BeaverBeads™ Magrose DEAE

Product introduction

BeaverBeads ™ Magrose DEAE is weak anion exchange beads with fast magnetic response, high ion exchange capacity and high protein binding capacity. The ion exchange ligand is diethylaminoethyl (DEAE), which is still able to maintain a stable high protein binding capacity even at pH 3-12 environment.

Compared to traditional column chromatography, Magrose DEAE beads do not require pretreatment of crude protein samples (eg, repeated tedious centrifugation and time-consuming filtering operation). In addition, there is no need to control flow rates, column pressures, and no need expensive Chromatography equipment. For skilled operators, they will be able to complete the extraction of high purity protein in a very short period of time, and can easily parallelly treat a number of samples to achieve high-throughput protein purification.

Product Information

Product name	BeaverBeads™ Magrose DEAE
Bead size	30~150μm
Ion exchange type	Weak anionic group
Ion-exchange capacity	110~170μmol/mL Gel
Protein binding capacity	≥110mg BSA/mL Gel
Preserving solution	20% ethanol
Suspension concentration	10%(v/v) magnetic beads suspension
Preservative temperature	2℃~30℃（long-term preservation, recommended at 2℃~8℃）
Working pH range	3-12
Validity	2 years at 2℃~8℃

Note: 1. Protein binding capacity is related to the target protein characteristics, this is only for reference;
2. 1 mL magnetic beads suspension contains 100 μL of magnetic beads.

Product advantages

1. Faster magnetic response, less operating time
2. Magnetic beads have good dispersion and resuspend ability, convenient operation
3. The ligand has good physical and chemical stability, improving the reliability and repeatability of the experimental results

Operation process (e.g. purify BSA protein samples)

1. **Magnetic bead pretreatment (balance):** Treat the Magrose DEAE beads with vortex oscillation for 30 s, to make the magnetic beads fully resuspended; add a certain amount of 10%(v/v) magnetic beads to a 50 mL centrifuge tube. Magnetic separation, then discard the supernatant, and add 20 mL of equilibration buffer to wash the beads for 3 times, each time keep the vertical mixing for 2 min.

Note: In order to obtain the maximum recovery rate of the target protein, the operator needs to add excessive Magrose DEAE beads, which are generally greater than 20% of the binding protein. For the samples with lower target protein, the recovery rate of the target protein will be reduced, so operator needs to continue to increase the amount of magnetic beads;

2. **Protein Adsorption:** Add pre-treated beads to the BSA sample solution and swirl for 30 s, place them in a vertical mixer for 30 ~ 60 min to make the sample and the magnetic beads fully mixed, then magnetic separation and remove the supernatant.

Note: For more efficient adsorption of the binding material, the equilibration buffer preferably contains a lower ionic strength, and the selected pH should be at least one pH difference from the isoelectric point of the target protein, and the selected salt buffer pH should fluctuate within 0.5 pH or less. The adsorption time of the target protein are related to the properties of the protein itself.

3. **Magnetic bead washing:** add 20 mL of equilibration buffer, swirl the magnetic beads to resuspend for 30 s and then magnetic separation and remove the supernatant. Repeat this step for 3 times.
4. **Protein elution:** Add an appropriate amount of eluent to the above-mentioned centrifuge tube for magnetic bead washing. Blow with a pipette or swirl to make it resuspended quickly, and then put centrifuge tube in a vertical mixer for 10 ~ 15 min. Then magnetic separation, collect supernatant to the new centrifuge tube. The elution method includes high salt concentration elution (equilibration buffer containing 1-2 M NaCl) and low pH elution (select the pH value less than that of the target protein isoelectric point).
5. **Magnetic beads regeneration:** Generally, 2 M NaCl solution is used to wash 3 ~ 5 times, and then balanced with the equilibrium buffer solution. After repeated use of the beads there will be precipitated protein, strong hydrophobic protein, lipoprotein and other impurities non-specific adsorption to the beads, in order to ensure the efficiency of the beads, it is recommended to carry out clean in place (CIP).
6. **Clean in Place (CIP):** In turn, using 1.0 M NaOH, 70% ethanol or 30% isopropanol and purified water to wash the beads twice accordingly, and then add 20% ethanol to resuspend the beads and store at 2 to 8 ° C.

Note

1. This product should not be frozen, dried or centrifuged. Freezing, drying and centrifugation will cause the beads to agglomerate, hardly resuspend and disperse and affect the chemical activity of beads surface functional group.
2. Before using this product, be sure to fully oscillate or ultrasound to keep the beads in a uniform suspension.
3.For requirement, purified water or buffer can be used to wash magnetic beads 2 to 3 times to remove the ethanol, the preservative solution.
4. This product must be used with magnetic separator.
5. Salt concentration and pH value will affect the binding and elution of specific proteins, customers need to explore the different protein binding and elution conditions to ensure the amount of protein purification and purity.
6. This product is for research use only.

Products list

Cat No.	Product name	Specification
70809-5	BeaverBeads™ Magrose DEAE	5 mL
70809-100		2×50 mL
70809-1000		4×250 mL

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