

MagRBR enzyme carrier resins

Guidelines for enzyme immobilization



SpinChem® MagRBR ECR screening kit

Specifications

The SpinChem® ECR screening kit contains six MagRBRs pre-filled with Purolite® Lifetech™ enzyme carrier resins (ECR) for enzyme immobilization. This screening kit supports different types of immobilization principles, due to resins with a variety of functional groups.

Below follows specifications for the resins included in the SpinChem® ECR screening kit.

B31	ECR8204F:	Epoxy methacrylate macroporus, 150-300 µm, pore size 300-600 Å, stable pH range 5-9.
B32	ECR8309F:	Amino methacrylate macroporus, 150-300 µm, pore size 600-1200 Å, stable pH range 3-10.
B33	ECR8285:	Epoxy/butyl methacrylate macroporus, 100-710 µm, pore size 400-600 Å, stable pH range 5-9.
B34	ECR8806F:	Octadecyl methacrylate macroporus, 150-300 µm, pore size 500-700 Å, stable pH range 2-10.
B35	ECR1090M:	Polystyrenic macroporus, 300-710 µm, pore size 900-1100 Å, stable pH range 1-14.
B36	ECR1030M:	DVB/methacrylate macroporus, 300-710 µm, pore size 220-340 Å, stable pH range 1-14.

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Immobilization Guidelines

Note: All below listed steps are recommended to be performed at 1000 rpm and ambient temperature, unless otherwise stated.

Resin equilibration

The SpinChem® MagRBR ECR screening kit is shipped in dry form. Depending on the immobilization method, resins may require re-hydration prior to protein loading steps. To do this, spin the MagRBR in 5 mL ethanol (20 %) for 2-24 h.

Enzyme solution

Based on the enzyme used, the enzyme solution should be prepared either in water or in a suitable buffer. The recommended protein loading is 50-200 mg of protein per gram of dry resin. To ensure that the MagRBR is completely submerged in solution at all times, the volume of the enzyme solution should be no less than 5 mL.

Immobilization on hydrophobic and epoxy ECR resin (ECR8204F, ECR8285, ECR8806F, ECR1090M, ECR1030M)

After equilibrating the resin, wash the MagRBR by spinning it in 2 x 5 mL dH₂O or suitable buffer solution for a minimum of 5 min. After removing the washing solution, spin the MagRBR for 1-24 h in enzyme solution. To monitor the process, samples can be withdrawn from the protein solution during the immobilization span by use of a pipette. No filtration step is required. Following complete immobilization, wash the MagRBR from excess enzyme solution by spinning it in 5 mL dH₂O or suitable buffer for at least 5 min.

Immobilization of amino-functionalized ECR resin (ECR8309F)

Prior to enzyme immobilizing, amino-functionalized resin requires activation of the functional groups by glutaraldehyde. Wash the MagRBR in 2 x 5 mL of potassium phosphate buffer (0.02 M, pH 8) for a minimum of 5 min. After removing the washing solution, incubate the MagRBR by spinning it for 1 h in 5 mL of 2 % glutaraldehyde solution in potassium phosphate buffer (0.02 M, pH 8). Wash the MagRBR with 4 x 5 mL of dH₂O, followed by 4 x 5 mL of suitable immobilization buffer. Each of these steps should be run for a minimum of 5 min. After removing the washing solution, prepare the enzyme solution as previous described under [Enzyme solution](#), and spin the MagRBR in the solution for 1-24 h. To monitor the process, samples can be withdrawn from the protein solution during the immobilization span by use of a pipette. No filtration step is required. Following complete immobilization, wash the MagRBR from excess enzyme solution in 5 mL dH₂O or suitable buffer for at least 5 min.

Storage

After proper washing, the MagRBR should be stored refrigerated at 2-8°C. Do not freeze the MagRBR as this can compromise the integrity of the filter and resin beads.



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