Data Sheet (Cat.No.TMPY-03473)

TargetMol

MBL1 Protein, Rat, Recombinant (hFc)

General Information

Synonyms:	lectin, mannose-binding, 1
Protein Construction:	A DNA sequence encoding the rat MBL1 (P19999) (Met1-Ala238) was expressed with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Ser 18
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	P19999
Molecular Weight:	50.5 kDa (predicted); 56 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Mannose-binding lectin (MBL), also named mannose or mannan-binding protein (MBP), is a C-type lectin that participates in the innate immune system as an activator of the complement system and as opsonin after binding to certain carbohydrate structures on microorganisms and pathogens. Its function appears to be pattern recognition in the first line of defense in the pre-immune host. MBL recognizes carbohydrate patterns found on the surface of a large number of pathogenic micro-organisms including bacteria, viruses, protozoa, and fungi. The

binding of MBL to a micro-organism results in activation of the lectin pathway of the complement system. Two forms of MBL, MBL-A, and MBL-C were characterized in rodents, rabbits, bovine, and rhesus monkeys, whereas only one form was identified in humans, chimpanzees, and chickens. The two forms are encoded by two distinct genes named MBL1 and MBL2, which have been identified in many species including the pig. The MBL1 and MBL2 genes encode mannan-binding lectins (MBL) A and C, respectively, that are collagenous lectins (collectins) produced mainly by the liver. The MBL1 gene encodes MBL-A, which has bacteria-binding properties in pigs and rodents but is mutated to a pseudogene in humans and chimpanzees. Deficiency of MBL is probably the most common human immunodeficiency and is associated with an increased risk of mucosally acquired infections including meningococcal disease. MBL could modify disease susceptibility by modulating macrophage interactions with mucosal organisms at the site of initial acquisition.

Reference

Jack DL, et al. (2005) Mannose-binding lectin enhances phagocytosis and killing of Neisseria meningitidis by human macrophages. J Leukoc Biol. 77(3): 328-36.

Lillie BN, et al. (2006) Single-nucleotide polymorphisms in porcine mannan-binding lectin A. Immunogenetics. 58 (12): 983-93.

Nikolakopoulou K, et al. (2006) Molecular cloning and characterisation of two homologues of Mannose-Binding Lectin in rainbow trout. Fish Shellfish Immunol. 21(3): 305-14.

Phatsara C, et al. (2007) Molecular genetic analysis of porcine mannose-binding lectin genes, MBL1 and MBL2, and their association with complement activity. Int J Immunogenet. 34(1): 55-63.