

## Active Recombinant Mouse Sftpd Protein

Cat. No. Sftpd-11M Lot. No. (See product label)

### SPECIFICATION

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

**Species** Mouse

**Source** CHO

**ProteinLength** Met1-Phe374

#### Description

SP-D (surfactant protein-D; also PSP-D) 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. SP-D is found in serum, plasma, broncho-alveolar lavage (BAL) fluid, and amniotic fluid. Lung injuries often increase release of SP-D to the circulation. Mouse SP-D is synthesized as a 374 amino acid (aa) precursor. Mouse SP-D cDNA encodes a 19 aa signal sequence and a 355 aa mature region with a 25 aa N-terminal linking-region, a 177 aa hydroxyproline and hydroxylysine collagen-like domain, a 46 aa coiled-coil segment, and a 106 aa, C-terminal collectin-like C-type lectin domain (CRD). Mature mouse SP-D shares 72 - 76% aa sequence identity with human, porcine, equine, canine and bovine SP-D, and 92% with rat SP-D. SP-D is usually found as a glycosylated, disulfide-linked 150 kDa alpha -helical coiled-coil 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, SP-D forms a higher-order 620 kDa, X-shaped dodecamer through

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N-terminal disulfide bonds, allowing for even finer discrimination of self vs. nonself carbohydrate patterns and facilitating binding to complex antigens. SP-D 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 N-termini 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 SP-D can modulate response to viruses and bacterial lipopolysaccharides. Thus, SP-D allows for a graded response to environmental challenge and clearance of small antigenic insults without the need for a damaging inflammatory response.

**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 0.3-1.5 µg/mL.

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

**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.

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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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