SANTA CRUZ BIOTECHNOLOGY, INC.

ZO-3 (H-130): sc-11449

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Tight junctions are complexes of proteins that create intercellular boundaries between the plasma membrane domains of epithelial and endothelial cells. Many of the tight junction-associated proteins are members of the membrane-associated guanylate kinase (MAGUK) family and include Occludin, ZO-1, ZO-2 and ZO-3. These proteins are thought to have both structural and signaling roles, and are characteristically defined by three protein-protein interaction modules: the PDZ domain, the SH3 domain and the guanylate kinase (GuK) domain. ZO-1 forms complexes with either ZO-2 or ZO-3. In addition, these proteins can also associate with claudin, Occludin and F-actin at tight junction stands, where they provide a linkage between the actin cytoskeleton and the tight junction. ZO-1 expression is significantly reduced in many breast cancer lines. ZO-2 and ZO-3 are ubiquitously expressed within epithelial tight junctions, and unlike ZO-1, which is also expressed at cell junctions of cardiac myocytes, ZO-2 is not expressed in nonepithelial tissue.

REFERENCES

1. Furuse, M., et al. 1994. Direct association of Occludin with ZO-1 and its possible involvement in the localization of Occludin at tight junctions. J. Cell Biol. 127: 1617-1626.
2. Anderson, J.M. 1996. Cell signalling: MAGUK magic. Curr. Biol. 6: 382-384.
3. Haskins, J., et al. 1998. ZO-3, a novel member of the MAGUK protein family found at the tight junction, interacts with ZO-1 and Occludin. J. Cell Biol. 141: 199-208.
4. Hoover, K.B., et al. 1998. Loss of the tight junction MAGUK ZO-1 in breast cancer: relationship to glandular differentiation and loss of heterozygosity. Am. J. Pathol. 153: 1767-1773.
5. Itoh, M., et al. 1999. Characterization of ZO-2 as a MAGUK family member associated with tight as well as adherens junctions with a binding affinity to Occludin and α-catenin. J. Biol. Chem. 274: 5981-5986.

CHROMOSOMAL LOCATION

Genetic locus: TJP3 (human) mapping to 19p13.3; Tjp3 (mouse) mapping to 10 C1.

SOURCE

ZO-3 (H-130) is a rabbit polyclonal antibody raised against amino acids 91-220 mapping near the N-terminus of ZO-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG 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.

RESEARCH USE

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

APPLICATIONS

ZO-3 (H-130) is recommended for detection of ZO-3 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

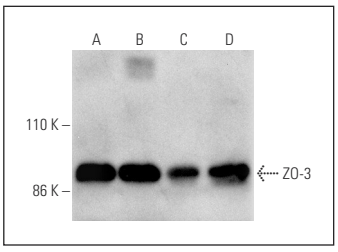
Suitable for use as control antibody for ZO-3 siRNA (h): sc-43538, ZO-3 siRNA (m): sc-43539, ZO-3 shRNA Plasmid (h): sc-43538-SH, ZO-3 shRNA Plasmid (m): sc-43539-SH, ZO-3 shRNA (h) Lentiviral Particles: sc-43538-V and ZO-3 shRNA (m) Lentiviral Particles: sc-43539-V.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or HCT-116 whole cell lysate: sc-364175.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ZO-3 (H-130): sc-11449. Western blot analysis of ZO-3 expression in HeLa (**A**), MCF7 (B), HT-29 (**C**) and HCT-116 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Han, X., et al. 2004. Increased iNOS activity is essential for pulmonary epithelial tight junction dysfunction in endotoxemic mice. Am. J. Physiol. Lung Cell Mol. Physiol. 286: L259-L267.
2. Reiter, B., et al. 2006. TRPV4-mediated regulation of epithelial permeability. FASEB J. 20: 1802-1812.
3. Paschoud, S., et al. 2008. Inducible overexpression of Cingulin in stably transfected MDCK cells does not affect tight junction organization and gene expression. Mol. Membr. Biol. 25: 1-13.