

ZO-2 (3): sc-136127

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 strands, 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.
6. Wittchen, E.S., et al. 1999. Protein interactions at the tight junction. Actin has multiple binding partners, and ZO-1 forms independent complexes with ZO-2 and ZO-3. *J. Biol. Chem.* 274: 35179-35185.
7. Furuse, M., et al. 1999. Manner of interaction of heterogeneous claudin species within and between tight junction strands. *J. Cell Biol.* 147: 891-903.
8. Itoh, M., et al. 1999. Direct binding of three tight junction-associated MAGUKs, ZO-1, ZO-2, and ZO-3, with the COOH termini of claudins. *J. Cell Biol.* 147: 1351-1363.

CHROMOSOMAL LOCATION

Genetic locus: Tjp2 (mouse) mapping to 19 B.

SOURCE

ZO-2 (3) is a mouse monoclonal antibody raised against amino acids 87-208 of ZO-2 of mouse origin.

RESEARCH USE

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

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

APPLICATIONS

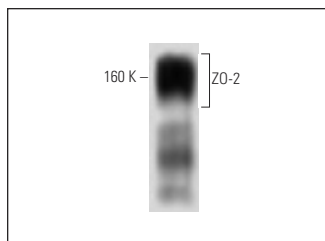
ZO-2 (3) is recommended for detection of ZO-2 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for ZO-2 siRNA (m): sc-29926, ZO-2 shRNA Plasmid (m): sc-29926-SH and ZO-2 shRNA (m) Lentiviral Particles: sc-29926-V.

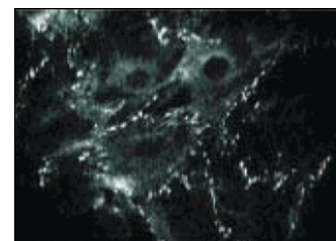
Molecular Weight of ZO-2: 160 kDa.

Positive Controls: rat cerebellum extract: sc-2398.

DATA



ZO-2 (3): sc-136127. Western blot analysis of ZO-2 expression in rat cerebellum tissue extract.



ZO-2 (3): sc-136127. Immunofluorescence staining of normal rat kidney cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wu, S., et al. 2020. High-fat diet increased NADPH-oxidase-related oxidative stress and aggravated LPS-induced intestine injury. *Life Sci.* 253: 117539.

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 for detailed protocols and support products.