

## DESCRIPTION

<b>Species Reactivity</b>	Mouse/Rat
<b>Specificity</b>	Detects mouse and rat SP-D in Western blots. In direct ELISAs, approximately 20% cross-reactivity with recombinant human SP-D is observed.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Chinese hamster ovary cell line CHO-derived recombinant mouse SP-D Ala20-Phe374 Accession # P50404
<b>Conjugate</b>	Alexa Fluor 750 Excitation Wavelength: 749 nm Emission Wavelength: 775 nm
<b>Formulation</b>	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

**Western Blot** Optimal dilution of this antibody should be experimentally determined.

## PREPARATION AND STORAGE

**Shipping** The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

## BACKGROUND

SP-D (surfactant protein-D; also PSP-D) is a 43 kDa member of the collectin family of innate immune modulators (1 - 5). 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 (1, 2, 6). Lung injuries often increase release of SP-D to the circulation (3, 6). 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) (5). 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 (2-4, 7). Each CRD recognizes the hydroxides of one monosaccharide, and trimerization allows for the discrimination of monosaccharide patterns specific to microbial pathogens (4, 7, 8). Typically, SP-D forms a higher-order 620 kDa, X-shaped dodecamer through N-terminal disulfide bonds, allowing for even finer discrimination of self vs. nonself carbohydrate patterns and facilitating binding to complex antigens (1). SP-D also binds SIRP $\alpha$  and the calreticulin/CD91 complex on macrophages (9, 10). 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 (1). Also, direct and indirect binding of neutrophil defensins and macrophage CD14 and TLRs to SP-D can modulate response to viruses and bacterial lipopolysaccharides (1-3, 11-15). 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 (1-3).

## PRODUCT SPECIFIC NOTICES

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