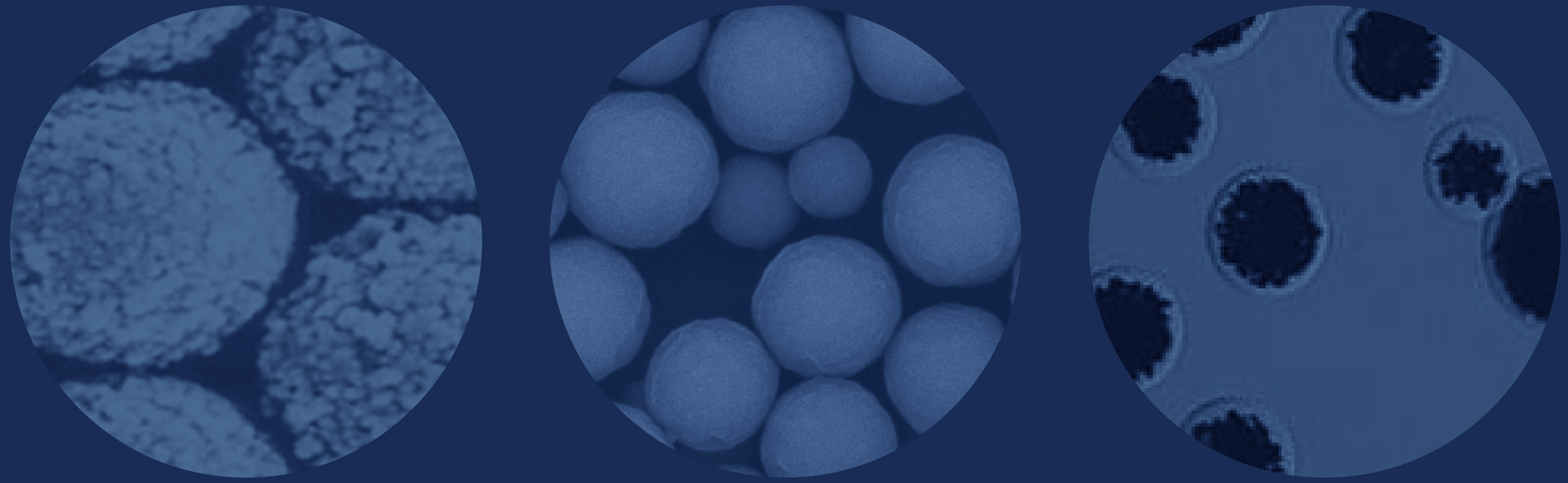
Selection guide

Choosing the right magnetic beads



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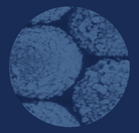
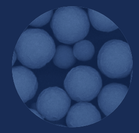
Three types of magnetic particles available from Cytiva

	Sera-Mag™ magnetic beads 	SeraSil-Mag™ silica beads 	Mag Sepharose™ magnetic beads 
Core material	Carboxyl	Silica	Agarose
Surface chemistry options	• Streptavidin coated/ Streptavidin blocked • Amine-blocked • Oligo (dT) coated • NeutrAvidin • Protein A/G	Silica (OH)	• Streptavidin • Protein A or G • NHS • His
Size	1 µm and 3 µm (specific chemistries)	400 nm and 700 nm	37–100 µm
Size distribution	Monodisperse	Monodisperse	Polydisperse
Surface	Solid but irregular (cauliflower like)	Uniform and spherical	Porous
Capacity	Medium	High	High
Application focus	• Nucleic acid extraction and cleanup • Direct conjugation of ligands such as antibodies, enzymes, or oligos • mRNA purification • Enrichment of target nucleic acid sequences for NGS • Size selection of nucleic acids • Antibody purification with combined A/G affinities	• Traditional nucleic acid extraction using chaotropic salts • Existing Sera-Xtracta™ extraction kits use of SeraSil-Mag silica beads to deliver high quality performance	• Antibody purification, screening, immunoprecipitation, and pull-down • Direct conjugation of ligands such as antibodies, enzymes, and oligos • Affinity purification of histidine tagged recombinant proteins

Comparison of magnetic bead surface chemistries and applications

Type	Properties	Applications	Variations	Product	Pack size	Product code
Sera-Mag magnetic beads						
Sera-Mag carboxylate-modified magnetic beads	Can associate with nucleic acids for direct capture Surface suitable for conjugation through covalent bonding Can capture molecules containing amino groups	Conjugation or direct binding applications: • Covalent attachment • Affinity purification and pull-down • Nucleic acid isolation and purification • NGS size selection	High-speed version available: • Sera-Mag SpeedBeads carboxylate-modified • Available in 1 µm and 3 µm bead diameter	Sera-Mag Carboxylate-Modified [E3] Magnetic Beads	15 mL	44152105050250
					100 mL	44152105050350
					1000 mL	44152105050450
				Sera-Mag SpeedBead Carboxylate-Modified [E3] Magnetic Beads	15 mL	65152105050250
					100 mL	65152105050350
					1000 mL	65152105050450
				Sera-Mag Carboxylate-Modified [E7] Magnetic Beads	15 mL	24152105050250
					100 mL	24152105050350
					1000 mL	24152105050450
				Sera-Mag SpeedBead Carboxylate-Modified [E7] Magnetic Beads	15 mL	45152105050250
					100 mL	45152105050350
					1000 mL	45152105050450
				Sera-Mag SpeedBead Carboxylate-Modified Magnetic Beads, 3 µm	1 mL	29729998
					10 mL	29729997
					100 mL	29730063
Sera-Mag amine-blocked magnetic beads	Surface suitable for conjugation through covalent bonding Non-surfactant, non-protein-blocked surface Low non-specific binding	Conjugation applications, similar to carboxylate-modified beads	High-speed version available: • Sera-Mag SpeedBeads amine-blocked	Sera-Mag SpeedBeads Amine-Blocked Magnetic Beads	1 mL	19152104011150
					5 mL	19152104010150
					100 mL	19152104010350
Sera-Mag Oligo(dT)-coated magnetic beads	Hybridizes with mRNA poly-A tails High colloidal stability	mRNA binding applications: • mRNA extraction and purification • RT-PCR • cDNA library construction • Subtractive hybridization • NGS (RNA sequencing)		Sera-Mag Oligo (dT) Coated Magnetic Beads	1 mL	38152103011150
					5 mL	38152103010150
					100 mL	38152103010350

Type	Properties	Applications	Variations	Product	Pack size	Product code
Sera-Mag streptavidin-coated magnetic beads	Binds biotinylated ligands such as proteins, nucleic acids, and peptides Covalently bound streptavidin coating Fast reaction kinetics Low non-specific binding High throughput and precision	Immunoassay and molecular biology applications: • Sample preparation and assay development for genomics and proteomics	High-speed version available: • Sera-Mag SpeedBeads streptavidin-coated Biotin binding ranges: • 2500 to 3500 pmol/mg • 3500 to 4500 pmol/mg • 4500 to 5500 pmol/mg	Sera-Mag Streptavidin 2500 to 3500 (Low) pmol per mg Magnetic Beads	1 mL	30152103011150
					5 mL	30152103010150
					100 mL	30152103010350
				Sera-Mag Streptavidin 3500 to 4500 (Med.) pmol per mg Magnetic Beads	1 mL	30152104011150
					5 mL	30152104010150
					100 mL	30152104010350
				Sera-Mag Streptavidin 4500 to 5500 (High) pmol per mg Magnetic Beads	1 mL	30152105011150
					5 mL	30152105010150
					100 mL	30152105010350
				Sera-Mag SpeedBeads Streptavidin 3500 to 4500 (Med.) pmol per mg	1 mL	66152104011150
					5 mL	66152104010150
					100 mL	66152104010350
Sera-Mag streptavidin-blocked magnetic beads	Binds biotinylated ligands such as proteins, nucleic acids, and peptides Non-surfactant, non-protein-blocked surface Lower non-specific binding than streptavidin-coated beads via additional blocking of non-specific binding sites	High-specificity biotin binding applications: molecular and immunodiagnostics NGS library preparation	High-speed version available: • Sera-Mag SpeedBeads streptavidin-blocked • Available in 1 µm and 3 µm bead diameter	Sera-Mag SpeedBeads Streptavidin-Blocked Magnetic Beads	1 mL	21152104011150
					5 mL	21152104010150
					100 mL	21152104010350
				Sera-Mag SpeedBeads Streptavidin-Blocked Magnetic Beads, 3 µm	1 mL	29729996
					10 mL	29730006
					100 mL	29730064
Sera-Mag NeutrAvidin-coated magnetic beads	Binds biotinylated ligands such as proteins, nucleic acids, and peptides Fast reaction kinetics Low non-specific binding High throughput and precision	Alternative to Streptavidin in immunoassay and molecular biology applications: • Sample preparation and assay development for genomics and proteomics	High-speed version available: • Sera-Mag SpeedBeads NeutrAvidin-coated Biotin binding range: • 3500 to 4500 pmol/mg	Sera-Mag SpeedBeads NeutrAvidin-Coated Magnetic Beads	1 mL	78152104011150
					5 mL	78152104010150
					100 mL	78152104010350

Type	Properties	Applications	Variations	Product	Pack size	Product code
Sera-Mag protein A/G magnetic beads	Binds IgA and IgG proteins Coating based on IgA/IgG fusion protein Broad binding capabilities	Antibody isolation applications: • Affinity purification and pull-down • Immunoprecipitation		Sera-Mag SpeedBeads Protein A/G Magnetic Beads	1 mL	17152104011150
					5 mL	17152104010150
					100 mL	17152104010350
SeraSil-Mag silica beads						
SeraSil-Mag silica-coated magnetic beads	Reversibly binds nucleic acids based on salt concentration Monodisperse particles with narrow size ranges	Applications with low sample amounts Nucleic acid extraction for molecular diagnostics applications such as qPCR	Available in 400 µm or 700 µm particle sizes	SeraSil-Mag 400 Silica Beads	5 mL	29357369
					60 mL	29357371
					450 mL	29357372
					1000 mL	29705862
				SeraSil-Mag 700 Silica Beads	5 mL	29357373
					60 mL	29357374
					450 mL	29357375
					1000 mL	29705861
Mag Sepharose magnetic beads						
His-Mag Sepharose Ni magnetic beads	Highly cross-linked spherical agarose (Sepharose), including magnetite IMAC immobilized with nickel	Small-scale purification and screening of histidine-tagged proteins from different sources			2 × 1 mL	28967388
					5 × 1 mL	28967390
					100 mL	29104065
His Mag Sepharose excel magnetic beads	Strip resistant ligand with strongly bound nickel for immobilized metal ion affinity chromatography (IMAC)	Small-scale capture and purification of histidine-tagged proteins secreted into eukaryotic cell culture supernatants		His Mag Sepharose excel Beads	2 × 1 mL	17371220
					5 × 1 mL	17371221
					10 × 1 mL	17371222
NHS Mag Sepharose magnetic beads	Coupling of antibodies, aptamers, and proteins through primary amino groups on the molecules to the NHS ligand on NHS Mag Sepharose	Enrichment of target protein for further downstream analyses such as mass spectometry (MS) and electrophoresis techniques		NHS Mag Sepharose Beads	500 µL	28944009
					4 × 500 µL	28951380

Type	Properties	Applications	Variations	Product	Pack size	Product code
Protein A Mag Sepharose magnetic beads	Maximum binding capacity due to dense coating of Protein A Optimized capacity for enrichment or immunoprecipitation requiring only low amounts of antibody needed	Enrichment of target proteins via immunoprecipitation or pull-down assays Optimised for downstream analyses such as mass spectometry (MS) and electrophoresis techniques		Protein A Mag Sepharose Beads	500 µL	28944006
					4 × 500 µL	28951378
Protein A Mag Sepharose Xtra magnetic beads	Maximum binding capacity due to dense coating of Protein A	High capacity small-scale purification and screening of monoclonal and polyclonal antibodies from various species		Protein A Mag Sepharose Xtra Beads	2 × 1 mL	28967056
					5 × 1 mL	28967062
Protein G Mag Sepharose magnetic beads	Maximum binding capacity due to dense coating of Protein G Optimized capacity for enrichment or immunoprecipitation requiring only low amounts of antibody needed	Enrichment of target proteins via immunoprecipitation or pull-down assays Optimised for downstream analyses such as mass spectometry (MS) and electrophoresis techniques		Protein G Mag Sepharose Beads	500 µL	28944008
					4 × 500 µL	28951379
Protein G Mag Sepharose Xtra magnetic beads	Maximum binding capacity due to dense coating of Protein G	High capacity small-scale purification/screening of monoclonal and polyclonal antibodies from various species		Protein G Mag Sepharose Xtra Beads	2 × 1 mL	28967066
					5 × 1 mL	28967070
Streptavidin Mag Sepharose magnetic beads	Utilizes strong interaction between biotin and streptavidin ligand immobilized on magnetic beads	Enrichment of target proteins through immunoprecipitation and purification of biotinylated biomolecules		Streptavidin Mag Sepharose Beads	2 × 1 mL 10% slurry	28985738
					5 × 1 mL 10% slurry	28985799

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