

MaxiBind™ Carriers

Cationised BSA, OVA, bLG

Product Description

MaxiBind™ proteins offer increased number of reactive amine functions on the surface for optimal displaying of reactive amines and immunogenic properties. These features make MaxiBind™ proteins the best choice for peptide-carrier conjugates preparation in various applications, notably for immunisation (Ab raising), immunization monitoring (Ab detection), interaction studies (Hapten detection/capture, ionic interactions, biocaptors), phage display...

<u>Name</u>	<u>Product part number</u>	<u>Quantity</u>	<u>Main uses</u>
MaxiBind™ BSA Cationized Bovine serum Albumin, 68-69 kDa	UP84225A	2mg	<ul style="list-style-type: none"> • Carrier / Immunogenes • Immunisation monitoring • Conjugates for various studies (biocaptors, phage display...)
	UP84225B	5mg	
	UP84225C	10mg	
	UP84225D	50mg	
MaxiBind™ OVA Cationized ovalbumin, 44-45 kDa	UP98505A	2mg	<ul style="list-style-type: none"> • Carrier / Immunogenes (a) • Immunisation monitoring • Conjugates for various studies
	UP98505B	5mg	
	UP98505C	10mg	
	UP98505D	50mg	
MaxiBind™ bLG Cationized β-lactoGlobulin, 19-20 kDa	UP98506A	2mg	<ul style="list-style-type: none"> • Carrier / Immunogenes (a) • Immunisation monitoring • Conjugates for various studies
	UP98506B	5mg	
	UP98506C	10mg	
	UP98506D	50mg	

(a) OVA and bLG may be preferred to BSA when homologies of antigenic recognition are feared, or when aBSA are used in following detection techniques

All MaxiBind™ proteins are provided salt free

Scientific and Technical Information

Characteristics of MaxiBind™ proteins

- MaxiBind™ carriers are prepared from highly purified proteins
- Carboxylate groups are modified with ethylene diamine inducing a rather « cationized » molecule, since the negative charged carboxylates are masked by positively charged amines resulting in a significant PI increase [1].

MaxiBind™ BSA increases the amount of reactive amine functions on protein surface by ca 100% (about 70 reactive functions instead of 35) :

- ❖enhance the immunogenic response,
- ❖reduces the length of immunization procedure.

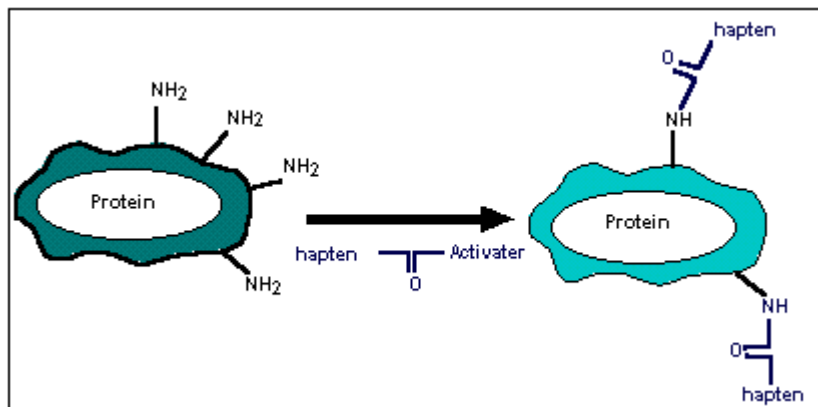
Properties of MaxiBind™ proteins

- MaxiBind™ proteins display increased reactive amine functions on their surface useful for covalent binding to the appropriate functional groups :Reactive towards:
 - ✗ aldehyde functions,
 - ✗ carboxylic acid functions.
- MaxiBind™ proteins react with haptens incorporating activated carboxylic acid functions or aldehydes with increased efficiency in comparison to native proteins.

FT-UP84225(carriers)

- MaxiBind™ BSA allows a dramatic increase in the immunogenic effect resulting in a high-performance immunization process with larger amounts of produced antibodies against any attached molecule whether a hapten or a larger antigen macromolecule. Greater concentrations of specific antibodies, and quicker immune response were observed when MaxiBind™ proteins were used as immunogen carriers [2, 3].

Principle of conjugating MaxiBind™ proteins to a carboxylate function



*Protocole for coupling water-soluble carboxylate-bearing hapten



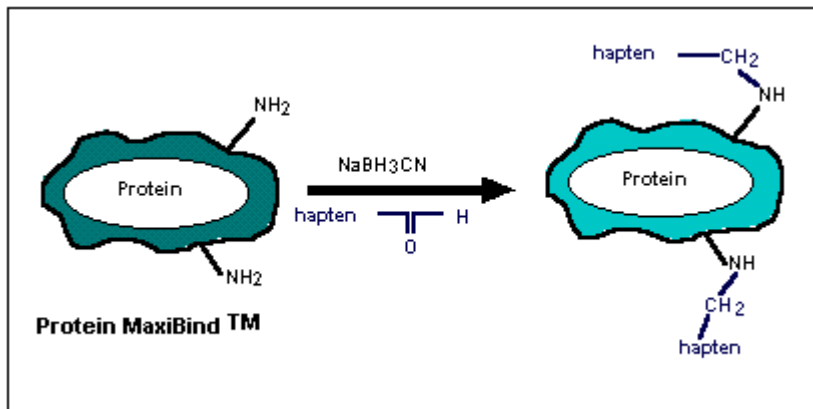
- 1) Dissolve at least 10^{-5} mole of hapten in a minimum amount of coupling buffer
- 2) Add 5mg of EDC(#UP52005), and 5mg of NHS ((#UP04594)
- 3) Add MaxiBind™ protein directly into the solution.
- 4) Stir at room temperature overnight.
- 5) Purify the hapten-carrier conjugate by gelfiltration (alternatively by dialysis), with the appropriate buffer:
 - Possible fraction monitoring may be performed using UV detection set at 280 nm
 - Collected fractions may be concentrated by ultracentrifugation at 4°C (12 kDa of Cut-off advised).
- 6) The solution of protein may be lyophilised before use for immunisation or monitoring purposes.

*Protocole for coupling organic solvent-soluble carboxylate-bearing hapten

- 1) Dissolve at least 10^{-5} mol of hapten in a minimum amount of solvent (the most polar water miscible solvent as possible : dioxan, methanol...).
- 2) Add 5μL of tributylamine⁺, cool at 12°C (pay attention to solvent freezing point !),
- 3) Add 2μL of ethyl chloroformate⁺ and stir the solution at 12°C for 30 minutes to obtain the mixed anhydride intermediate.
- 4) Dissolve MaxiBind™ protein in a minimum amount of coupling buffer (**basic medium**), a suggested concentration of 1 mg/ml is advised to allow the best coupling conditions.
- 5) Add the mixed anhydride intermediate, slowly (dropwise) to the MaxiBind protein solution and stir the mixture at 4°C for 4 hours. The pH of the resulting solution may drop, accompanied by aprecipitation of the protein. An adjustment of the pH to 9-10 may redissolve the precipitate.
- 6) Purify the hapten-carrier conjugate with provided purification columns, to be used as regular fast desalting columns with the appropriate buffers (provided in kit)
 - Apply 0.5 ml (at a time) of the protein solution on the column
 - Wait until solution gets beyond the frit surface and penetrates the column bed
 - Apply purification buffer and collect fractions (0.5 to 1 ml advised)
 - Possible fraction monitoring may be performed using UV detection set at 280 nm
 - Collected fractions may be concentrated by ultracentrifugation at 4°C (12 kDa of Cut-off advised).
- 7) The solution of protein may be lyophilised before use for immunisation or monitoring purposes.

Contact your local distributor

Principle of conjugating MaxiBind™ proteins to an aldehyde function



Standard protocole for coupling aldehyde -bearing hapten

1) Dissolve 5mg of Maxibind™ protein in 1ml of coupling

Prepare the coupling buffer: 0.05M tetraborate pH9.8; othrbuffer like carbonate buffers may be used, provided it is alkline pH9-10; Tris -HCl buffer a not recommended.

2) Add a solution containing at least 10⁻⁵ mole of hapten in a minimum volume of water miscible solvent.

3) Add a small amout of sodium cyanoborohydride powder directly in the solution (Hazardous!) (or 10µL of a 0.5mg/ml in NaOH 1 M; the total quantity could be advantadgely reduced). Stir at room temperature for at least 4 hours.

The coupling procedure may also be performed at 4°C overnight4) Purify the hapten-carrier conjugate by gelfiltration (alternatively by dialysis), with the appropriate buffer:

•Possible fraction monitoring may be performed using UV detection set at 280 nm

•Collected fractions may be concentrated by ultracentrifugation at 4°C (12 kDa of Cut-off advised).

5) The solution of protein may be lyophilised before use for immunisation or monitoring purposes.

Additional information is given in the technical notice [NT-Carriers](#)

Literature

- [1] A. Muckerheide, P.L. Domen and J.G. Michael, Cationization of protein antigens. Alteration of immunogenic properties (1987). J. Immunol., 138, p. 833-837.
- [2] F.S. Chu, H.P. Lau, T.S. Fan and G.S. Zhang. Ethylene diamine modified Bovine Serum Albumin as Protein carrier in the production of antibody against mycotoxins (1982). J. Immunol. Methods, 55, p. 73-78,
- [3] R.J. Apple, P.J. Domen, A. Muckerheide and J.G. Michael. Cationization of protein antigens. Increased antigen uptake by antigen-presenting cells (1988). J. Immunol., 140, p. 3290-3295.
- [4] R.N. Germain, The ins and out of antigen processing and presentation, (1986). Nature, London 322, p.687-689

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