SANTA CRUZ BIOTECHNOLOGY, INC.

claudin-1 (XX7): sc-81796

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 specfic 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 (XX7) is a mouse monoclonal antibody raised against recombinant claudin-1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

claudin-1 (XX7) is recommended for detection of claudin-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 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: claudin-1 (h): 293T Lysate: sc-113827, SCC-4 whole cell lysate: sc-364363 or Hep G2 cell lysate: sc-2227.

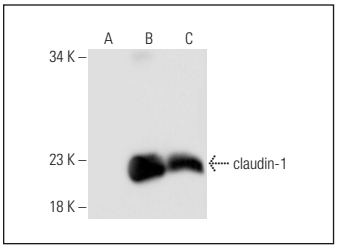
STORAGE

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

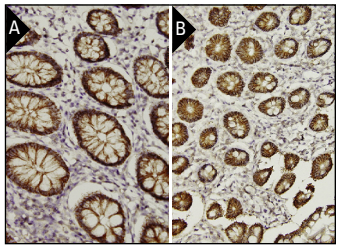
RESEARCH USE

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

DATA



claudin-1 (XX7): sc-81796. Western blot analysis of claudin-1 expression in non-transfected 293T: sc-117752 (**A**), human claudin-1 transfected 293T: sc-113827 (**B**) and SCC-4 (**C**) whole cell lysates.



claudin-1 (XX7): sc-81796. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human stomach tissue showing membrane and cytoplasmic localization (**A**,**B**).

SELECT PRODUCT CITATIONS

1. Zhao, X., et al. 2012. Derivation of myoepithelial progenitor cells from bipotent mammary stem/progenitor cells. PLoS ONE 7: e35338.
2. DiTommaso, T., et al. 2014. Keratin 76 is required for tight junction function and maintenance of the skin barrier. PLoS Genet. 10: e1004706.
3. Visconti, B., et al. 2015. Immunohistochemical expression of VDR is associated with reduced integrity of tight junction complex in psoriatic skin. J. Eur. Acad. Dermatol. Venereol. 29: 2038-2042.
4. Babkair, H., et al. 2016. Aberrant expression of the tight junction molecules claudin-1 and zonula occludens-1 mediates cell growth and invasion in oral squamous cell carcinoma. Hum. Pathol. 57: 51-60.
5. Kuruca, S.E., et al. 2017. The effects of 17β-estradiol on blood brain barrier integrity in the absence of the estrogen receptor α; an *in vitro* model. Acta Histochem. 119: 638-647.
6. Guo, Y., et al. 2018. Podocyte-specific induction of Krüppel-like factor 15 restores differentiation markers and attenuates kidney injury in proteinuric kidney disease. J. Am. Soc. Nephrol. 29: 2529-2545.
7. Zhou, S., et al. 2019. Identification of claudin-1, -3, -7 and -8 as prognostic markers in human laryngeal carcinoma. Mol. Med. Rep. 20: 393-400.
8. Wang, K., et al. 2020. Tight junction protein claudin-1 is downregulated by TGF-β1 via MEK signaling in benign prostatic epithelial cells. Prostate 80: 1203-1215.
9. Saito, A.C., et al. 2021. Occludin and tricellulin facilitate formation of anastomosing tight-junction strand network to improve barrier function. Mol. Biol. Cell. E-published.

CONJUGATES

See **claudin-1 (A-9): sc-166338** for claudin-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.