Recombinant Human MBL

Catalog Number: 2307-MB/CF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Glu21-Ile248 Accession # AAH96182
N-terminal Sequence Analysis	Glu21
Structure / Form	Oligomer
Predicted Molecular Mass	24 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	29-33 kDa, reducing conditions
Activity	Measured by its ability to bind with Mannan in a functional ELISA.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Supplied as a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 6 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after opening.

BACKGROUND

Human mannose/mannan-binding lectin (MBL; also MBP-C) is a 25 kDa member of the collectin family of pattern-recognition molecules (1 - 3). It is a secreted glycoprotein that is synthesized as a 248 amino acid (aa) precursor that contains a 20 aa signal sequence, a 21 aa cysteine-rich region (with three cysteines) a 58 aa collagen-like segment and a 111 aa C-type lectin domain that binds to neutral bacterial carbohydrates (3, 4). The molecule is O-glycosylated and contains multiple hydroxylated prolines and lysines (3, 5). Functionally, the molecule operates as a multimer/oligomer. The basic structural unit is a homotrimer. The homotrimer is created by the formation of interchain disulfide bonds among the cysteine-rich regions, plus a helical interaction of the collagen-like domains of each participating polypeptide (5). Mutations in the collagen region are known to interfere with proper trimer and subsequent oligomer formation (6). Once formed, the trimer, as a unit, oligomerizes with other trimers to form high molecular weight complexes. Although the exact nature of these complexes are unclear, it would appear that a three trimer complex (230 kDa) and a four trimer complex (305 kDa) constitute much of the circulating MBL (7). It is within the context of these oligomers that MBL performs its functions. After secretion by hepatocytes, oligomerized MBL will both associate with serine proteases (MASP-1, 2 & 3) and bind to bacterial carbohydrates. If the MBL complex is small, opsonization of bacteria occurs. If the complex is large, the MASPs are engaged and a complement attack complex is generated, destroying bound bacteria (3, 7, 8). Human MBL is 63%, 61% and 65% aa identical to mouse, porcine and bovine MBL, respectively.

References:

1. Gadjeva, M. *et al.* (2004) Mol. Immunol. **41**:113.
2. Kilpatrick, D.C. (2003) Biochem. Soc. Trans. **31**:745.
3. Presanis, J.S. *et al.* (2003) Biochem. Soc. Trans. **31**:748.
4. Sastry, K. *et al.* (1989) J. Exp. Med. **170**:1175.
5. Jensen, P.H. *et al.* (2005) J. Biol. Chem. **280**:11043.
6. Larsen, F. *et al.* (2004) J. Biol. Chem. **279**:21302.
7. Teillet, F. *et al.* (2005) J. Immunol. **174**:2870.
8. Terai, I. *et al.* (2003) Eur. J. Immunol. **33**:2755.

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