Mag COOH carboxyl magnetic beads

Cat： M2130 /M2131 /M2140 /M2141 /M2142 /M214

Storage： Store at 2-8℃, and it is valid for 2 years.

Product Information:

Type of Product		Mag COOH				Magrose COOH
Mean Particle Size	2.8μm (monodispersion)	1μm (monodispersion)	2μm (monodispersion)	5μm (monodispersion)	300nm	30~150μm
Surface Carboxyl Content	≥160μmol/g Potentiometr Titration	≥230μmol/g Potentiometr Titration	≥180μmol/g Potentiometr Titration	≥80μmol/g Potentiometr Titration	≥70μmol/g Potentiometr Titration	≥120μmol/mL gel
Shell Layer	Polymer					Agarose
Preservation Solution	Purified Water, 0.05%(V/V） proclin300	20% ethanol solution				
Magnetic Core	Fe_3O_4					
Magnetic Type	Superparamagetism					
Expiration Date	It can be stably stored at 2~8℃ and is valid for 2 years (it can be stored and transported for a short time at room temperature).					

Introduction：

Mag COOH series magnetic beads have the characteristics of superparamagneties, fast magnetic responsiveness, rich carboxyl functional groups, monodispersibility and submicron particle size. Mag COOH series magnetic beads can covalently conjugate peptides, proteins, oligonucleots and other biological ligands to the surface of microspheres under the action of special chemical reagents (such as EDC), which is an important carrier tool in medical and molecular biology research.

Magrose COOH series magnetic beads use advanced polymer polymerization technology to perfectly combine superparamagnetic materials and polymer materials together to form a new type of functional magnetic microspheres. Compared with traditional magnetic beads, Magrose has faster magnetic responsiveness, while maintaining good dispersion of microspheres, very low non-specific adsorption and more abundant binding sites. It can conveniently and efficiently bind to a variety of biological ligands (proteins, peptides, oligonucleots, drug molecules, etc.) for high loading. It can be used as a good basic material for coating, adsorption, chemical modification and other subsequent treatments.

Product Advantages:

1. Abundant binding sites to enhance specific binding to ligands.
2. Superparamagnetism and high magnetic responsiveness, saving operation time.
3. Good dispersion and resuspension, improve the convenience of operation.
4. Good physical and chemical stability, ensure the repeatability.

Methods for coupling magnetic beads to biomolecules (reference, take protein A as an example) :

A. Activation of carboxyl groups on the surface of magnetic beads

1. After mixing the magnetic beads, take 100μL Mag COOH/Magrose COOH magnetic beads into a 1mL centrifuge tube, magnetically separate to remove the supernatant, and magnetically separate and wash twice with 200μL MEST solution (100 mM MES, pH 5.0, 0.05%Tween 20). Then remove the supernatant;
2. Quickly add 100μL EDC solution (10 mg/mL, with the above MEST solution as dispersant) and 100μL NHS (10 mg/mL, with the above MEST solution as dispersant) into the centrifuge tube equipped with magnetic beads, vortex mix to fully suspend the magnetic beads, and activate at 25 ° C for 30 min. During this period, the magnetic beads were kept in the suspended state (the vertical mixer could be used for reverse mixing). After the above steps, magnetic particles on the surface of the carboxyl has been activated, can with biological ligands with "amino covalent coupling. (The activated state should not be stored for a long time, and it is recommended to perform the coupling immediately)

B. Covalent coupling of magnetic beads to biological ligands

1. Magnetic separation to remove the supernatant, adding biological ligands including (including 50 g to 200 g (dosage, concentration and optimized buffer type need according to the concrete experiment, ligand buffer may refer to the following several kinds: 2-100 - mm morpholine ethyl sulfonic acid buffer, pH 4.8. 200 mm sodium bicarbonate buffer, pH 8.5; 100mM phosphate buffer; 100mM sodium chloride solution, pH 7.4, etc. Tween 20 (0.05%) could be added to the buffer solution to improve the dispersion of magnetic beads and avoid the presence of reagents containing primary amino groups other than biological ligands in the buffer system.
2. 25℃ coupling 2 h, or 25℃ coupling placed 4℃ after 1 h incubation overnight, keep coupling between magnetic beads suspended state (vertical mixing apparatus are available reverse blending);
3. The centrifugal tube placed in the magnetic separation on magnetic separation to remove the supernatant, add in 200 (including L PBST solution (pH 7.2, and 1% BSA) suspension magnetic beads (according to the need for ultrasonic), 25℃ 1 h closed magnetic bead surface reaction activation of carboxyl groups, During this period, the magnetic beads were kept in the suspended state (the vertical mixer could be used for reverse mixing).
4. The centrifuge tube was placed on a magnetic separator to magnetically separate and remove the supernatant. After washing with 200μL PBS solution (pH 7.2) or preservation solution for 3 times each time, the supernatant was re-suspended in the preservation solution (the amount of preservation solution can be determined according to the need to adjust the concentration of coupling ligand magnetic beads) and stored at 4℃. If the immobilized biological ligand is stable, 0.02% (w/v) sodium azide (NaN_3) can be added to the preservation solution as a bacteriostatic agent.

Note:

1. The freezing and drying, and centrifugal operation will cause magnetic beads together, is not easy to hang and dispersed, and affects the chemical activity of the magnetic bead surface functional groups.
2. Before using this product, be sure to fully shake or ultrasonic to make the magnetic beads in a uniform suspension state.
3. During use, magnetic beads can be washed 2 to 3 times with purified water or buffer solution to remove ethanol in the preservation solution according to demand.
4. This product needs to be used with magnetic separation equipment.
5. In order to ensure the best experimental results, please select the appropriate ligand for covalent coupling reaction.
6. This product is for research use only.