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LiPure™ Streptavidin Magnetic Beads

Cat. #: M0129 Size: 5 ml

Introduction

The Streptavidin-Biotin (SA-Biotin) system has an extremely high binding affinity (Kd = 10^{-15}), making it widely applicable in the field of biology. LiPure™ Streptavidin Magnetic Beads covalently attach SA to the surface of a solid-phase carrier. The magnetic microspheres have uniform particle size, regular morphology and high density of streptavidin on the surface, which can effectively bind biotinylated antibodies, nucleic acids, proteins and other ligand molecules. It can easily and quickly capture target molecules and realize magnetic separation, and can be equipped with automated equipment for high-throughput operation.

Package Information

Component	M0129
LiPure™ Streptavidin Magnetic Beads	5 ml

Storage

At 2-8°C

Preparation before the experiment and precautions

1. Buffer: The following are commonly used buffer components, the user can adjust the salt concentration and pH of the buffer according to the experimental needs.

Buffer A (suitable for binding biotinylated nucleic acids): 10 mM Tris-HCl (pH 7.5), 1 mM EDTA, 1 M NaCl, 0.01%~0.1% Tween-20

Buffer B (for binding biotinylated antibodies/proteins): PBS, pH 7.4, containing 0.05% Tween-20, 0.01% to 0.1% BSA can be added as needed.

2. Instruments: magnetic separator, vortex oscillator, rotary mixer, pipette.

3. Consumables: suitable centrifuge tube and suction head.

4. Do not store the magnetic beads below 0°C.

5. Ensure that the magnetic bead solution is thoroughly vortexed and mixed before pipetting.

6. Use low retention pipette tips when aspirating magnetic beads to prevent loss due to bead adhesion to the tips.

7. Avoid high-speed centrifugation of the beads or prolonged placement on a magnetic rack, which may cause bead aggregation.

8. Excessive drying time can lead to cracking of the beads, affecting capture efficiency.

Protocol

Binding Biotinylated Nucleic Acids

1. Place the magnetic bead bottle on the vortex oscillator for 20 s and resuspend magnetic bead. Use the pipette to remove (for example) 100 µl magnetic beads into the new centrifuge tube. Place the centrifuge tube on the magnetic separator, let the magnetic separation sit for 1 min, suck the supernatant with the pipette, and remove the centrifuge tube from the magnetic separator. (The user can calculate the amount of magnetic beads needed to be taken according to the biotinylated molecular weight. Typically, 100 µl beads bind to about 20 µg of biotin-modified double-stranded DNA.)

2. Add 1 ml Buffer A to the centrifuge tube, cover the centrifuge tube and fully oscillate the resuspended magnetic bead. Magnetic separation for 1min, remove the supernatant.

Note: When the volume of magnetic beads used in step 1 is greater than 1 ml, add an equal volume of Buffer A.

3. Repeat "step 2" once more.

4. Add 500 µl of biotinylated nucleic acid diluted with Buffer A and fully oscillate the resuspended magnetic beads. Place the centrifuge tube on a rotating mixer and rotate mixing at room temperature for 30 min. (Vertical mixing speed should not be too high, 20-30 rpm is recommended.)

5. Magnetic separation, transfer the supernatant to a new centrifuge tube.

6. Wash magnetic beads three times according to the method of "Step 2".

7. According to the requirements of the follow-up experiment, add the appropriate low-salt buffer and re-suspend the magnetic bead, so that the biotinylated nucleic acids step is completed, and the magnetic bead can be used for the follow-up operation.

8. Users can calculate the amount of nucleic acid bound to the beads by measuring the concentration of nucleic acids before and after the reaction. [(pre-reaction concentration - post-reaction concentration) × reaction solution volume].

Binding Biotinylated Antibody/Protein Operation Procedure

1. Place the magnetic beads on the vortex mixer for 20 seconds to resuspend the beads. Use a pipette to transfer (for example) 100 µl of beads to a new centrifuge tube. Magnetize for 1 minute, use the pipette to remove the supernatant, and remove the centrifuge tube from the magnetic separator. (Users should calculate the necessary amount of magnetic beads based on the biotinylated molecule's mass. Typically, 100 µl of beads can bind approximately 20 µg of biotin-modified IgG.)

2. Add 1 ml Buffer B to the centrifuge tube, close the centrifuge tube cap, and fully oscillate the resuspended magnetic bead. Magnetic separation and remove the supernatant.

Note: When the volume of magnetic beads used in step 1 is greater than 1 ml, add an equal volume of Buffer B.

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3. Repeat "step 2" two more times for a total of three washes.

4. Add 1 ml of biotinylated antibody/protein diluted with Buffer B and fully oscillate the resuspended magnetic beads. Place the centrifuge tube on a rotating mixer and rotate mixing at room temperature for 60 min. (Vertical mixing speed should not be too high, 20-30 rpm is recommended.)

5. Magnetic separation, transfer the supernatant to a new centrifuge tube.

6. Wash magnetic beads five times according to the method of "Step 2".

7. According to the requirements of the follow-up experiment, add Buffer B or other suitable buffer and re-suspend the magnetic beads, so that the biotinylated antibody/protein binding step is completed, and the magnetic beads can be used for subsequent operations.