

ZO-1 (R40.76): sc-33725

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.

CHROMOSOMAL LOCATION

Genetic locus: TJP1 (human) mapping to 15q13.1; Tjp1 (mouse) mapping to 7 C.

SOURCE

ZO-1 (R40.76) is a rat monoclonal antibody raised against DOC-insoluble junctional ribbons isolated from liver of rat origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ZO-1 (R40.76) is available conjugated to agarose (sc-33725 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-33725 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-33725 PE), fluorescein (sc-33725 FITC), Alexa Fluor® 488 (sc-33725 AF488), Alexa Fluor® 546 (sc-33725 AF546), Alexa Fluor® 594 (sc-33725 AF594) or Alexa Fluor® 647 (sc-33725 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-33725 AF680) or Alexa Fluor® 790 (sc-33725 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

ZO-1 (R40.76) is recommended for detection of ZO-1 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for ZO-1 siRNA (h): sc-29829, ZO-1 siRNA (m): sc-29832, ZO-1 shRNA Plasmid (h): sc-29829-SH, ZO-1 shRNA Plasmid (m): sc-29832-SH, ZO-1 shRNA (h) Lentiviral Particles: sc-29829-V and ZO-1 shRNA (m) Lentiviral Particles: sc-29832-V.

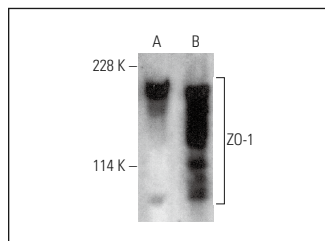
Molecular Weight of ZO-1: 220 kDa.

Positive Controls: mouse lung extract: sc-2390 or Caco-2 cell lysate: sc-2262.

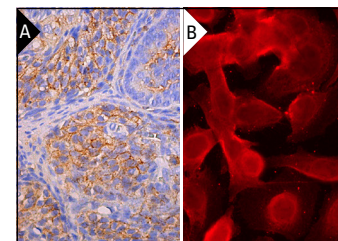
STORAGE

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

DATA



ZO-1 (R40.76) HRP: sc-33725 HRP. Direct western blot analysis of ZO-1 expression in Caco-2 (A) and mouse lung (B) whole cell lysates.



ZO-1 (R40.76): sc-33725. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat ovary tissue showing membrane staining of follicle cells (A). ZO-1 (R40.76) PE: sc-33725 PE. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (B).

SELECT PRODUCT CITATIONS

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- Su, Y., et al. 2015. Physical and functional links between anion exchanger-1 and sodium pump. *J. Am. Soc. Nephrol.* 26: 400-409.
- Campbell, C.I., et al. 2016. The RNF146 and tankyrase pathway maintains the junctional Crumbs complex through regulation of angiomin. *J. Cell Sci.* 129: 3396-3411.
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- Zhang, Y., et al. 2018. MiR-1294 confers cisplatin resistance in ovarian cancer cells by targeting IGF1R. *Biomed. Pharmacother.* 106: 1357-1363.
- Choi, E.K., et al. 2019. Impact of dietary manganese on experimental colitis in mice. *FASEB J.* 34: 2929-2943.
- Sakakibara, S., et al. 2020. Afadin regulates actomyosin organization through α E-catenin at adherens junctions. *J. Cell Biol.* 219: e201907079.

RESEARCH USE

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