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Streptavidin Magnetic Beads

1 Contents

Cat. No.	Product Name	Package
HY-K0208-1 mL	Streptavidin Magnetic Beads	1 mL
HY-K0208-5 mL	Streptavidin Magnetic Beads	1 mL × 5
HY-K0208-10 mL	Streptavidin Magnetic Beads	1 mL × 10

2 General Information

MCE Streptavidin Magnetic Beads provide a fast and convenient method for numerous applications, including purification of proteins and nucleic acids, protein interaction studies, immunoprecipitation, immunoassays, pull-down and cell isolation.

MCE Streptavidin Magnetic Beads use recombinant streptavidin covalently coupling to the surface of the paramagnetic beads. Streptavidin, different from avidin, does not have the carbohydrate group, and therefore ensures low nonspecific binding.The biotinylated molecules (e.g. peptides, proteins, antibodies, sugars, lectins, oligonucleotides, DNA/RNA) bind to the beads due to the high affinity between streptavidin and biotin. Magnetic Beads are removed from the solution manually by using a magnetic stand or automatically by using an instrument.

3 Characteristics

Bead Concentration	10 ± 0.5 mg/mL
Mean Diameter	1 μm
Bind Capacity for Free Biotin	>2400 pmol/mg
Bind Capacity for Biotin-IgG	>60 μg/mg
Bind Capacity for Biotinylated oligonucleotides	>1600 pmol/mg
Application	Protein Purification, Nucleic Acids Purification, Immunoassays, Immunoprecipitation, Cell Isolation

4 General Protocol

Recommended Buffers	
Wash Buffer I (Nucleic acid applications)	10 mM Tris-HCl, 1 mM EDTA, 1 M NaCl, 0.01%-0.1% Tween-20, pH 7.5
Wash Buffer II (Antibody/Protein applications)	PBS, 0.05% Tween-20, pH 7.4, 0.01% - 0.1% BSA can be added as required.
Elution Buffer I (Nucleic acid Elution)	95% Formamide, 10mM EDTA, pH 8.2
Elution Buffer II (Antibody/Protein Elution)	0.1M Glycine (pH 2.0)

Note: The salt concentration and pH (typically 5-9) of the chosen buffers can be varied depending on the type of molecule to be immobilized.

1. Immobilization Nucleic Acids

(1) Resuspend the magnetic beads in the vial (or vortex for 20 seconds), transfer 100 µL of Streptavidin Magnetic Beads into a 1.5 mL tube (transfer amount may be adjusted as required). Place the tube into a magnetic stand to collect the beads against the side of the tube (Hereinafter referred to as magnetic separation). Remove and discard the supernatant.

Note: The amount of beads is sufficient for one reaction. Scale up the reaction as needed.

(2) Add 1 mL Wash Buffer I to the beads, invert the tube several times or vortex gently for 15 seconds to mix. Remove and discard the supernatant from magnetic separation. Repeat this step for 2 times.

(3) Add 500 µL of biotinylated nucleic acids diluted with Wash Buffer I, makes the beads at a final concentration of 2 mg/mL. Rotate the tube for 30 minutes at room temperature or 2 hours at 4ºC.

(4) Separate the biotinylated nucleic acids coated beads with a magnetic stand.

(5) Add 1 mL Wash Buffer I to the beads, invert the tube several times or vortex gently for 15 seconds to mix. Remove and discard the supernatant from magnetic separation. Repeat this step for 2 times.

Note: The amount of biotinylated nucleic acids can be calculated by measuring absorbance of the flow through along with absorbance of starting material.

2. Immobilization Antibodies/Proteins

(1) Resuspend the magnetic beads in the vial (or vortex for 20 seconds), transfer 100 µL of Streptavidin Magnetic Beads into a 1.5 mL tube (transfer amount may be adjusted as required). Place the tube into a magnetic stand to collect the beads against the side of the tube (Hereinafter referred to as magnetic separation). Remove and discard the supernatant.

Note: The amount of beads is sufficient for one reaction. Scale up the reaction as needed.

(2) Add 1 mL Wash Buffer II to the beads, invert the tube several times or vortex gently for 15 seconds to mix. Remove and discard the supernatant from magnetic separation. Repeat this step for 2 times.

(3) Add 1 mL of biotinylated antibodies/proteins with Wash Buffer II, makes the beads at a final concentration of 1 mg/mL. Rotate the tube for 60 minutes at room temperature or 2 hours at 4ºC.

(4) Separate the biotinylated antibodies/proteins coated beads with a magnetic stand.

(5) Add 1 mL Wash Buffer II to the beads, invert the tube several times or vortex gently for 15 seconds to mix. Remove and discard the supernatant from magnetic separation. Repeat this step for 5 times.

(6) Binding is now complete. Resuspend the beads in Buffer II or a buffer suitable for downstream applications to a desired concentration. Use the beads immediately, or store at 4ºC for later use.

3. Elution

3.1 Nucleic acid Elution

Step: Add 50–100 µL of Elution Buffer I to the magnetic beads, incubate for 5 minutes at 65°C or 2 minutes at 90°C, place on a magnetic rack, perform magnetic separation and collect the supernatant.

3.2 Antibody/Protein Elution

This manual provides the following two elution schemes, and the operator can choose different elution methods according to the needs of late detection.

a. Denaturation elution: The samples eluted by this method are suitable for SDS–PAGE.

Step: Add 50–100 µL of 1 × SDS-PAGE Loading Buffer to the magnetic beads, mix well and heat at 95°C for 5 minutes. Place on a magnetic rack, perform magnetic separation and collect the supernatant.

Note: If you choose denaturation elution, the eluent will contain streptavidin monomers and polymers, biotin-labeled antibody or protein.

b. Non-denaturation elution: The sample eluted by this method retains its original biological activity and can be used for later functional analysis.

Step: Add 50–100 µL Elution Buffer II to the magnetic beads and incubate at room temperature for 5-10 minutes. Place on a magnetic rack, perform magnetic separation and collect the supernatant, immediately add 1/10 volume of the total volume of Neutralization Buffer (0.1 M NaOH), adjust the pH of the eluted product to neutral, and the samples is used for later functional analysis.

Note: If you choose non-denaturation elution method, the streptavidin may be dislodged under acidic conditions, and the incubation time should not exceed 10 minutes. Acidic eluents can destroy most of the antibody and antigen interactions, you can wash the beads once with 1mL of 0.1% Tween-20 before elution.

5 Storage

Store at 4ºC， and is stable for up to 1 year.

6 Precautions

1. The pH of Streptavidin Magnetic Beads is 6-8.
2. Do not centrifuge, dry or freeze the magnetic beads.
3. To minimize protein degradation, protease inhibitor cocktails (MCE Cat. No.: HY-K0010, HY-K0011) are highly recommended.
4. For the best experimental performance, it is recommended to use the MCE magnetic stand (Cat. No.: HY-K0200).
5. This product is for R&D use only, not for drug, house hold, or other uses.