)	4.0-4.5	1.0	HM-40-10	10 mL
Goat anti-Human IgG (H&L) , Smooth Surface	3.0-3.9	1.0	HMS-30-10	10 mL
Goat anti-Human IgG (H&L) , Smooth Surface	4.0-4.5	1.0	HMS-40-10	10 mL
Goat anti-Human IgG (H&L), Cross-linked, granules, non-uniform	~1-2 µm	0.5	HMX-10-10	10 mL

SPHERO™ Anti-Digoxigenin Coated Magnetic Particles

- Prepared by covalently coupling of monoclonal antibody to digoxigenin from mouse-mouse hybrid cells
- Used to purify and detect digoxigenin-labeled protein and nucleic acids using magnetic separation.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Anti-Digoxigenin	2.0-2.9	0.1	DIGMS-20-2	2 mL
Anti-Digoxigenin	4.0-5.0	0.1	DIGMS-40-2	2 mL
Anti-Digoxigenin	8.0-9.9	0.1	DIGMS-80-2	2 mL

SPHERO™ Anti-Digoxin Coated Magnetic Particles

- Prepared by covalently coupling of monoclonal antibody to digoxin from mouse-mouse hybrid cells
- Used to purify and detect digoxin-labeled proteins and nucleic acids using magnetic separation.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Anti-Digoxin	2.0-2.9	0.1	DINMS-20-2	2 mL
Anti-Digoxin	4.0-5.0	0.1	DINMS-40-2	2 mL
Anti-Digoxin	8.0-9.9	0.1	DINMS-80-2	2 mL

SPHERO™ Glutathione Coated Magnetic Particles

- Used for the magnetic purification of glutathione S-transferase (GST) fusion proteins from a bacteria, yeast or mammalian crude cell lysate.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Glutathione, Smooth Surface	3.0-3.9	1.0	GSHMS-30-10	10 mL

SPHERO™ Mouse IgG Coated Magnetic Particles

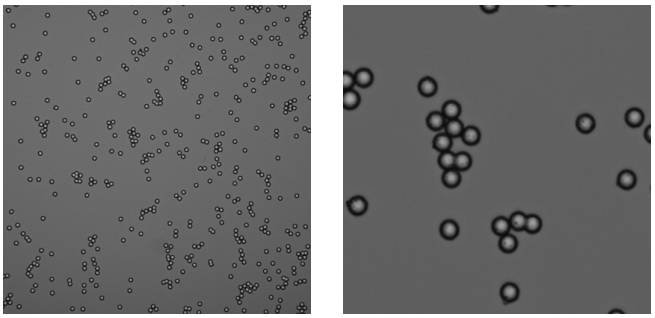
- Coated with highly purified, whole molecule Mouse IgG from normal serums.

Particle Type and Surface	Size, µm	% w/v	Catalog No.	Unit
Mouse IgG, Smooth Surface	3.0-3.9	0.5	MSGMS-30-5	5 mL
Mouse IgG, Smooth Surface	5.0-5.9	0.5	MSGMS-50-5	5 mL

SPHERO™ Rabbit anti-HA Coated Magnetic Particles

- Coated with affinity purified anti-Hemagglutinin (HA) epitope tag [Rabbit] polycolonal antibody
- Binds to HA-tagged recombinant proteins.

Particle Type and Surface	Size, µm	Catalog No.	Unit
Rabbit anti-HA, Smooth Surface, 10^7/mL	3.0-3.9	RHAMS-30-2	2 mL



Differential interference contrast images of CMS-40-10 seed particles used to make HMS-40-10, DIGMS-40-2 & DINMS-40-2