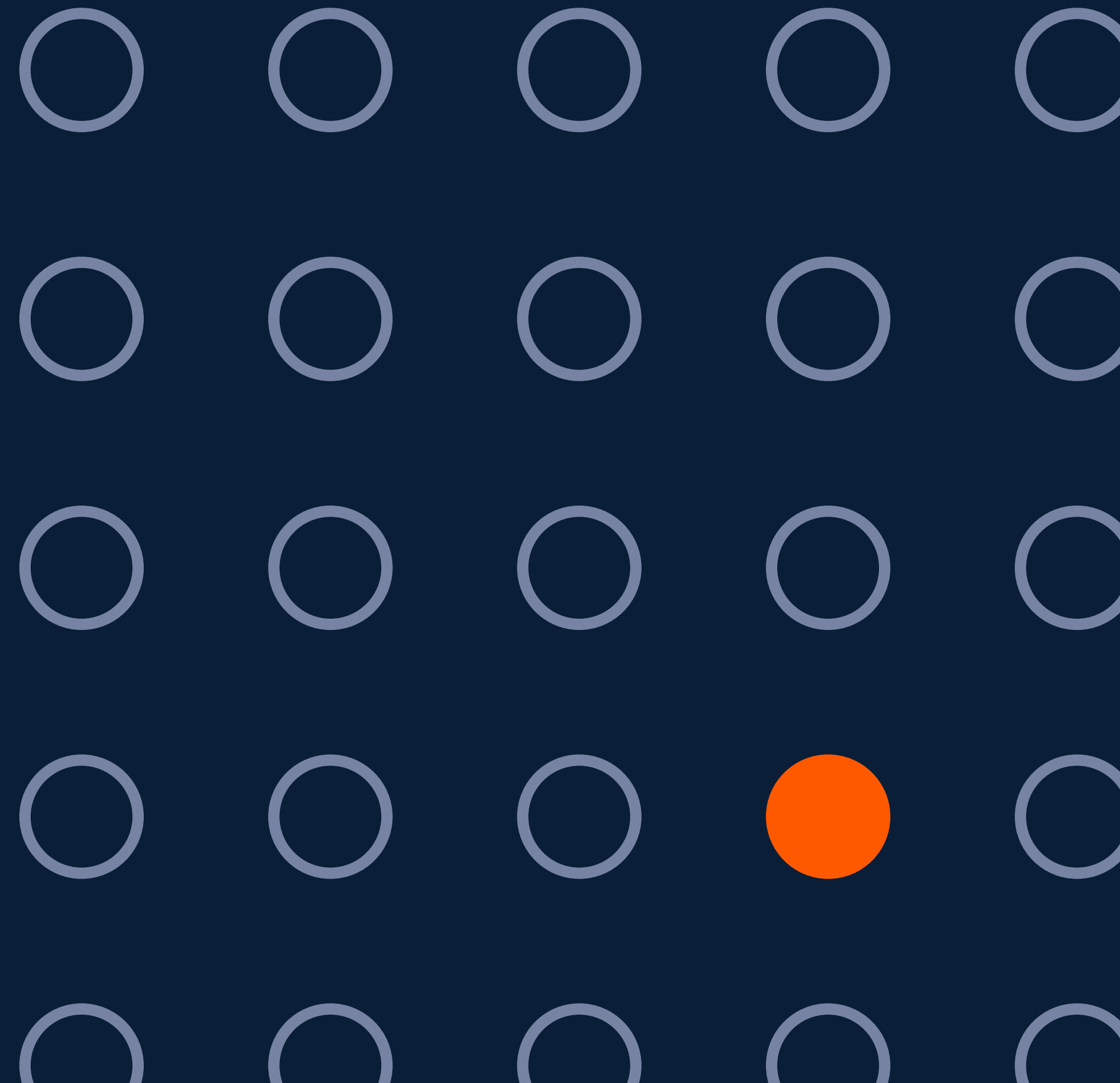


# Sera-Mag and Sera-Mag SpeedBeads magnetic particles



Sera-Mag™ and Sera-Mag SpeedBeads provide cost effective magnetic bead separation technology for molecular biology applications, nucleic acid isolation, and research immunoassays. Sera-Mag super-paramagnetic particles combine a fast magnetic response time with a high binding capacity. The particles feature a large surface area, high sensitivity, physical stability, and fast reaction kinetics. Carboxylate-modified, Streptavidin- and Oligo(dT)-coated versions are available.

Our SpeedBeads respond twice as fast in a magnetic field as compared to Sera-Mag particles. These particles feature a second layer of magnetite which speeds response to a magnetic field for quicker, more complete separation from suspensions. SpeedBeads are available in carboxylate- and amine-modified versions, and in neutravidin-, streptavidin-, and protein A/G-coated versions.

All Sera-Mag particles provide a very slow settling rate in the absence of a magnetic field. The particles are not affected by sonication, drying, or pH extremes.

# Sera-Mag magnetic SpeedBeads



- Encapsulation
- Magnetite
- Core

This SEM image shows the cauliflower-like surface of the Sera-Mag SpeedBeads which dramatically increases the overall surface area available for binding. Sera-Mag SpeedBeads also have a second layer of magnetite within the particle, resulting in a 2× faster increase in speed in response to a magnetic field.

## Sera-Mag SpeedBeads protein A/G

CV

Protein A/G Particles provide a fast, convenient method for manual and automated magnetic isolation of IgA and IgG proteins using affinity binding. The particles can be used with the broadest range of antibody species and subclasses (even when subclass identity has not been determined). Users can accomplish this in a single process step instead of running two separate processes, taking advantage of the affinity available with the recombinant protein A/G.

## Sera-Mag SpeedBeads carboxylate-modified

*Packaged in 15 ml, 100 ml, and 1000 ml, 5% solids, 50 mg/mL  
(Sample pack available)*

The carboxyl groups on these particles can be activated to react with free amino groups on biomolecules to form amide bonds. Prior to downstream applications, samples can be mixed with these particles, whereupon biomolecules of interest are covalently attached to the particles. Downstream applications include affinity purification or capture through protein-protein interactions, immunoprecipitation, or other biomolecular interactions. Covalent coupling of proteins, nucleic acids, etc. to carboxyl groups on the surface is easily accomplished using our standard coupling technology.

## Sera-Mag SpeedBeads streptavidin-coated

*Packaged in 1 ml, 5 ml, and 100 ml, 1% solids, 10 mg/ml*

Streptavidin-coated, nominal 1  $\mu$ m particles combine fast reaction kinetics and low, non-specific binding for increased throughput and precision in such immunoassay and molecular biology applications as sample preparation and assay development for genomics and proteomics. These particles exhibit a high affinity when binding to biotinylated ligands such as proteins, nucleic acids and peptides. They respond much faster to a magnetic field to shorten assay times and improve precision and also move faster through viscous solutions. Available with a 3500-4500 pmol/mg biotin-binding range.

## Sera-Mag SpeedBeads neutrAvidin-coated

*Packaged in 1 ml and 5 ml, 1% solids, 10 mg/ml  
(Sample pack available)*

NeutrAvidin-coated, nominal 1  $\mu$ m particles combine fast reaction kinetics and low, non-specific binding for increased throughput and precision in immunoassay and molecular biology applications, including sample preparation and assay development for genomics and proteomics applications. These particles exhibit high affinity when binding to biotinylated ligands such as proteins, nucleic acids and peptides. They respond quickly to a magnetic field to shorten assay times, improve precision and move faster through viscous solutions. Available with a 3500-4500 pmol/mg biotin-binding range. Sample pack available.

## Sera-Mag SpeedBeads streptavidin-blocked

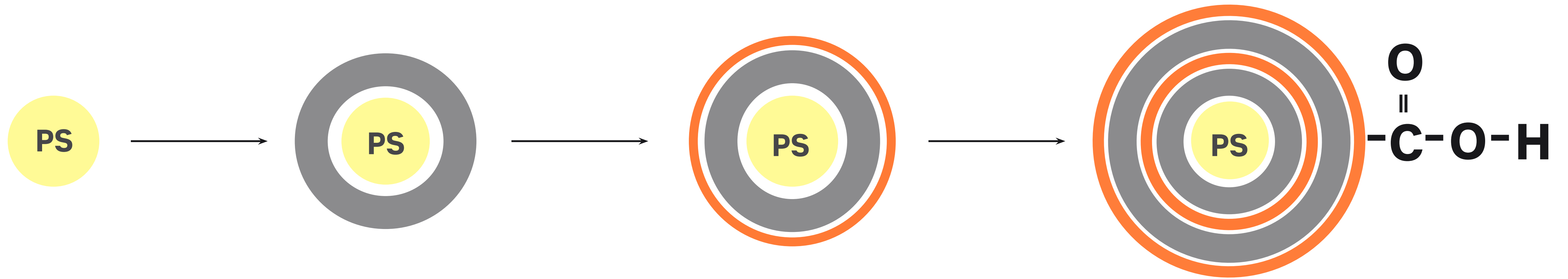
*Packaged in 1 ml, 5 ml, and 100 ml, 1% solids, 10 mg/ml*

These streptavidin-blocked particles feature a non-surfactant, non-protein blocked surface to reduce the undesired adsorption of proteins from a sample matrix.

## Sera-Mag SpeedBeads amine-blocked

*Packaged in 1 ml, 5 ml, and 100 ml, 1% solids, 10 mg/ml*

These amine-blocked particles feature a non-surfactant, non-protein blocked surface to reduce the undesired adsorption of proteins from a sample matrix.



Polystyrene Core

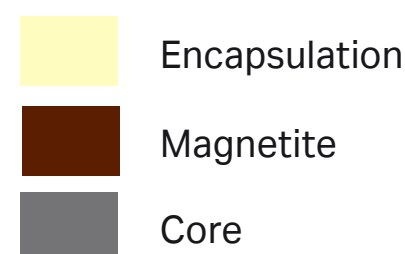
First Layer of magnetite

Layer of magnetite locked in  
by polymer encapsulation

Second layer of magnetite with  
carboxylated polymer surface

Sera-Mag SpeedBead Carboxylate-Modified magnetic particles feature carboxylic groups on the surface that permit easy covalent coupling using simple carbodiimide chemistry.

# Sera-Mag magnetic particles



Sera-Mag magnetic particles feature a single layer of magnetite but with the same cauliflower-like surface of the SpeedBeads.

## Sera-Mag magnetic carboxylate-modified

*Packaged in 15 ml, 100 ml, and 1000 ml, 5% solids, 50 mg/ml  
(Sample pack available)*

The carboxyl groups on these particles can be activated to react with free amino groups on biomolecules to form amide bonds. Prior to downstream applications, samples can be mixed with these particles, whereupon biomolecules of interest are covalently attached to the particles. Downstream applications include affinity purification or capture through protein-protein interactions, immunoprecipitation, or other biomolecular interactions. Covalent coupling of proteins, nucleic acids, etc. to carboxyl groups on the surface is easily accomplished using our standard coupling technology.

## Sera-Mag magnetic streptavidin-coated

*Packaged in 1 ml and 5 ml, 1% solids, 10 mg/ml  
(Sample pack available)*

Magnetic streptavidin particles contain covalently bound streptavidin and are available with low (2500 to 3500 pmol/mg), medium (3500 to 4500 pmol/mg) or high (4500 to 5500 pmol/mg) nominal biotin binding capacities. The multiple levels let you choose the biotin-binding capacity needed to optimize your application. These magnetic streptavidin particles can be used as a universal base particle for coating biotinylated proteins, oligos or other ligands to the particle surface.

## Sera-Mag magnetic oligo(dT)

*Packaged in 1 ml, 5 ml, and 100 ml, 1% solids, 10 mg/ml  
(Buffer Kit-mRNA isolation available)*

These 1  $\mu\text{m}$  magnetic particles contain covalently bound oligo(dT)<sub>14</sub>. They are colloidally stable and will remain in suspension for extended periods of time in the absence of a magnetic field, making them well suited for capturing or isolating mRNA from a variety of sources. Once isolated, further applications like RT-PCR, cDNA library construction, or subtractive hybridization can be performed. The approximate mRNA binding-capacity is 11  $\mu\text{g}$  of mRNA per mg of particles (dependent upon sample and message length). Oligo(dT) particles can also be used as a universal base particle for coupling unique oligo sequences. Simply synthesize the oligo with a poly-A tail for easy attachment to the oligo(dT) particles.

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