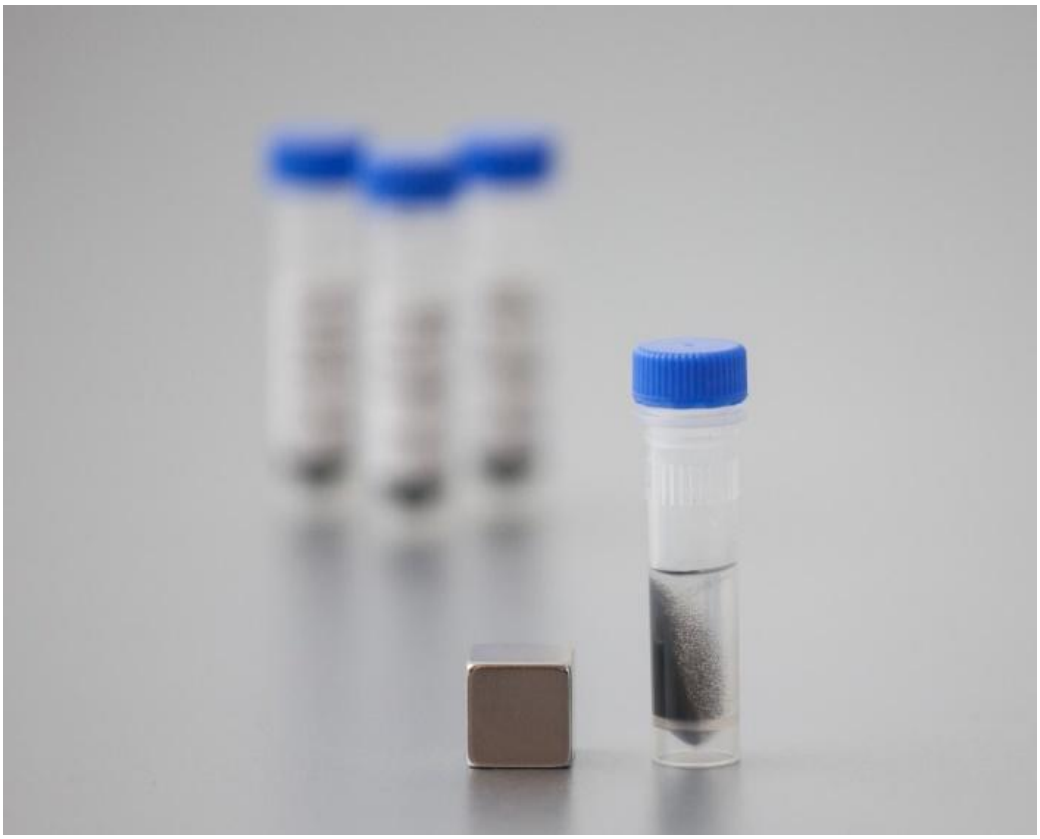
MAGic™
BioProcessing

INSTRUCTION

# MAGicBeads Streptavidin



- Super-paramagnetic porous beads
- Exceptional magnetization and zero magnetic remanence
- High binding capacities
- Minimal non-specific interaction

# Introduction

MAGic™Beads Streptavidin provides a simple and effective system for small to medium scale isolation of biotinylated molecules using magnetic separation techniques. The exceptional magnetization, zero magnetic remanence and high binding capacity enable fast capture in a magnetic field and rapid resuspension with minimized power input. Magnetic beads harness the advantages of batch adsorption to rapidly recover the target molecule directly from crude and complex feeds, eliminating the need for clarification.

MAGicBeads are highly porous and provide a large available surface area ($50 m^2/mL$) resulting in exceptionally high binding capacities. MAGicBeads provide consistent and fast magnetic separation at various volumes from µL to thousands of liters, because of their high saturation magnetization (40 emu/g).

The agarose matrix enables minimal nonspecific binding of proteins due to its hydrophilic nature. The black beads are easily observed by the naked eye, making them easy to follow and collect, and they do not aggregate, which facilitates the resuspension.

The beads are suitable for separations using appropriate magnetic separators, such as the MAGicAccio line.

## Safety

Please read through this instruction and the associated Safety Data Sheet (SDS) carefully before using MAGicBeads Streptavidin.

## Intended use

MAGicBeads Streptavidin are super-paramagnetic porous beads optimized for streamlined extraction of biotinylated proteins for your customs needs.

For research use only.

# Product data

**Table 1. Characteristics of MAGicBeads Streptavidin**

| Product | MAGicBeads Streptavidin, 10% bead suspension |
|---|---|
| Matrix | Super-paramagnetic porous agarose |
| Ligand | Streptavidin |
| Average particle size (DV50 )[1] | 90 µm |
| Particle size distribution | 50-150 µm |
| Surface group density | 1 mg streptavidin/mL |
| Binding capacity | 2-3 mg biotinylated IgG/mL,<br>100 µg biotinylated ss-DNA/mL (for 20nt ss-DNA) |
| Storage: | +2 to +8°C in 20% ethanol. Do not freeze |
| Shipping | Ambient |

[1] The median particle size of the cumulative volume distribution

# Important Product Information

- After labeling proteins or nucleic acids with biotin it is recommended to remove excess biotin as free biotin will reduce the binding capacity. To remove free biotin, use a desalting column.
- The MAGicBeads are compatible with Mass Spectrometry analytics due to the minimal unspecific binding to the agarose structure.

# Handling Instructions

## Dispensing the bead suspension

- The bead suspension should be well suspended before dispensing. Mix thoroughly by manual inversion or by vortexing, between each pipetting from the vial.

## Magnetic bead separation

- MAGicAccio LAB can be used to collect the beads from liquid volumes up to 5 mL. For volumes from 5 mL up to 50 mL it is recommended to use the MAGicAccio PILOT 50 separator. Use the MAGicAccio PILOT 500 separator for volumes up to 500 mL or the MAGicAccio PILOT 2000 for volume up to 2000 mL. Refer to the manual of the separators for detailed instructions.
- Use the magnetic separator to attract the magnetic agarose beads to the wall of the test tube or bottle before each liquid removal step.
- Remove liquid carefully, trying not to disturb the magnetic beads. To avoid sample loss, make sure that no beads are removed.

- Move the tube away from the magnetic field, add new liquid and resuspend the beads by mixing.

### Incubation

- Incubations should be performed with continuous mixing, using either an end-over-end apparatus, a bench-top shaker, or a rocking table. Short incubations, e.g., for elution, can be performed by using manual mixing/inversion of the test tube or bottle.
- Binding and elution can be performed at room temperature, as well as in a cold room.

## Important operation parameters

### Cleaning and sanitation

- Use 3 washes of binding/washing buffer to clean and regenerate beads.

### Storage

- The MAGicBeads Streptavidin should be stored as a 10% bead suspension at +2 to +8°C in 20% ethanol.

### Optimization

The general recommendations in this manual are suitable for most immunoprecipitations. However, optimization may be needed to obtain maximum recovery. Parameters that may require optimization are:

- Binding time
- Amount of beads
- Buffers (washing and elution buffer)
- Number of washes

## Procedure for immunoprecipitation

The following is a suggested procedure suitable as a starting point for enrichment of target proteins by using immobilized biotinylated antibodies.

### Recommended buffers

- Binding/washing: 1xPBS
- Elution: 0.1 M citric acid, pH 2.5 to pH 3.1

### Bead pre-treatment

1. Mix bead suspension thoroughly.
2. Dispense 100 µL of the homogeneous bead suspension into an Eppendorf tube.
3. Place the Eppendorf tube in a magnetic separator and remove the liquid.
4. Resuspend the beads in 500 µL binding/washing buffer.
5. Remove the liquid by magnetic separation.

### Binding of biotinylated antibody

6. Add 300 µL of the biotinylated antibody solution (0.2-0.4 mg/mL). 100 µL of bead suspension has the capacity to bind 0.2-0.3 mg of biotinylated IgG.
7. If the volume is less than 300 µL, add binding/washing buffer to reach the 300 µL sample volume
8. Resuspend and incubate with continuous mixing for 30-60 minutes.
9. Remove the liquid by magnetic separation.

### Washing (perform this step twice)

10. Add 500 µL of binding/washing buffer and resuspend the beads.
11. Remove the liquid by magnetic separation

### Binding of target protein

12. Add 300 µL of sample. If the volume is less than 300 µL, add binding/washing buffer to reach the 300 µL sample volume.
13. Resuspend the beads and incubate with continuous mixing for 60 minutes.
14. Remove the liquid by magnetic separation.

### Washing (perform this step three times)

15. Add 500 µL of binding/washing buffer and resuspend the beads.
16. Remove the liquid by magnetic separation.

### Elution of target protein

17. Add 100 µL of elution buffer
18. Resuspend the beads and incubate for 2-5 minutes.
19. Remove and collect the elution fraction which contains the target protein. Repeat the elution if needed to increase the amount of protein.

## Disclaimer

The product is not fully tested. For research use only.

# Ordering information

| Products | Quantity | Product No. |
|---|---|---|
| MAGicBeads Streptavidin | 1 mL beads | 1600 |
| MAGicBeads Streptavidin | 10 mL beads | 1601 |
| MAGicBeads Streptavidin | 50 mL beads | 1605 |
| MAGicBeads Streptavidin | 100 mL brads | 1610 |
| MAGicBeads Streptavidin | 250 mL beads | 1625 |
| MAGicBeads Streptavidin | 500 mL beads | 1650 |

| Related products | Product No. |
|---|---|
| MAGicBeads ACT | 13XX |
| MAGicAccio LAB rack | 2000 |
| MAGicAccio LAB cube | 2100 |
| MAGicAccio PILOT 50 | 2200 |
| MAGicAccio PILOT 500 | 2300 |
| MAGicAccio PILOT 2000 | 2400 |
| MAGicAccio PROCESS | 3100 |

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