Qty: 100µg/400 µL

Rabbit anti-ZO-1 (Mid)

Catalog No. 40-2200

Lot No.

Rabbit anti-ZO-1 (Mid)

FORM
This polyclonal antibody is supplied as a 400 µL aliquot at a concentration of 0.25 mg/mL in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. This antibody is epitope-affinity purified from rabbit antiserum.

PAD: ZMD.436

IMMUNOGEN
Synthetic peptide derived from the mid region of human ZO-1, which differs from dog, mouse, and rat by one conservative amino acid replacement

SPECIFICITY
This antibody reacts with the ~225 kDa ZO-1 protein. Bands of unknown origin may be observed at lower molecular weights in some sample lysates. These bands may represent breakdown products.

REACTIVITY
Reactivity has been confirmed with dog MDCK-II, human A431 and Caco-2, rat Rat-1 and NRK-52E cell lysates by Western blotting and with MDCK-II, Caco-2, Rat-1 and NRK-52E cells by immunofluorescence. Reactivity has also been confirmed with frozen mouse liver, blood vessel (in heart) and mossy fiber terminal (in brain) tissues by immunohistochemistry and immunofluorescence.

Sample	Western Blotting	Immuno-fluorescence	Immuno-histochemistry (frozen)
Human	+++	+++	ND
Dog	+++	+++	ND
Rat	+++	+++	ND
Mouse	ND	+++	+++

(Excellent +++, Good++, Poor +, No reactivity 0, Not applicable N/A, Not Determined ND)

USAGE
Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

Western Blotting: 1-3 µg/mL
Immunofluorescence: 2.5 µg/mL
Immunohistochemistry (frozen): 2 µg/mL

STORAGE
Store at 2-8°C for up to one month. Store at –20°C for long-term storage. Avoid repeated freezing and thawing.

(cont'd)

BACKGROUND

The tight junction is a cell-to-cell adhesion structure in epithelial cells that constitute the epithelial junctional complex with adherens junctions and desmosomes. Tight junctions seal cells to create a primary barrier to the diffusion of solutes across the cellular sheet and also function as a boundary between the apical and basolateral membrane domains to produce their polarization.[1] Tight junction strands are mainly composed of claudins, occludin, and JAM.[2] Various scaffold proteins have been reported to be concentrated at the cytoplasmic surfaces of the junctional complex regions to determine the specialization and localization of junctions: ZO-1, ZO-2, and ZO-3. The zona occludins (ZO) proteins constitute the plaque structures underlying plasma membranes together with various proteins including cingulin, symplekin, Par-3·Par-6·atypical protein kinase C complex, ZONAB, and guanine nucleotide exchange factor-H1/Lfc.[2] All three ZO proteins have three PDZ domains, one Src homology 3 domain, and one guanylate kinase-like homologue domain in this order from their NH_2 termini, indicating that ZO-1, ZO-2, and ZO-3 are membrane-associated guanylate kinase-like homologues (MAGUKs).[3]

A recent study showed that low levels of ZO-1 expression correlated with poor patient prognosis in breast cancer.[4] Another study observed aberrant ZO-1 expression in synovial sarcoma samples.[5]

ZO-1 antibodies are useful as tight junction markers because ZO-1 is exclusively concentrated at tight junctions, and directly binds to claudin, occludin, and JAM proteins.

REFERENCES

1. Anderson JM and Van Itallie CM. *Am J Physiol* 269:G467-G475, 1995.
2. Umeda K, et al. *J Biol Chem* 279(43):44785-44794, 2004.
3. Itoh M, et al. *J Cell Biol* 121:491-502, 1993.
4. Martin TA, et al. *Eur J Cancer* 40(18):2717-2725, 2004.
5. Billings SD, et al. *Mod Pathol* 17(2):141-149, 2004.

RELATED PRODUCTS

Product	*Conjugate*	*Cat. No.*
Protein A	Sepharose® 4B	10-1041
rec-Protein G	Sepharose® 4B	10-1241

Conjugate	ZyMAX™ Goat x Rabbit IgG (H+L)	ZyMAX™ Goat x Mouse IgG (H+L)
Purified	81-6100	81-6500
FITC	81-6111	81-6511
TRITC	81-6114	81-6514
Cy™3	81-6115	81-6515
Cy™5	81-6116	81-6516
HRP	81-6120	81-6520
AP	81-6122	81-6522
Biotin	81-6140	81-6540

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