NHS Magnetic Beads

Catalog No. MBFB-04000 / 04001 / 04002

【Introduction】

NHS Magnetic Beads are nano-superparamagnetic beads coated with NHS (N-hydroxysuccinimide) functional groups, which react with primary amines on nucleic acid, protein, antibodies or other molecules to form stable amide linkages. After coupling, the beads can be separated from the solution using magnet for downstream experiments, such as enzymatic reactions or immunoprecipitation of large molecules.

【Product Specifications】

- **Diameter:** 500nm
- **pH stability:** pH 4-12
- **30min sedimentation rate:** <0.1%
- **Magnetic response rate:** >30emu/g
- **Solvent:** N,N-dimethylacetamide (DMAC)
- **Binding capacity:** 10-100μg protein per mg NHS magnetic beads

【Product Content】

Catalog No.	*Conc. (mg/ml)*	*Volume (ml)*	*Amount of Beads (mg)*
MBFB-04000	10	1	10
MBFB-04001	20	1	20
MBFB-04002	20	5	100

【Coupling Protocol】

The following protocol provides general guidelines for coupling of proteins or antibodies to NHS 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. Primary amine-containing buffers (e.g., Tris and glycine) inhibit coupling of protein to the magnetic beads. If protein is dissolved in a buffer containing primary amine, remove the buffer using dialysis or desalting.
2. The protein concentration should be optimized. Too low a protein concentration may result in bead crosslinking.

B. Additional materials required

1. Washing Buffer: Phosphate-buffered saline (PBS), pH 7.4
2. Coupling Buffer: 150mM NaCl, 0.01% Tween-20, 50mM MES, pH7.0
3. Quenching Buffer: 150mM NaCl, 100mM Tris-HCl, pH7.0
4. Protein solution: Dissolve protein in 5ml of Coupling Buffer. Protein concentration is typically 1-10mg/ml
5. A magnetic stand

C. Coupling of protein

1. Gently shake to mix the magnetic beads thoroughly before use.
2. Place 200µl of magnetic beads (10mg) into a microcentrifuge tube. The amount of beads can be optimized for individual application by titration.
3. Place the tube on a magnetic stand, collect the beads and discard the supernatant.
4. Wash the beads twice with Washing Buffer (1ml each time) by magnetic separation, and re-suspend the beads in 5ml of Coupling Buffer.
5. Add 5ml of the protein solution to 5ml of the bead suspension; mix thoroughly and incubate for 2-4 hrs at room temperature or overnight at 4°C on a rotator.
6. Add 2ml of Quenching Buffer to the beads and incubate for 2-4 hrs at room temperature or overnight at 4°C on a rotator.
7. Collect the beads with a magnet and discard the supernatant.

8. Wash the beads for 15 min with Quenching Buffer (1ml each time) followed by magnetic separation. Repeat the wash one more time.
9. Suspend the beads with 1ml of Quenching Buffer or in a buffer compatible with the attached protein. Store at 4ºC until ready for use.

【Storage】

Stored at 2-8°C, 2 years.

【Manufacturer】

Avanbio, ABF-06001, ABF-06002

【Troubleshooting】

A. Protein is not soluble in coupling buffer
Protein may be hydrophobic. DMSO (up to 20%) can be added to Coupling Buffer before dissolving the protein.

B. Coupling efficiency is low
Buffer containing primary amine is not completely removed. Please desalt or dialyze protein sample before coupling to completely remove primary amine such as Tris and glycine.