



## SP-D (VIF9): sc-52732

### BACKGROUND

Pulmonary surfactant is primarily responsible for lowering the surface tension at the air-liquid interface in the *alveoli*, a process that is essential for normal respiration. Pulmonary surfactant is a mixture of phospholipids and proteins, including four distinct surfactant-associated proteins (SPs), SP-A, SP-B, SP-C, SP-D. SP-B and SP-C are predominantly hydrophobic proteins that associate with lipids to promote the absorption of surfactant phospholipids and to reduce the surface tension in the *alveoli*. SP-A and SP-D are large multimeric proteins belonging to the family of calcium-dependent lectins, designated collectins, which contribute to the innate immune system. Both SP-A and SP-D have been shown to protect against microbial challenge through binding to the lipid components of the bacterial cell wall and facilitating the rapid removal of microbials.

### REFERENCES

1. Glasser, S.W., Korfhagen, T.R., Bruno, M.D., Dey, C. and Whitsett, J.A. 1990. Structure and expression of the pulmonary surfactant protein SP-C gene in the mouse. *J. Biol. Chem.* 265: 21986-21991.
2. Hawgood, S. and Shiffer, K. 1991. Structures and properties of the surfactant-associated proteins. *Ann. Rev. Physiol.* 53: 375-394.
3. Johansson, J. Jornvall, H. and Curstedt, T. 1992. Human surfactant polypeptide SP-B. Disulfide bridges, C-terminal end and peptide analysis of the airway form. *FEBS Lett.* 301: 165-167.
4. Crouch, E., Rust, K., Veile, R., Donis-Keller, H. and Grosso, L. 1993. Genomic organization of human surfactant protein D (SP-D). SP-D is encoded on chromosome 10q22.2-23.1. *J. Biol. Chem.* 268: 2976-2983.
5. Rooney, S.A., Young, S.L. and Mendelson, C.R. 1994. Molecular and cellular processing of lung surfactant. *FASEB J.* 8: 957-967.
6. Johansson, J. and Curstedt, T. 1997. *Eur. J. Biochem.* Molecular structures and interactions of pulmonary surfactant components. *Eur. J. Biochem.* 244: 675-693.
7. Reid, K.B. 1998. Functional roles of the lung surfactant proteins SP-A and SP-D in innate immunity. *Immunobiology* 199: 200-207.
8. Wert, S.E., Yoshida, M., LeVine, A.M., Ikegami, M., Jones, T., Ross, G.F., Fisher, J.H., Korfhagen, T.R. and Whitsett, J.A. 2000. Increased metalloproteinase activity, oxidant production and emphysema in surfactant protein D gene-inactivated mice. *Proc. Natl. Acad. Sci. USA* 97: 5972-5977
9. McCormack, F.X. and Whitsett, J.A. 2002. The pulmonary collectins, SP-A and SP-D, orchestrate innate immunity in the lung. *J. Clin. Invest.* 109: 707-712

### CHROMOSOMAL LOCATION

Genetic locus: SFTPD (human) mapping to 10q22.2-q23.1; Sftpd (mouse) mapping to 14 B.

### SOURCE

SP-D (VIF9) is a mouse monoclonal antibody raised against purified SP-D of rat origin.

### PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### APPLICATIONS

SP-D (VIF9) is recommended for detection of SP-D of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for SP-D siRNA (h): sc-36541.

Molecular Weight of SP-D: 43 kDa.

Positive Controls: rat lung extract: sc-2396 or human lung extract.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

### STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### RESEARCH USE

For research use only, not for use in diagnostic procedures.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.