U.S. Corporate Headquarters
400 Valley Rd.
Warrington, PA 18976
1(800) 523-2575 / (215) 343-6484
1(800)343-3291 fax
info@polysciences.com

Polysciences Europe GmbH
Badener Str. 13
69493 Hirschberg an der Bergstrasse,
Germany
+(49) 06201-845200
+(49) 06201-8452020 fax
info@polysciences.de

Polysciences Asia-Pacific, Inc.
2F-1, 207 DunHua N. Rd.
Taipei, Taiwan 10595
(886) 2 8712 0600
(886) 2 8712 2677 fax
info@polysciences.tw

BioMag® Carboxyl

Catalog Number: 84125

DESCRIPTION

BioMag® Carboxyl consists of an aqueous suspension of magnetic iron oxide particles modified to provide carboxyl groups. The carboxyl groups are sterically unencumbered, permitting the covalent attachment of proteins or ligands with retention of biological activity. Proteins or ligands can be covalently attached to BioMag® Carboxyl by any of the reagents used to prepare affinity supports where the solid phase terminates with a carboxyl group. A typical carbodiimide coupling procedure is given below. BioMag® Carboxyl can also be used for DNA purifications.

CHARACTERISTICS

Mean Diameter: ~1.5µm
Particle Concentration: 20 mg/ml
Surface Titration: ~240 µmol/g, ~4.8µmol/ml

MATERIAL

Material Supplied

- BioMag® Carboxyl: 10ml of aqueous suspension (pH 7.0) with ~200mg of BioMag®

Material Required

- Reaction flask
- BioMag® magnetic separator (Cat. #84101S): permanent magnet to remove BioMag® from suspension
- Sodium azide (NaN_3)
- Sodium chloride (NaCl)
- 1-ethyl-3-(3-dimethyaminopropyl) carbodiimide (EDAC)
- Tris base
- Bovine Serum Albumin (BSA)
- Potassium phosphate dibasic (K_2HPO_4)

PROCEDURE

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

Preparation of Solutions

Solution	Composition	Materials	Preparation Instructions
Coupling Buffer	0.01M K_2HPO_4 0.15M NaCl	1.74 K_2HPO_4 8.7g NaCl	Add solids to H_2O. Adjust to pH 5.5. Adjust to 1L.
Coupling Agent	EDAC	40mg/70ml H_2O	Unstable; make just prior to use.
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 1.0g NaN_3 0.37g EDTA	Dissolve solids. Adjust topH 7.4 with NaOH or HCl as required. Adjust to 1l with water

Activation

1. Transfer 10ml of BioMag® Carboxyl to a reaction flask which will easily contain the maximum volume of 20ml used below.
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. Aspirate the supernatant, leaving the BioMag® as a wet cake on the container wall.
3. Repeat Step 2, three times.
4. Suspend BioMag® in 10ml of Coupling Buffer.

Protein Coupling

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

Washing and Diluting Coupled Particles

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

Testing for Binding 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. 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 steps. Phosphate is satisfactory in the Coupling Buffer (i.e. prior to the attachment of protein). Amine or carboxyl groups containing buffers can be used as Wash Buffers.
2. Some noncovalent adsorption invariably accompanies covalent coupling to particulate supports. Noncovalent adsorption is controlled by the washing procedure used after covalent protein attachment. The degree of noncovalent adsorption varies with each application and the washing procedure may need to be adjusted for individual applications. Additional washes to reduce noncovalently adsorbed protein can include high salt (1M NaCl), mildly acidic or basic media, mildly elevated temperatures or increased time of exposure to Wash Buffer. Dissociation of active, noncovalently adsorbed molecules from BioMag® 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 STABIILITY

Storage Store at 4˚C.
Stability Freezing, drying, or centrifuging particles may result in irreversible aggregation and loss of binding activity. Centrifugation may be used only if it is the last step in a procedure such that resuspension of BioMag® is not required.

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
84125-10	BioMag® Carboxyl	10ml
84125-100	BioMag® Carboxyl	100ml

TO ORDER

In The U.S. Call: 1(800) 523-2575 • (215) 343-6484
In The U.S. Fax: 1(800) 343-3291 • (215) 343-0214

In Germany Call: +(49) 06201-845200
In Germany Fax: +(49) 06201-8452020

In Asia Call: (886) 2 8712 0600
In Asia Fax: (886) 2 8712 2677

Order online anytime at **www.polysciences.com**