Streptavidin Magnetic Beads

Catalog No. MBPP-01001, MBPP-01002

【Introduction】

Streptavidin Magnetic Beads are nano-superparamagnetic beads covalently coated with highly purified streptavidin. The beads can be used for the binding of biotinylated molecules, including DNA, RNA, PCR products, oligonucleotides, antibodies, peptides, and other proteins. The streptavidin-biotin interaction has very high binding affinity ($K_d=10^{-15}$). With a fast magnetic response rate, high protein binding capacity and low non-specific binding, Streptavidin Magnetic Beads provide a rapid and efficient method to capture biotinylated molecules, which can be subsequently used in a wide variety of applications, including immunopurification, immunoassays, cell isolation, and organelle isolation, etc.

【Product Specifications】

- **Diameter:** 500nm
- **pH stability:** pH 6.5-9.5
- **30min sedimentation rate:** <1%
- **Magnetic response rate:** >30emu/g
- **Solvent:** Phosphate buffered saline, 10% glycerol, Proclin 300
- **Binding capacity:** >4nmole free biotin per mg magnetic beads

【Product Content】

Catalog No.	*Conc. (mg/ml)*	*Volume (ml)*	*Amount of Beads (mg)*
MBPP-01001	10	2	20
MBPP-01002	10	10	100

【Protocol】

The following protocol provides general guidelines and may be modified by the user for specific applications. The amount of beads should be optimized for individual application by titration.

A. Notes

1. Streptavidin Magnetic Beads can be used to directly bind to the biotinylated molecule. The bead-molecule complex is separated with a magnet and used in downstream experiments.
2. With indirect target capture, the beads are added after mixing the biotinylated molecule with the sample to capture the molecule-target complex. Indirect target capture is preferred when molecule concentration is low, molecule-target kinetics is slow, affinity is weak, or molecule-target binding requires optimal molecule orientation and true liquid-phase kinetics.
3. Beads can be washed prior to use to remove storage solvent if desired but is not required for most applications.
4. Free biotin in the sample will reduce the binding capacity of the beads and can be removed by ultrafiltration, dialysis or other clean-up methods.
5. Binding efficiency can be determined by comparing molecule concentrations before and after coupling.
6. Detergents, such as 0.01–0.1% Tween-20, can be added to the Binding/Washing Buffer to reduce non-specific binding.
7. Streptavidin Magnetic Beads are compatible with downstream analyses using mass spectrometry.

B. Additional materials recommended

1. Binding/Washing Buffer: Tris-buffered saline (or PBS) containing 0.1% Tween-20
2. Elution Buffer: 0.1 M glycine-HCl, pH 2.8-3.2
3. Neutralization Buffer: 1 M Tris-HCl, pH 8.5
4. A magnetic stand or a 96-well magnetic bead automation processor

C. Immobilization procedure

1. Gently shake to mix the magnetic beads thoroughly before use.
2. Place 50µl of magnetic beads (0.5mg) into a 1.5ml microcentrifuge tube.
3. Place the tube on a magnetic stand, collect the beads and discard the supernatant.

4. Wash the beads once with Binding/Washing Buffer (1ml) by magnetic separation.
5. Add 100-200µl of the biotinylated molecule to the magnetic beads and incubate for 15-60min at room temperature on a rotator.
6. Collect the beads with a magnet. Wash the coated beads three times with Binding/Washing Buffer (1ml each time).
7. Re-suspend the beads in a suitable buffer at a desired concentration for downstream applications.

D. Examples of downstream applications

1. Purification of antigen

1.1. After re-suspending the biotinylated antibody-coated beads in 100µl Binding/Wash Buffer, add antigen sample to the tube and incubate for 30min at room temperature or overnight at 4°C. Incubation conditions may be modified for a specific antigen-antibody reaction.

1.2. Collect the beads with a magnet. Wash the beads three times with Binding/Washing Buffer by magnetic separation to remove non-specific binding. Collect the beads with a magnet.

1.3. The antigen can be eluted from beads via incubation with 100µl of Elution Buffer for 5min. After the antigen is eluted from beads, transfer the supernatant to a new tube and add 10µl of Neutralization Buffer to neutralize pH. If the level of target antigen is low, a smaller elution volume is recommended. Perform a second elution if desired.

2. Release of immobilized molecule

The biotin-streptavidin bond can only be disrupted under harsh conditions, e.g. boil the sample for 5min in SDS-PAGE reducing sample buffer for protein dissociation, or incubate in 10mM EDTA (pH 8.2) with 95% formamide at 65°C for 5min for DNA dissociation. Since such treatment will denature proteins, the beads cannot be re-used.

【Storage】

Stored at 2-8°C, 1 year.

【Manufacturer】

Avanbio, ABA-01001, ABA-01002