Revision 1

ZO-3 (D57G7) XP® Rabbit mAb

Store at -20C

#3704

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IF-IC	H	Endogenous	140	Rabbit IgG	#O95049	27134

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunofluorescence (Immunocytochemistry)	1:1600

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

ZO-3 (D57G7) XP® Rabbit mAb detects endogenous levels of total ZO-3 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to carboxy-terminal residues of human ZO-3.

Background

Tight junctions, or zona occludens (ZO), form a continuous barrier to fluids across the epithelium and endothelium. They function in regulation of paracellular permeability and in the maintenance of cell polarity, blocking the movement of transmembrane proteins between the apical and the basolateral cell surfaces (reviewed in 1). ZO-1, -2, and -3 (also known as TJP1, 2, and 3) are peripheral membrane adaptor proteins that link junctional transmembrane proteins, such as occludin and claudin, to the actin cytoskeleton (reviewed in 2). ZO-1 and ZO-2 are required for tight junction formation and function (3,4). In subconfluent proliferating cells, ZO-1 and ZO-2 have been shown to colocalize to the nucleus and play a role in transcriptional regulation, possibly through facilitating nuclear import/export of transcriptional regulators (5-7). The *ZO-2* gene is transcribed from two promoters, generating the ZO-2A and ZO-2C isoforms. ZO-2C lacks a 23 amino acid amino-terminal sequence found in other ZO-2 isoforms. While both isoforms appear to be widely expressed, abnormal regulation of the *ZO-2* gene may be correlated with development of ductal cancer (8).

Exogenous expression of the amino terminal portion of ZO-3 exerts a dominant negative effect that interferes with assembly of tight junctions and adherens junctions (9). However, additional evidence indicates that tight junctions do form in the absence of ZO-3 protein (10), and that mice lacking ZO-3 appear to develop normally (11).

Background References

1. Shin, K. et al. (2006) *Annu Rev Cell Dev Biol* 22, 207-35.
2. Matter, K. and Balda, M.S. (2007) *J Cell Sci* 120, 1505-11.
3. Hernandez, S. et al. (2007) *Exp Cell Res* 313, 1533-47.
4. Umeda, K. et al. (2006) *Cell* 126, 741-54.
5. Betanzos, A. et al. (2004) *Exp Cell Res* 292, 51-66.
6. Traweger, A. et al. (2003) *J Biol Chem* 278, 2692-700.
7. Huerta, M. et al. (2007) *Mol Biol Cell* 18, 4826-36.
8. Chlenski, A. et al. (2000) *Biochim Biophys Acta* 1493, 319-24.
9. Wittchen, E.S. et al. (2000) *J Cell Biol* 151, 825-36.
10. Adachi, M. et al. (2006) *Mol Cell Biol* 26, 9003-15.
11. Xu, J. et al. (2008) *Mol Cell Biol* 28, 1669-78.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: Human

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