BeaverBeads™ COOH

Product Introduction

BeaverBeads™ Mag COOH series have following characteristics: superparamagnetism, fast magnetic respond, high density of carboxyl functional groups, mono-dispersity and submicron scale size etc.. When it is under special chemical reagent (eg. EDC), polypeptide, protein, oligonucleotide and other bioligands can be covalent coupling to the surface of microspheres. BeaverBeads™ Mag COOH series are important research tools of the medical and molecular biology.

BeaverBeads™ Magrose COOH series adopt advanced polymer technology combining with superparamagnetic materials and polymer materials to form a new functional magnetic microsphere. Compared with the traditional magnetic beads, Magrose has faster magnetic respond, better dispersibility, lower non-specific adsorption and more binding site. It can easily and efficiently combine with a variety of biological ligands (proteins, peptides, oligomeric nucleotide, drug molecules, etc.), and can be used as a good material for surface covering, adsorption, chemical modification and subsequent processing.

Product Information

Product name	Mag COOH		Magrose COOH
Mean particle size	2 μm single dispersion	5 μm single dispersion	30~150 μm
Surface carboxyl content	~200 μM/g	~200 μM/g	~50 μM/mL gel
Magnetic core	Fe_3O_4	Fe_3O_4	Fe_3O_4
Shell	polymer	polymer	Magrose
Magnetic type	superparamagnetism	superparamagnetism	superparamagnetism
Saturation magnetization	46.37 emu/g	45.56 emu/g	42.13 emu/g
Preservation solution	20% ethanol solution		
Preservative temperature	2℃~30℃（for long-term preservation, recommend to store at 2℃~8℃）		
* water average particle size, Malvern Nano determination			

Product Advantages

1. More binding sites and more specific binding with ligands.
2. Superparamagnetic and fast magnetic respond to save operation time.
3. Good dispersability and resuspensionability to improve the efficiency.
4. Good physical and chemical stability to ensure repetitive results.

Coupling method between magnetic beads and biomolecules (taking protein A as an example)

A.**Magnetic beads surface carboxyl activation**

1.After blending magnetic beads, take 100μL Mag / Magrose beads to 1 mL centrifuge tube, magnetic separation, then remove the supernatant, and wash with 200 μL MEST solution (100 mM MES, pH 5.0, 0.05% Tween 20), repeat washing twice, then remove the supernatant;

2.Immediately add fresh-made 100μL EDC solution (10 mg/mL, with the above MEST solution as preservative) and 100 NHS (10, with the MEST solution as preservative) solution to the centrifuge tube with magnetic beads, vortex oscillating magnetic beads until fully suspended, activate at 25℃ for 30 min and keep the magnetic beads suspended during the activation (can use vertical mixing apparatus). Till then, the carboxyl group on the magnetic bead surface has been activated and can be covalent coupling with the biological ligand with the primary amine. (The activation state should not be kept for a long time, recommended to operate coupling immediately).

B.The covalent coupling between magnetic beads and biological ligands

- 1. Magnetic separation, then remove the supernatant, and add 50 g to 200 g biological ligands (need other experiments to choose appropriate dosage and concentration, keep the solution pH at 8.0, can add 0.05% Tween 20 to improve dispersibility of the magnetic beads, avoid primary amino in the buffer system besides biological ligands), gently blending;
- 2. 25 ℃ coupling 2 h, or after 1 h at 25 ℃ coupling then place at 4℃ overnight for incubation, keep magnetic beads suspended during coupling (can use vertical mixing apparatus);
- 3. Magnetic separation, then remove the supernatant, and add 200μL PBST solution (pH 7.2, and contain 1% BSA) to resuspend magnetic beads (ultrasonic can be considered if necessary), 25 ℃ waiting for 1 h to close uncoupled activated carboxyl groups, keep the magnetic beads suspended during the closing;
- 4. Magnetic separation, then remove the supernatant, use 200μL PBS solution (pH 7.2) or preservative solution washing three times to make magnetic beads resuspended in the preservative solution again (the amount of the solution added can be determined by the concentration of the coupling ligand magnetic beads), store at 4 ℃. If the biological ligands are stable, 0.02% (W/V) sodium azide (NaN3) can be added to the preservative solution as a bacteriostatic agent.

Note

- 1. This product should not be frozen, dried or centrifuged, which will cause the agglomeration, and affect the chemical activity of surface functional group.
- 2. Before using this product, be sure to fully oscillate or ultrasonic to keep the beads in a uniform suspension.
- 3. According to the needs, ethanol in the preservative solution can be removed by washing with pure water or buffer liquid for 2~3 times.
- 4. This product must be used with magnetic separator.
- 5. To ensure optimal experimental results, please select appropriate ligands for covalent coupling reactions.
- 6. This product is for research use only.

Product list

Cat. No.	Product name	Specification	Size	Concentration
70102-5	BeaverBeads™ Mag COOH	5mL	2 μm	10 mg/mL
70102-50	BeaverBeads™ Mag COOH	50mL	2 μm	10 mg/mL
70105-5	BeaverBeads™ Mag COOH	5mL	5 μm	10 mg/mL
70105-50	BeaverBeads™ Mag COOH	50mL	5 μm	10 mg/mL
70103-50	BeaverBeads™ Magrose COOH	50 mL	30~150μm	20% (v/v)

For support, please visit: www.beaverbio.com/support or email: Service@beaverbio.com