



Amine Magnetic Beads

Catalog No. MBFB-02001, MBFB-02002

【Introduction】

Amine Magnetic Beads are nano-superparamagnetic beads coated with primary amine functional groups, which can be used to covalently conjugate primary amine or carboxy-containing ligands. After coupling, the beads can be separated from the solution using magnet for downstream experiments, such as enzymatic reactions or immunopurification of other large molecules.

【Product Specifications】

- **Diameter:** 500nm
- **pH stability:** pH 4-12
- **30min sedimentation rate:** <0.1%
- **Magnetic response rate:** >30emu/g
- **Solvent:** 20% ethanol
- **Binding capacity:** 50-500 μ g protein per mg amine magnetic beads

【Product Content】

<i>Catalog No.</i>	<i>Conc. (mg/ml)</i>	<i>Volume (ml)</i>	<i>Amount of Beads (mg)</i>
MBFB-02001	50	2	100
MBFB-02002	50	20	1000



【Coupling Protocol】

The following protocol provides general guidelines for the coupling of proteins to 500 μ l of Amine Magnetic Beads. The protocol is scalable. Optimization of the coupling conditions (protein concentration, coupling buffer, pH, and incubation time) for the ligand of interest is recommended.

A. Notes

1. The following protocol is an example for coupling primary amine-containing ligands to Amine Magnetic Beads. Amine Magnetic Beads can also couple with carboxy-containing ligands and general protocols for such reaction are applicable.
2. Ionic strengths of the coupling buffers are critical to obtain a higher coupling efficiency rate. The coupling buffers should be at minimal ionic strengths and should not contain any amino (e.g. Tris) or carboxyl groups (e.g. acetate and citrate). But the wash or storage buffers can contain amino or carboxyl groups.
3. The protein concentration should be optimized. Too low a protein concentration may result in bead crosslinking.
4. Solutions containing glutaraldehyde or pyridine are volatile and noxious. Please perform operations with these solutions in a chemical fume hood.

B. Additional materials required

1. Coupling Buffer: 10mM pyridine (Add 0.8ml of pyridine to 900ml of water, adjust the pH to 6 with HCl, and add water to a final volume of 1.0L.)
2. 5% Glutaraldehyde Solution: add 5ml of 25% aqueous glutaraldehyde solution to 20ml of Coupling Buffer.
3. Quenching Solution: 1.0M glycine (Dissolve 7.5g of glycine in 90ml of water, adjust the pH to 8 with 10N NaOH, and add water to a final volume of 100ml.)
4. Washing Buffer: 0.01M Tris base containing 0.15M NaCl, 0.1%(w/v) BSA, 0.001M EDTA (sodium salt) and 0.1%(w/v) sodium azide (Dissolve 1.21g of Tris base, 8.7g of NaCl, 1g of BSA, 0.37g of EDTA (sodium salt) and 1.0g of sodium azide in 900ml of water. Adjust the pH to 7.4 with HCl. Add water to a final volume of 1.0L.)
5. Protein Solution: prepared in Coupling Buffer. Protein concentration is typically 1-10mg/ml.
6. A magnetic stand



C. Bead activation

1. Gently mix the magnetic beads thoroughly before use by shaking.
2. Place 200µl of magnetic beads (10mg) into a microcentrifuge tube.
3. Place the tube into a magnetic stand, collect the beads and discard the supernatant.
4. Wash the beads three times with Coupling Buffer (1ml each time) by magnetic separation.
5. Re-suspend the beads by adding 400µl of 5% Glutaraldehyde and shake. Incubate at room temperature for 3hrs with gentle rotation.
6. Separate beads using a magnet and remove the supernatant.
7. Wash beads three times with 1ml Coupling Buffer to remove unreacted glutaraldehyde.

D. Coupling of protein

1. Add 200µl protein solution into the tube containing activated beads and mix well by shaking. Incubate for 24hrs at room temperature with gentle rotation.
2. Separate beads using a magnet and remove the supernatant.
3. Add 800µl of Quenching Solution into the tube. Shake to suspend the beads. Gently shake for 30min at room temperature.
4. Wash the beads with 1ml Washing Buffer three times.
5. Suspend the beads with a desired volume of Washing Buffer or in a buffer compatible with the attached protein. Store at 4° C until ready for use.

【Storage】

Stored at 2-8°C, 2 years.

【Manufacturer】

Avanbio, ABF-02001, ABF-02002