

Recombinant Mouse Sftpd Protein

Sftpd-11M Mouse

Lot. No. (See product label)

Specification

Product Overview

Recombinant Mouse Sftpd(Met1-Phe374) was expressed in CHO.

Description

SPD (surfactant proteinD; also PSPD) is a 43 kDa member of the collectin family of innate immune modulators. It is constitutively secreted by alveolar lining cells and epithelium associated with tubular structures. SPD is found in serum, plasma, bronchoalveolar lavage (BAL) fluid, and amniotic fluid. Lung injuries often increase release of SPD to the circulation. Mouse SPD is synthesized as a 374 amino acid (aa) precursor. Mouse SPD cDNA encodes a 19 aa signal sequence and a 355 aa mature region with a 25 aa Nterminal linkingregion, a 177 aa hydroxyproline and hydroxylysine collagenlike domain, a 46 aa coiledcoil segment, and a 106 aa, Cterminal collectinlike Ctype lectin domain (CRD). Mature mouse SPD shares 72-76% aa sequence identity with human, porcine, equine, canine and bovine SPD, and 92% with rat SPD. SPD is usually found as a glycosylated, disulfidelinked 150 kDa alpha helical coiledcoil trimer with a "head" of three symmetrical CRDs. Each CRD recognizes the hydroxides of one monosaccharide, and trimerization allows for the discrimination of monosaccharide patterns specific to microbial pathogens. Typically, SPD forms a higherorder 620 kDa, Xshaped dodecamer through Nterminal disulfide bonds, allowing for even finer discrimination of self vs. nonself carbohydrate patterns and facilitating binding to complex antigens. SPD also binds SIRP alpha and the calreticulin/CD91 complex on macrophages. When the ratio of antigen/pathogen to available CRDs is low, antigen can be bound without occupying all available CRDs. The free CRDs will bind to SIRP alpha, generating a signal that downmodulates the inflammatory response. During high CRD ligand binding (low SIRP alpha binding), the dodecamer rearranges to expose Ntermini that bind the calreticulin/CD91 complex, an event that initiates inflammation. Also, direct and indirect binding of neutrophil defensins and macrophage CD14 and TLRs to SPD can modulate response to viruses and bacterial lipopolysaccharides. Thus, SPD allows for a graded response to environmental challenge and clearance of small antigenic insults without the need for a damaging inflammatory response.

Source

CHO

Species

Mouse

Predicted N Terminal

Ala20

Form

Lyophilized from a 0.2 µm filtered solution in PBS.

Bio-activity

Measured by its ability to bind fluorescein-conjugated E. coli Bioparticles. Kuan, S.F. et al. (1992) J. Clin. Invest. 90:97. The ED50 for this effect is 0.31.5 µg/mL.

Molecular Mass

Predicted Molecular Mass: 35.7 kDa (monomer);
SDS-PAGE: 40-50 kDa, reducing conditions.

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Protein length	Met1-Phe374
Endotoxin	<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
Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 12 months from date of receipt, -20 to -70 centigrade as supplied. 1 month, 2 to 8 centigrade under sterile conditions after reconstitution. 3 months, -20 to -70 centigrade under sterile conditions after reconstitution.
Reconstitution	Reconstitute at 200 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Gene Information	
Gene Name	Sftpd surfactant associated protein D [Mus musculus]
Official Symbol	Sftpd
Synonyms	SFTPD; surfactant associated protein D; pulmonary surfactant-associated protein D; PSP-D; lung surfactant protein D; SP-D; Sftp4; AI573415;
Gene ID	20390
mRNA Refseq	NM_009160
Protein Refseq	NP_033186
UniProt ID	P50404

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