Streptavidin Magnetic Particles, 200 nm

Cat No: AM-Streptavidin-20

Description

Streptavidin magnetic beads, also known as Streptavidin magnetic beads or SA magnetic beads, are nanomagnetic beads with a particle size of 200 nm that are covalently bound to a large amount of high-quality streptavidin on the surface. Nanoscale magnetic beads provide a large specific surface area, with more binding sites, less magnetic beads, low non-specific adsorption rate, can be quickly, efficiently, sensitive and specific to Biotin labeled antibodies, nucleic acids, proteins, peptides, lectins and other molecules. It is mainly used for the separation and purification of biotin-labeled nucleic acids, antibodies, proteins or related complexes, etc., for immunoprecipitation (IP), cell sorting, DNA-protein interaction research, etc.

For custom sizes, formulations or bulk quantities please contact our customer service department.

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Characteristics

Matrix	Silicon based magnetic particles
Ligand	Recombinant Streptavidin protein
Particle size	200 nm
Concentration	10 mg/mL
Binding ability	≥ 0.5 mg Biotinized IgG/mL magnetic particles
Scope of application	① Separation and purification: combining biotinized nucleic acid, etc.; ② Molecular interaction: IP, Co-IP, RNA Pulldown, etc.
Shelf life	Stable storage at 2 ~ 8°C for 2 years

Operation process

(1) Combined biotinylation molecular operation process

1. Prepare before use

1.1 Buffer: The following are commonly used buffer components, the user can adjust the salt concentration and pH as required

Buffer	Formula
Buffer 1 (for binding biotinylated nucleic acids)	10 mM Tris-HCl (pH 7.5), 1mM EDTA, 1 M NaCl, 0.01~0.2% Tween-20
Buffer 2 (for binding biotinylated antibodies/proteins)	PBS (pH7.4), 0.05% Tween 20, add 0.01~0.1%BSA as needed

1.2 Magnetic rack, vortex oscillator, rotary mixer, pipette, gun head and centrifugal tube

2. Bind biotinized nucleic acids

2.1 Place the magnetic bead on the vortex oscillator for 20 s and oscillate to re-suspend the magnetic bead. Use a pipette to remove 100 µL magnetic beads into the new centrifuge tube. Place the centrifuge tube on the magnetic rack, let it stand for 1 min (this operation is referred to as magnetic separation later), use the pipette to absorb the supernatant, and remove the centrifuge tube from the magnetic rack.

2.2 Add 1 mL Buffer 1 into the centrifuge tube, cover the centrifuge tube cover, and fully oscillate the resuspended magnetic bead. Magnetic separation, remove the supernatant.

2.3 Repeat Step 2.2.

2.4 Add 500 µL biotinylated nucleic acid diluted with Buffer 1 and fully oscillate the resuspended magnetic beads. The centrifuge tube was placed on the rotary mixer and mixed at room temperature for 30 min.

2.5 Magnetic separation, transfer the supernatant to a new centrifugal tube. Follow Step 2.2 to wash the magnetic beads three times.

2.6 According to the requirements of the follow-up experiment, the appropriate low-salt buffer is added to re-suspend the magnetic beads. The biotinylated nucleic acid step is now complete. Magnetic beads can be used for subsequent operations.

2.7 The user can calculate the amount of nucleic acid bound to the magnetic bead (pre-reaction concentration-post-reaction concentration) × volume of reaction solution by measuring the concentration of nucleic acid before and after the reaction.

3. Binding biotinylated antibodies/proteins

3.1 Place the magnetic bead on the vortex oscillator for 20 s to oscillate and re-suspend the magnetic bead. Use a pipette to remove 100 µL magnetic beads into the new centrifuge tube. Place the centrifuge tube on the magnetic rack, let it stand for 1 min (this operation is referred to as magnetic

separation later), use the pipette to absorb the supernatant, and remove the centrifuge tube from the magnetic rack.

3.2 Add 1 mL Buffer 2 into the centrifuge tube, cover the centrifuge tube cover, and fully oscillate the resuspended magnetic beads. Magnetic separation, remove the supernatant.

3.3 Repeat "Step 3.2" twice for a total of 3 washes.

3.4 Add 1 mL of biotinylated antibody/protein diluted with Buffer 2 to fully oscillate the resuspended magnetic beads. The centrifuge tube was placed on the rotary mixer and mixed at room temperature for 60 min.

3.5 Magnetic separation, transfer the supernatant to the new centrifuge tube. Follow the method of "Step 3.2" to wash the magnetic beads 5 times.

3.6 According to the requirements of the follow-up experiment, add the appropriate buffer solution and re-suspend the magnetic bead. The biotinylated antibody/protein step is now complete. Magnetic beads can be used for subsequent operations.

(2) Biotinylated antibody immunoprecipitation operation process

Note: Prepare your own buffer or purchase our IP kit directly.

Preparation of immune complex

Note: The amount and incubation time required for the sample are dependent on each specific antibody antigen system and may need to be optimized for maximum yield.

The following protocol is for 2 ~ 10 μg biotinylated antibodies, which can be scaled up as required.

1. In a centrifuge tube, combine the cell lysate of each sample with 2 ~ 10 μg biotinylated antibody. The recommended total protein amount for each immunoprecipitation reaction is 500 ~ 1500 μg.

2. Dilute the antibody and prepared sample to 300 ~ 500 μL from IP Lysis/Wash Buffer.

3. Incubate at room temperature for 1~2 h, or 4°C for 2~4 h to form immune complexes.

Immunoprecipitation:

Note: In order to ensure the uniform distribution of magnetic beads, mix the magnetic beads in the bottle by repeatedly reversing or slightly vortexing before use.

1. Add 20 to 50 μL of Streptavidin magnetic beads into 1.5 mL centrifugation tube.

2. Add 500 μL pre-cooled PBS to the magnetic bead and mix gently.

3. Put the centrifugal tube into the magnetic rack and collect magnetic beads to one side of the centrifugal tube. Remove the supernatant.

4. Add 200~500 µL IP Lysis/Wash Buffer to the centrifuge tube. Reverse the centrifugal tube several times or mix with a slight vortex for 1 min. Use a magnetic rack to collect magnetic beads. Remove the supernatant.

5. Add the antigen sample/antibody mixture into the centrifuge tube fitted with magnetic beads and incubate at room temperature for 1 ~ 2 h, or 4°C 2 ~ 4 h.

6. Collect magnetic beads with a magnetic rack, remove uncombined samples, and store them for analysis.

7. Add 1000 µL IP Lysis/Wash Buffer to the centrifuge tube and gently mix the magnetic ball for 5 ~ 10 min. Collect the beads and discard the supernatant. Repeat twice.

8. **Denaturing elution:** Add 80~100 µL SDS-PAGE Sample Loading Buffer (1×) to the centrifuge tube and heat the sample in 100°C water bath or metal bath for 10 min. Magnetic beads are separated by magnetic rack to retain the supernatant containing the target antigen.

Note: The following elution methods can also be used to maintain protein activity.

Low pH Elution: Add 100 µL Elution Buffer to centrifuge tube. Keep mixed and incubate centrifuge tube at room temperature for 5 ~ 10 min. Magnetic beads are magnetically separated to retain the supernatant containing the target antigen. Low pH is neutralized by adding 20 µL Neutralization buffers per 100 µL of wash out solution.

Notes

1. Before performing the experiment, please read this operation manual carefully.

2. Do not centrifuge, dry or freeze magnetic beads at high speed, these operations will cause magnetic beads to gather and reduce the binding ability.

3. The ability of SA to bind to biotinylated molecules in the experiment is different, and the binding is also affected by Buffer, so **the operation details can be optimized or the buffer can be screened and prepared for the experiment**.

4. If biotin molecules need to be separated from SA magnetic beads, it can be used:

① 0.1% SDS, boiling for 5 min; ② pH=8.2, 10 mM EDTA containing 95% formamide, 65°C for 5 min or 90°C for 2 min. The shedding rate is 95%.

5. Magnetic beads should be fully oscillated and uniform before use. Magnetic beads should be kept in storage solution to prevent drying.

6. This product is for scientific research only.

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Ordering Information

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