SANTA CRUZ BIOTECHNOLOGY, INC.

claudin-2 (3F1): sc-293233

BACKGROUND

The claudin superfamily consists of structurally related proteins that are important structural and functional components of tight junctions. Claudin-2, also known as CLDN2 or SP82, is a 230 amino acid multi-pass membrane protein that localizes to the cell junctions and belongs to the claudin superfamily. Able to form homopolymers of heteropolymers with other claudin family members, claudin-2 plays an essential role in mediating calcium-independent cell-adhesion activity that is necessary for tight junction-specific obliteration of the intercellular space. Overexpression of claudin-2 is associated with a variety of diseases, including lung cancer, colorectal cancer, gastrointestinal carcinomas and inflammatory bowel disease, further affirming the importance of claudin-2 in cell adhesion. The gene encoding claudin-2 maps to human chromosome X, which contains nearly 153 million base pairs and houses over 1,000 genes.

REFERENCES

1. Furuse, M., et al. 1998. Claudin-1 and -2: novel integral membrane proteins localizing at tight junctions with no sequence similarity to Occludin. J. Cell Biol. 141: 1539-1550.
2. Morita, K., et al. 1999. Claudin multigene family encoding four-transmembrane domain protein components of tight junction strands. Proc. Natl. Acad. Sci. USA 96: 511-516.

CHROMOSOMAL LOCATION

Genetic locus: CLDN2 (human) mapping to Xq22.3; Cldn2 (mouse) mapping to X F1.

SOURCE

claudin-2 (3F1) is a mouse monoclonal antibody raised against amino acids 29-80 of claudin-2 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.

STORAGE

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

APPLICATIONS

claudin-2 (3F1) is recommended for detection of claudin-2 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

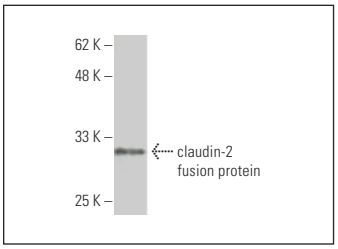
Suitable for use as control antibody for claudin-2 siRNA (h): sc-62124, claudin-2 siRNA (m): sc-62125, claudin-2 shRNA Plasmid (h): sc-62124-SH, claudin-2 shRNA Plasmid (m): sc-62125-SH, claudin-2 shRNA (h) Lentiviral Particles: sc-62124-V and claudin-2 shRNA (m) Lentiviral Particles: sc-62125-V.

Molecular Weight of claudin-2: 25 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



claudin-2 (3F1): sc-293233. Western blot analysis of human recombinant claudin-2 fusion protein.

SELECT PRODUCT CITATIONS

1. Stremmel, W., et al. 2017. Genetic mouse models with intestinal-specific tight junction deletion resemble an ulcerative colitis phenotype. J. Crohns Colitis 11: 1247-1257.
2. Miranda, J., et al. 2019. Syncytiotrophoblast of placentae from women with zika virus infection has altered tight junction protein expression and increased paracellular permeability. Cells 8: 1174.
3. Choi, E.K., et al. 2020. Impact of dietary manganese on experimental colitis in mice. FASEB J. 34: 2929-2943.
4. Kjærgaard, S., et al. 2020. Altered structural expression and enzymatic activity parameters in quiescent ulcerative colitis: are these potential normalization criteria? Int. J. Mol. Sci. 21: 1887.
6. Uc, P.Y., et al. 2020. E7 oncoprotein from human papillomavirus 16 alters claudins expression and the sealing of epithelial tight junctions. Int. J. Oncol. 57: 905-924.
7. Park, S.Y., et al. 2021. Expression of E-cadherin in epithelial cancer cells increases cell motility and directionality through the localization of ZO-1 during collective cell migration. Bioengineering 8: 65.
8. Zhou, J., et al. 2021. $P16^{INK4a}$ deletion ameliorates damage of intestinal epithelial barrier and microbial dysbiosis in a stress-induced premature senescence model of Bmi-1 deficiency. Front. Cell Dev. Biol. 9: 671564.
9. Zhao, Y., et al. 2022. Berberine ameliorates aGVHD by gut microbiota remodelling, TLR4 signalling suppression and colonic barrier repairment for NLRP3 inflammasome inhibition. J Cell. Mol. Med. E-published.

RESEARCH USE

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