

# claudin-1 (D-4): sc-137121

## BACKGROUND

The claudin superfamily consists of many structurally related proteins in humans. These proteins are important structural and functional components of tight junctions in paracellular transport. Claudins are located in both epithelial and endothelial cells in all tight junction-bearing tissues. Three classes of proteins are known to localize to tight junctions, including the claudins, Occludin and Junction adhesion molecules. Claudins, which consist of four transmembrane domains and two extracellular loops, make up tight junction strands. Claudin expression is often highly restricted to specific regions of different tissues and may have an important role in transcellular transport through tight junctions. Claudin-1 is a multi-pass membrane protein that is expressed at high levels in kidney and liver and at lower levels in spleen, heart, brain, lung and testis. Defects in the gene encoding claudin-1 are the cause of ichthyosis-sclerosing cholangitis neonatal syndrome (NISCH), an autosomal recessive syndrome characterized by vulgar type ichthyosis, scalp hypotrichosis, scarring alopecia and sclerosing cholangitis.

## CHROMOSOMAL LOCATION

Genetic locus: CLDN1 (human) mapping to 3q28; Cldn1 (mouse) mapping to 16 B2.

## SOURCE

claudin-1 (D-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 168-207 at the C-terminus of claudin-1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

claudin-1 (D-4) is available conjugated to agarose (sc-137121 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137121 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137121 PE), fluorescein (sc-137121 FITC), Alexa Fluor<sup>®</sup> 488 (sc-137121 AF488), Alexa Fluor<sup>®</sup> 546 (sc-137121 AF546), Alexa Fluor<sup>®</sup> 594 (sc-137121 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-137121 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-137121 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-137121 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-137121 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## STORAGE

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

## PROTOCOLS

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

## APPLICATIONS

claudin-1 (D-4) is recommended for detection of claudin-1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

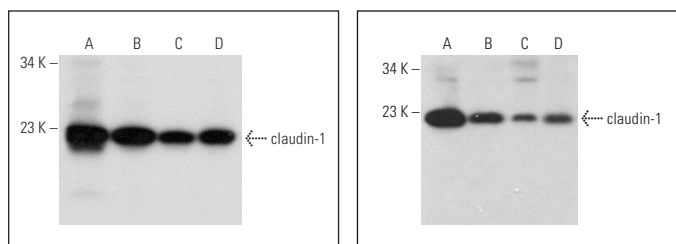
claudin-1 (D-4) is also recommended for detection of claudin-1 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for claudin-1 siRNA (h): sc-43040, claudin-1 siRNA (m): sc-43041, claudin-1 shRNA Plasmid (h): sc-43040-SH, claudin-1 shRNA Plasmid (m): sc-43041-SH, claudin-1 shRNA (h) Lentiviral Particles: sc-43040-V and claudin-1 shRNA (m) Lentiviral Particles: sc-43041-V.

Molecular Weight of claudin-1: 22 kDa.

Positive Controls: SCC-4 whole cell lysate: sc-364363, RT-4 whole cell lysate: sc-364257 or Hep G2 cell lysate: sc-2227.

## DATA



claudin-1 (D-4): sc-137121. Western blot analysis of claudin-1 expression in SCC-4 (A), RT-4 (B), Hep G2 (C) and T24 (D) whole cell lysates.

claudin-1 (D-4): sc-137121. Western blot analysis of claudin-1 expression in Hep G2 (A), HEK293 (B) and IMR-32 (C) whole cell lysates and human bladder tissue extract (D).

## SELECT PRODUCT CITATIONS

- Aktary, Z., et al. 2013. Plakoglobin represses SATB1 expression and decreases *in vitro* proliferation, migration and invasion. *PLoS ONE* 8: e78388.
- Chiang, S.K., et al. 2019. DOCK1 regulates growth and motility through the RRP1B-claudin-1 pathway in claudin-low breast cancer cells. *Cancers* 11: 1762.
- Haupt, M., et al. 2020. Lithium enhances post-stroke blood-brain barrier integrity, activates the MAPK/ERK1/2 pathway and alters immune cell migration in mice. *Neuropharmacology* 181: 108357.
- Cheng, J., et al. 2021. The role of β-carotene in colonic inflammation and intestinal barrier integrity. *Front. Nutr.* 8: 723480.
- Sudeep, H.V., et al. 2022. Viphyllin™, a standardized extract from black pepper seeds, mitigates intestinal inflammation, oxidative stress, and anxiety-like behavior in DSS-induced colitis mice. *J. Food Biochem.* E-published.

## RESEARCH USE

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