Streptavidin Beads T3

Product description

Streptavidin Beads T3 are ideal for many applications, including protein and nucleic acid purification, protein interaction studies, immunoprecipitation reactions, immunoassays, phage display, biological screening, drug screening, and cell isolation.

Add magnetic beads to samples containing biotinylated molecules such as peptides, proteins, antibodies, sugars, lectins, oligonucleotides, DNA, or RNA. After a short incubation, the biotinylated molecules will bind to the beads, and the bound molecular-bead complex can be separated by a magnet. Capture, cleaning, and inspection steps can all be optimized for manual or automated use. If an indirect capture of the target is required, the biotinylated molecules are mixed with the sample to form a molecular-target complex and magnetic beads are added to the sample.

Components and storage conditions

Components	Volume (mL)	concentration	Provide the form	Bead diameter (μm)	Storage conditions	Recommended amount of protein binding
Streptavidin Beads T3	1 or 5*1 mL	10 mg/mL	PBS, pH 7.4 / 0.1% BSA / 0.02% NaN_3	3	Store at 2-8˚C	10 μg IgG/mg

*Note: The beads are present in phosphoric acid buffer at pH 7.4 with 0.1% BSA and 0.02% NaN3 as preservatives. Store the product for 1 year.

Characteristics and nature

- Hydrophobic magnetic bead surface
- Benzyl-activated magnetic beads
- Use BSA as a blocking protein
- Isoelectric point: pH 5.0
- Low charge (-10 mV at pH7)
- Iron content (ferrite) 12% (17%)

Experimental manipulation

1. Prepare before the experiment.

■ **Configure the wash and elution buffers.**

Applied to nucleic acids	Applied to RNA	Apply to protein-bound or other molecules
■ **Bind or wash (B&W) buffer (2X):** 10 mM Tris-HCl (pH 7.5) 1 mM EDTA 2 M NaCl ■ **Eluent:** 95% formamide, 10mM EDTA, pH 8.2	■ **cleaning buffer:** Solution A: DEPC-treated 0.1 M NaOH DEPC-treated 0.05 M NaCl Solution B: DEPC-treated 0.1 M NaCl	■ **Binding or cleaning buffer:** PBS buffer pH 7.4 Depending on your needs, you can also use the following buffers: PBS/BSA (PBS, pH 7.4 including 0.01% [w/v] BSA) PBST (PBS pH 7.4 including 0.01% [v/v] Tween-20) ■ **Eluate (choose one):** 0.1M Glycine (pH2.0)、1.0 M Tris-HCl pH 9.0,0.15 M NaCl; SDS-PAGE Loading Buffer;

*Note:

I. The salt ion concentration and pH selection of the binding/cleaning buffer varies depending on the type of molecule of interest, typically the buffer has a pH of 5-9. Magnetobeads bound to molecules are stable in common buffers.

II. 2×B&W buffer applied to nucleic acids can be diluted into 1×B&W buffer with distilled water.

2. Clean the beads.

2.1 Vortex for 30 sec, or rotate obliquely for 5 min to resuspend the magnetic beads in the bottle.

2.2 Calculate the amount of beads required according to the binding capacity of the beads, and remove the appropriate volume of magnetic beads and place them in a new centrifuge tube.

2.3 Add an equal volume or at least 1 mL of 2X B&W buffer to resuspend the magnetic beads.

2.4 Place the centrifuge tube containing the magnetic beads on a magnetic stand for 1 min to settle the magnetic beads at the bottom of the tube, carefully removing the supernatant from the centrifuge tube.

2.5 Remove the centrifuge tube from the magnetic stand and resuspend the magnetic beads by adding a volume of 2X B&W buffer equal to the initial beads (step 2.2).

2.6 Repeat steps 2.4-2.5 twice for a total of 3 washes of the beads.

#Protein samples can be used with the corresponding amount of binding or washing buffer.

3. RNA sample beads are cleaned again (RNA sample option)

The solution we provide for the presence of streptavidin, which has not been treated for RNase removal, follow these steps after washing the beads:

3.1 Wash the magnetic beads with solution A for 2 min and wash twice a time. The volume of solution A is the same (or more) as the volume of the initial bead.

3.2 Wash the magnetic beads 1 time with solution B, the volume of solution B is the same as solution A.

3.3 Resuspend the beads with solution B.

After treatment, the beads bind to the biotinylated molecule of your choice.

4. General operating procedures (fixed).

Before using the beads, perform the "Clean the beads" procedure.

4.1 Add the sample containing the biotinylated molecule to the centrifuge tube containing the magnetic beads.

4.2 Place the centrifuge tube on a rotator and spin slowly and incubate for 15-30 min at room temperature.

4.3 Place the centrifuge tube on a magnetic stand for 2-3 min to settle the magnetic beads at the bottom of the tube, and carefully remove the supernatant from the centrifuge tube.

4.4 Wash the incubated beads 3-4 times with 1X B&W buffer.

4.5 Resuspend the washed beads to the concentration required for downstream experiments.

The following are examples of how to apply to different samples:

■ Applied to nucleic acids:

A. After washing (step 2, step 3 (optional)) and removing the liquid，resuspend the beads with 2× B&W buffer and bring them to a final concentration of 5 μg/μL.

B. To maximize binding efficiency, add a volume of distilled water such as biotinylated DNA or RNA to dilute the sodium chloride content in 2× B&W buffer.

C. Place on a rotator and spin slowly and incubate for 15 min at room temperature. The incubation time is determined by the length of the nucleic acid: short-chain oligonucleotides (less than 30 bases) can be incubated for 10 minutes. DNA fragments longer than 1 kb need to be incubated for 15 min.

D. Place the centrifuge tube on a magnetic stand for 2-3 min, allow the beads to settle at the bottom of the tube, and carefully remove the upper solution to achieve the separation of the molecule of interest from the sample.

E. Wash the beads 2-3 times with 1× B&W buffer.

F. Elution: Add 100 μL or an appropriate amount of eluate (eluent prepared before the experiment for nucleic acids or RNA), incubate at 65ºC for 5 min or 90ºC for 2 min; Eluted samples can be used for downstream experiments.

■ Apply to antibodies or proteins:

A. Incubate the biotinylated antibodies and magnetic beads in PBS for 30 min at room temperature and place on a rotator to spin slowly.

B. Place the centrifuge tube on a magnetic stand for 2-3 min, allow the beads to settle at the bottom of the tube, and carefully remove the upper solution to achieve the separation of the molecule of interest from the sample.

C. Wash the beads 4-5 times with PBS containing 0.1% BSA.

D. Elution: According to the characteristics of the nucleic acid or protein of interest and the requirements of subsequent experiments, one of the following methods or other suitable methods can be selected for elute.

Way 1: **Elution with acid elution buffer (0.1 M Glycine pH 2.0).**

Add 100 μL or an appropriate amount of eluate to each sample, mix well, place on a rotary mixer, and incubate for 5 minutes at room temperature. It is then placed on a magnetic rack to separate for 1 min and the supernatant is transferred to a new centrifuge tube.

Add 100 μL of neutralizing solution to each centrifuge tube, 1.0 M Tris-HCl pH 9.0, and 0.15 M NaCl neutralization to obtain the eluate.

The eluate is set aside at 4 °C or stored at -20 °C or -80 °C for a long time.

Note 1: Streptavidin shedding may occur with elution of acid elution buffer, and care should be taken not to incubate for more than 10 minutes.

Note 2: Acidic elution buffer destroys most antibody-antigen interactions. However, to ensure better elution results, the beads can be washed once in advance with 300 μL of 0.1% Tween-20 in water.

Way 2: SDS-PAGE Loading Buffer or 0.1% SDS Elute

Add 100 μL or an appropriate amount of 1X SDS-PAGE Loading Buffer or 0.1% SDS to each sample and heat at 95ºC for 3 min. Place on a magnetic rack for 1 min and take the supernatant for SDS-PAGE electrophoresis or Western detection.

Note: If SDS-PAGE Loading Buffer or 0.1% SDS is selected for elution, the eluate will contain streptavidin monomer and dimer, biotin-labeled antibodies, or proteins.

Notes

1. Place the centrifuge tube containing the beads on the magnetic stand for 2 min to ensure that all the beads are collected to the bottom of the tube.
2. For diluted samples, the incubation time can be increased, or the sample can be divided into several small portions.
3. Avoid mixing air when transferring samples and beads with a pipette.
4. Free biotin in the sample reduces the binding capacity of the beads. Unbound biotin can be removed using a single-use separation column or a rotating column.
5. For some experiments, a detergent (e.g., 0.01-0.1% Tween-20) can be added to the B&W buffer unless

specifically conjugated.

6. The concentration of biotinylated primers can be controlled during PCR, or biotinylated primers can be removed by ultrafiltration, microdialysis, etc.

7. The centrifuge tube containing the beads is rotated on the rotator to avoid the beads settling to the bottom of the tube.

8. This product is for scientific use only.

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