

# claudin-4 (A-12): sc-376643

## 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 molecule. Claudins, which consist of four transmembrane domains and two extracellular loops make up tight junction strands. Claudin expression is highly restricted to specific regions of different tissues and may have an important role in transcellular transport through tight junctions. Claudin-4 is not expressed in rat liver, whereas in pancreas, claudin-4 is localized to junctions of the duct epithelia and junctions of acinar cells. In the rat gut, claudin-4 displays highly restricted expression to colonic surface cells. The human claudin-4 gene maps to chromosome 7q11.23.

## REFERENCE

1. Fanning, A.S., et al. 1999. Transmembrane proteins in the tight junction barrier. *J. Am. Soc. Nephrol.* 10: 1337-1345.
2. Fujita, K., et al. 2000. Clostridium perfringens enterotoxin binds to the second extracellular loop of claudin-3, a tight junction integral membrane protein. *FEBS Lett.* 476: 258-261.

## CHROMOSOMAL LOCATION

Genetic locus: CLDN4 (human) mapping to 7q11.23; Cldn4 (mouse) mapping to 5 G2.

## SOURCE

claudin-4 (A-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 183-209 within a C-terminal cytoplasmic domain of claudin-4 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-4 (A-12) is available conjugated to agarose (sc-376643 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376643 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376643 PE), fluorescein (sc-376643 FITC), Alexa Fluor® 488 (sc-376643 AF488), Alexa Fluor® 546 (sc-376643 AF546), Alexa Fluor® 594 (sc-376643 AF594) or Alexa Fluor® 647 (sc-376643 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376643 AF680) or Alexa Fluor® 790 (sc-376643 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376643 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.

## APPLICATIONS

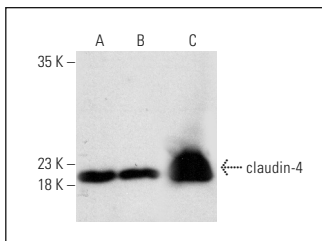
claudin-4 (A-12) is recommended for detection of claudin-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution 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 claudin-4 siRNA (h): sc-35070, claudin-4 siRNA (m): sc-35071, claudin-4 shRNA Plasmid (h): sc-35070-SH, claudin-4 shRNA Plasmid (m): sc-35071-SH, claudin-4 shRNA (h) Lentiviral Particles: sc-35070-V and claudin-4 shRNA (m) Lentiviral Particles: sc-35071-V.

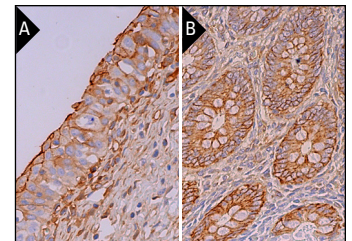
Molecular Weight of claudin-4: 25 kDa.

Positive Controls: SW480 cell lysate: sc-2219, Caco-2 cell lysate: sc-2262 or MIA PaCa-2 cell lysate: sc-2285.

## DATA



claudin-4 (A-12) HRP: sc-376643 HRP. Western blot analysis of claudin-4 expression in SW480 (A), MIA PaCa-2 (B) and Caco-2 (C) whole cell lysates.



claudin-4 (A-12): sc-376643. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing membrane and cytoplasmic staining of urothelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing membrane and cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Manku, G., et al. 2016. Changes in the expression profiles of claudins during gonocyte differentiation and in seminomas. *Andrology* 4: 95-110.
2. Singh, R., et al. 2019. Enhancement of the gut barrier integrity by a microbial metabolite through the Nrf2 pathway. *Nat. Commun.* 10: 89.
3. Vašiček, O., et al. 2020. Cyanobacterial lipopeptides puwainaphycins and minutissamides induce disruptive and pro-inflammatory processes in Caco-2 human intestinal barrier model. *Harmful Algae* 96: 101849.
4. Kothari, C., et al. 2021. TBC1D9: an important modulator of tumorigenesis in breast cancer. *Cancers* 13: 3557.
5. Srivastava, R.K., et al. 2022. Role of hair follicles in the pathogenesis of arsenical-induced cutaneous damage. *Ann. N.Y. Acad. Sci.* E-published.

## RESEARCH USE

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