SANTA CRUZ BIOTECHNOLOGY, INC.

SP-B (F-2): sc-133143



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.

CHROMOSOMAL LOCATION

Genetic locus: SFTPB (human) mapping to 2p11.2; Sftpb (mouse) mapping to 6 C1.

SOURCE

SP-B (F-2) is a mouse monoclonal antibody raised against amino acids 1-300 of SP-B of human origin.

PRODUCT

Each vial contains 200 $\mu g\, lgG_{2b}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SP-B (F-2) is available conjugated to agarose (sc-133143 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-133143 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133143 PE), fluorescein (sc-133143 FITC), Alexa Fluor[®] 488 (sc-133143 AF488), Alexa Fluor[®] 546 (sc-133143 AF546), Alexa Fluor[®] 594 (sc-133143 AF594) or Alexa Fluor[®] 647 (sc-133143 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-133143 AF680) or Alexa Fluor[®] 790 (sc-133143 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SP-B (F-2) is recommended for detection of SP-B of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SP-B siRNA (h): sc-36537, SP-B siRNA (m): sc-36538, SP-B shRNA Plasmid (h): sc-36537-SH, SP-B shRNA Plasmid (m): sc-36538-SH, SP-B shRNA (h) Lentiviral Particles: sc-36537-V and SP-B shRNA (m) Lentiviral Particles: sc-36538-V.

Molecular Weight of mature SP-B: 9 kDa.

Molecular Weight of SP-B precursor: 43 kDa.

Positive Controls: mouse lung extract: sc-2390, SP-B (h): 293T Lysate: sc-115028 or WI-38 whole cell lysate: sc-364260.

STORAGE

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

DATA



SP-B (F-2): sc-133143. Western blot analysis of SP-B expression in non-transfected: sc-117752 (**A**) and human SP-B transfected: sc-115028 (**B**) 293T whole cell lysates.



SP-B (F-2): sc-133143. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse lung tissue showing cytoplasmic staining of pneumocytes and macrophages (**B**).

SELECT PRODUCT CITATIONS

- Rehan, V.K., et al. 2011. Thirdhand smoke: a new dimension to the effects of cigarette smoke on the developing lung. Am. J. Physiol. Lung Cell. Mol. Physiol. 301: L1-L8.
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- Magro-Lopez, E., et al. 2018. Effects of lung and airway epithelial maturation cocktail on the structure of lung bud organoids. Stem Cell Res. Ther. 9: 186.
- 5. Shen, Y.Q., et al. 2020. MicroRNA-431 inhibits the expression of surfactant proteins through the BMP4/activin/TGF- β signaling pathway by targeting SMAD4. Int. J. Mol. Med. 45: 1571-1582.
- Meyer-Berg, H., et al. 2020. Identification of AAV serotypes for lung gene therapy in human embryonic stem cell-derived lung organoids. Stem Cell Res. Ther. 11: 448.
- Solorio-Rodríguez, A., et al. 2020. *In vitro* cytotoxicity study of superparamagnetic iron oxide and silica nanoparticles on pneumocyte organelles. Toxicol. In Vitro 72: 105071.
- Banfi, C., et al. 2021. Immature circulating SP-B, bound to HDL, represents an early sign of smoke-induced pathophysiological alterations. Biomolecules 11: 551.
- Ebisudani, T., et al. 2021. Direct derivation of human alveolospheres for SARS-CoV-2 infection modeling and drug screening. Cell Rep. 35: 109218.

RESEARCH USE

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

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