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BioMag® Maxi Carboxyl

Catalog Number: 84130

DESCRIPTION

BioMag® Maxi Carboxyl is an aqueous suspension of ~3-12µm magnetic particles modified to provide surface primary carboxyl groups. The non-spherical particles are irregular-shaped clusters of iron oxide with a broad size distribution. The irregular shape of these particles provides much greater surface area than similarly-sized spherical particles resulting in high binding capacities and efficient capture of target with conservative use of particles. The carboxyl groups allow for the covalent attachment of ligand with retention of biological activity.

CHARACTERISTICS

Mean Diameter: 3-12µm
Particle Concentration: 20 mg/ml

PROCEDURE

Researchers are advised to optimize the use of particles in any application.

Preparation of Solutions

Solution	Composition	Materials	Comments
Coupling Buffer	0.01M K_2HPO_4 0.15M NaCl	1.74g K_2HPO_4 8.7g NaCl	Add solids to H_2O. Adjust to pH 5.5. Adjust to 1l.
Coupling	EDAC Agent	40mg/70ml	Store at -20˚C, dessicated, H_2O when not in use. Warm to room temperature before use. Use immediately.
Wash Buffer	0.01M Tris 0.15M NaCl 0.1% w/v BSA 0.1% NaN_3 0.001M EDTA	1.21g Tris 8.7g NaCl 1g BSA 1g NaN_3 0.37g EDTA	Dissolve solids. Adjust to pH 7.4 with NaOH or HCl. Adjust to 1l with water.

Activation

1. Transfer 10ml of BioMag® Maxi Carboxyl (200mg particles) to a reaction flask that will easily contain the maximum volume of 20ml used in the Protein Coupling procedure.
2. Add Coupling Buffer to a final volume of 20ml. Shake vigorously and magnetically separate, placing the flat side of the vessel alongside the magnetic separator, until the supernatant is clear (approximately 10 minutes). Aspirate the supernatant, leaving the BioMag® as a wet cake on the container wall.
3. Repeat Step 2, three times.
4. Suspend particles in 10mL of Coupling Buffer.

Protein Coupling

1. Add 4ml of Coupling Agent to particles and stir briefly.
2. Add 10mg of protein dissolved in no more than 10ml of water.
3. Stir and maintain the pH between 4.5-6.0 with 0.1M HCl for 30-60 minutes.

Washing and Diluting Coupled Particles

1. Magnetically separate the particles and aspirate the supernatant.
2. Add approximately 20ml of Wash Buffer and shake vigorously or carefully vortex.
3. Repeat Steps 1-2, three times.
4. Store the coupled particles as a suspension in Wash Buffer at 4˚C.

Testing for Activity

The coupled BioMag® can now be assayed for the desired biological activity. For example, if antibody has been coupled, the binding of a labeled antigen can be ascertained. *Note:* BioMag® may have to be diluted before use.

NOTES

1. Avoid use of amine (e.g. Tris) or carboxyl (e.g. acetate, citrate) buffers in the coupling step. Phosphate is satisfactory in the Coupling Buffer (i.e. prior to the attachment of protein). Amine- or carboxyl-group containing buffers can be used as Wash Buffers. Phosphate is also satisfactory for the use in the Wash Buffer in place of Tris.
2. Some noncovalent adsorption invariably accompanies covalent coupling to particulate supports. Noncovalent adsorption is addressed by the washing procedure used after covalent protein attachment. The degree of noncovalent adsorption varies with each application and the washing procedure may have to be adjusted for individual applications. Additional washes to reduce noncovalently adsorbed protein can include high salt (1M NaCl), mildly acidic or basic media, or increased time of exposure to the Wash Buffer. Dissociation of active, noncovalently adsorbed molecules from BioMag® particles can make magnetic materials appear unstable in some applications.
3. Prolonged vigorous shaking or vortexing should be used to resuspend BioMag® after magnetic separation or settling with gravity.

STORAGE AND STABILITY

Store at 2-8˚C. Freezing, drying, or centrifuging particles may result in irreversible aggregation and loss of binding activity.

SAFETY

The suspension as supplied does not contain sodium azide. However, the suggested Wash Buffer does contain NaN_3. Sodium azide may react with lead and copper plumbing to form explosive metal azides. Upon disposal of material, flush with a large volume of water to prevent azide accumulation. Please consult the Safety Data Sheet for more information.

This product is for research use only and is not intended for use in humans or for *in vitro* diagnostic use.

ORDERING INFORMATION

Cat. #	Description	Size
84130-10	BioMag® Maxi Carboxyl	10ml

TO ORDER

In The U.S. Call: 1(800) 523-2575 • (215) 343-6484
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