

ZO-1 Monoclonal Antibody (ZO1-1A12), FITC

Catalog Number33-9111

Product data sheet

Details		Species Reactivity	
Size	100 µg	Species reactivity	Dog, Human
Host/Isotope	Mouse / IgG1, kappa	Published species	Dog, Rat, Zebrafish, Mouse, Human, Not Applicable
Class	Monoclonal	Tested Applications	
Type	Antibody	ELISA (ELISA)	Dilution *0.1-1.0 µg/mL
Clone	ZO1-1A12	Western Blot (WB)	1-2 µg/mL
Immunogen	Human recombinant ZO-1 fusion protein encompassing amino acids 334-634	Immunocytochemistry (ICC/IF)	1-10 µg/mL
Conjugate	FITC	Published Applications	
Form	Liquid	Immunohistochemistry (IHC)	See 5 publications below
Concentration	0.5 mg/mL	Immunocytochemistry (ICC/IF)	See 9 publications below
Purification	Affinity chromatography	Immunohistochemistry (Frozen) (IHC (F))	See 2 publications below
Storage buffer	PBS, pH 7.4, with 50% glycerol, 1% BSA	Western Blot (WB)	See 1 publications below
Contains	0.1% sodium azide	Miscellaneous PubMed (Misc)	See 2 publications below
Storage Conditions	4° C, store in dark	Flow Cytometry (Flow)	See 1 publications below

* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

Product specific information

Species reactivity includes human (Caco-2 Cell line) and dog (MDCK cell line). Based on sequence homology, reactivity with other species is likely but has not been confirmed. This monoclonal antibody detects ZO-1alpha+ and ZO-1alpha- isoforms. The antibody is specific for ZO-1 proteins; cross-reactivity with the related ZO-2 protein has not been observed. For this FITC conjugate the excitation (EX)/emission (EM) are 494/520 (nm).

Background/Target Information

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. ZO-1 is a protein located on a cytoplasmic membrane surface of intercellular tight junctions. ZO-1 may be involved in signal transduction at cell-cell junctions. Two transcript variants encoding distinct isoforms have been identified for the ZO-1 gene. Diseases associated with ZO-1 dysfunction include Celiac Disease and Congenital Nephrotic Syndrome.

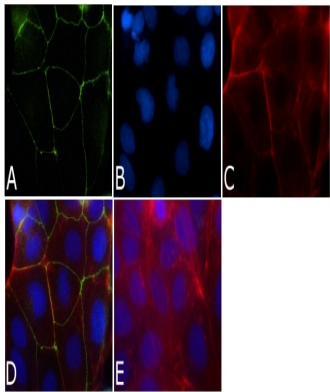
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Product Images For ZO-1 Monoclonal Antibody (ZO1-1A12), FITC



ZO-1 Antibody (33-9111) in ICC/IF

Immunofluorescence analysis of ZO-1/TJP1 Antibody, FITC conjugate (ZO1-1A12) was done on 90% confluent log phase CaCo2 cells. The cells were fixed with 4% paraformaldehyde for 15 minutes, permeabilized with 0.25% Triton™ X-100 for 10 minutes, and blocked with 5% BSA for 1 hour at room temperature. The cells were labeled with ZO-1/TJP1 Antibody, FITC conjugate (ZO1-1A12) (Product # 33-9111) at 1µg/mL in 1% BSA and incubated for 3 hours at room temperature (Panel a: green). Nuclei (Panel b: blue) were stained with SlowFade® Gold Antifade Mountant with DAPI (Product # S36938). F-actin (Panel c: red) was stained with Alexa Fluor 594 Phalloidin (Product # A12381). Panel d is a merged image showing cell junctional localization. Panel e is a no primary antibody control. The images were captured at 40X magnification.

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PubMed References For ZO-1 Monoclonal Antibody (ZO1-1A12), FITC

5 Immunohistochemistry References

Species / Dilution	Summary
Human / Not Cited	33-9111 was used in Immunohistochemistry-immunofluorescence to describe protocols to generate hPSC-derived polarized HLCs (pol-HLCs), which feature clearly defined basolateral and apical membranes separated by tight junctions and to assay the pol-HLCs for basic hepatic functions and polarized hepatic characteristics. Current protocols (2022; 2:) "Generation of Human Pluripotent Stem Cell-Derived Polarized Hepatocytes." Author(s):Bushweller L,Zhao Y,Zhang F,Wu X PubMed Article URL: http://dx.doi.org/10.1002/cpz1.345
Not Applicable / Not Cited	33-9111 was used in immunohistochemistry to study the localization of Sema3A in the cornea Experimental eye research (2008; 86: 669) "Localization of semaphorin 3A in the rat cornea." Author(s):Morishige N,Ko JA,Liu Y,Chikama T,Nishida T PubMed Article URL: http://dx.doi.org/10.1016/j.exer.2008.01.012
Mouse / 1:100	33-9111 was used in Immunohistochemistry, Immunocytochemistry to identify a direct TJ modulator lncRNA SNHG12 that is critical for the BBB integrity maintenance and oxygen adaption. Cell reports (2022; 39:) "An oxygen-adaptive interaction between SNHG12 and occludin maintains blood-brain barrier integrity." Author(s):Li Y,Wei JY,Liu H,Wang KJ,Jin SN,Su ZK,Wang HJ,Shi JX,Li B,Shang DS,Fang WG,Qin XX,Zhao WD,Chen YH PubMed Article URL: http://dx.doi.org/10.1016/j.celrep.2022.110656
Zebrafish / 1:300	33-9111 was used in Immunohistochemistry to study the mechanisms responsible for internalisation in the zebrafish neural plate. Scientific reports (2019; 9:) "Cdh2 coordinates Myosin-II dependent internalisation of the zebrafish neural plate." Author(s):Araya C,Häkkinen HM,Carcamo L,Cerda M,Savy T,Rookyard C,Peyri��ras N,Clarke JDW PubMed Article URL: http://dx.doi.org/10.1038/s41598-018-38455-w
Mouse / Not Cited	33-9111 was used in Immunohistochemistry-immunofluorescence to develop a probiotic nanomedicine (SeM@EM) that restores intestinal redox balance, immunomodulatory homeostasis and gut microbiome in acute colitis. Advanced materials (Deerfield Beach, Fla.) (2023; 35:) "Probiotic-Inspired Nanomedicine Restores Intestinal Homeostasis in Colitis by Regulating Redox Balance, Immune Responses, and the Gut Microbiome." Author(s):Xu J,Xu J,Shi T,Zhang Y,Chen F,Yang C,Guo X,Liu G,Shao D,Leong KW,Nie G PubMed Article URL: http://dx.doi.org/10.1002/adma.202207890

9 Immunocytochemistry References

Species / Dilution	Summary
Human / 1:200	33-9111 was used in Immunocytochemistry to investigate the epidemiology of B. fragilis and its virulence factors bft (enterotoxin) and ubiquitin among 181 CD patients and the impact on the intestinal epithelial barrier in vitro. Frontiers in microbiology (2021; 12:) "Higher Prevalence of <i>Bacteroides fragilis</i> in Crohn's Disease Exacerbations and Strain-Dependent Increase of Epithelial Resistance." Author(s):Becker HEF,Jamin C,Bervoets L,Boleij A,Xu P,Pierik MJ,Stassen FRM,Savelkoul PHM,Penders J,Jonkers DMAE PubMed Article URL: http://dx.doi.org/10.3389/fmicb.2021.598232
Dog / 1:100	33-9111 was used in Immunocytochemistry to show that directional migration of the mammary epithelium is a unique multistep process and that, despite sharing remarkable cellular and molecular similarities, vertebrate and invertebrate epithelial branching are fundamentally distinct processes. Cell reports (2020; 33:) "Asymmetric Stratification-Induced Polarity Loss and Coordinated Individual Cell Movements Drive Directional Migration of Vertebrate Epithelium." Author(s):Lu Y,Deng R,You H,Xu Y,Antos C,Sun J,Klein OD,Lu P PubMed Article URL: http://dx.doi.org/10.1016/j.celrep.2020.108246

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	33-9111 was used in immunocytochemistry to examine the effect of low-fluence diode laser irradiation upon the fluid perfusion characteristics of cultured human trabecular meshwork cell monolayers
Not Applicable / Not Cited	Current eye research (2007; 32: 625) "Effect of low fluence diode laser irradiation on the hydraulic conductivity of perfused trabecular meshwork endothelial cell monolayers." Author(s):Roberts CJ,Rivera BK,Grzybowski DM,Mahmoud AM,Weber PA PubMed Article URL: http://dx.doi.org/10.1080/02713680701486394
	33-9111 was used in Immunofluorescence to investigate the fate of midbodies.
Human / 1:50	Nature cell biology (2011; 13: 1214) "Midbody accumulation through evasion of autophagy contributes to cellular reprogramming and tumorigenicity." Author(s):Kuo TC,Chen CT,Baron D,Onder TT,Loewer S,Almeida S,Weismann CM,Xu P,Houghton JM,Gao FB,Daley GQ,Doxsey S PubMed Article URL: http://dx.doi.org/10.1038/ncb2332
	33-9111 was used in Immunocytochemistry-immunofluorescence to identify the interactions of dynamin II, cadherin- and occludin-based protein complexes, at the blood-testis barrier in adult rats.
Rat / 1:100	The Journal of endocrinology (2006; 191: 571) "Dynamin II interacts with the cadherin- and occludin-based protein complexes at the blood-testis barrier in adult rat testes." Author(s):Lie PP,Xia W,Wang CQ,Mruk DD,Yan HH,Wong CH,Lee WM,Cheng CY PubMed Article URL: http://dx.doi.org/10.1677/joe.1.06996
	33-9111 was used in Immunohistochemistry, Immunocytochemistry to identify a direct TJ modulator lncRNA SNHG12 that is critical for the BBB integrity maintenance and oxygen adaption.
Mouse / 1:100	Cell reports (2022; 39:) "An oxygen-adaptive interaction between SNHG12 and occludin maintains blood-brain barrier integrity." Author(s):Li Y,Wei JY,Liu H,Wang KJ,Jin SN,Su ZK,Wang HJ,Shi JX,Li B,Shang DS,Fang WG,Qin XX,Zhao WD,Chen YH PubMed Article URL: http://dx.doi.org/10.1016/j.celrep.2022.110656
	33-9111 was used in immunocytochemistry to examine the ability of nonionic block copolymers to abrogate barrier failure in response to bile acid exposure.
Human / Not Cited	Shock (Augusta, Ga.) (2011; 36: 451) "Protective effects of nonionic triblock copolymers on bile acid-mediated epithelial barrier disruption." Author(s):Edelstein A,Fink D,Musch M,Valuckaite V,Zaborina O,Grubjesic S,Firestone MA,Matthews JB,Alverdy JC PubMed Article URL: http://dx.doi.org/10.1097/SHK.0b013e31822d8de1
	The Journal of biological chemistry (2005; 280: 12908) "Apical localization of a functional TRPC3/TRPC6-Ca2+-signaling complex in polarized epithelial cells. Role in apical Ca2+ influx." Author(s):Bandyopadhyay BC,Swaim WD,Liu X,Redman RS,Patterson RL,Ambudkar IS PubMed Article URL: http://dx.doi.org/10.1074/jbc.M410013200
	33-9111 was used in Immunocytochemistry-Immunofluorescence to demonstrate for the first time the feasibility of constructing a multiorgan microphysiological system with recirculating flow that incorporates a "breathable" lung module that maintains an air-liquid interface.
Human / Not Cited	Biotechnology and bioengineering (2020; 117: 486) "Multiorgan microfluidic platform with breathable lung chamber for inhalation or intravenous drug screening and development." Author(s):Miller PG,Chen CY,Wang YI,Gao E,Shuler ML PubMed Article URL: http://dx.doi.org/10.1002/bit.27188

2 Immunohistochemistry (Frozen) References

Species / Dilution	Summary
	33-9111 was used in immunohistochemistry - frozen section and western blot to test if di(2-ethylhexyl) phthalate alters the expression of testicular gap and tight junction proteins
Not Applicable / 1:5	Microscopy research and technique (2009; 72: 868) "Effects of di(2-ethylhexyl) phthalate on gap and tight junction protein expression in the testis of prepubertal rats." Author(s):Sobarzo CM,Lustig L,Ponzio R,Suescun MO,Denduchis B PubMed Article URL: http://dx.doi.org/10.1002/jemt.20741

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33-9111 was used in immunohistochemistry - frozen section to study the role of EB1 in tubulin and actin cytoskeletal networks at the sertoli cell blood-testis barrier.

Endocrinology (2015; 156: 680)

"EB1 regulates tubulin and actin cytoskeletal networks at the sertoli cell blood-testis barrier in male rats: an in vitro study."

Author(s):Tang EI,Mok KW, Lee WM,Cheng CY

PubMed Article URL:<http://dx.doi.org/10.1210/en.2014-1720>

Rat / 1:100

1 Western Blot References

Species / Dilution	Summary
Human / Not Cited	Experimental dermatology (2012; 21: 586) "Hailey-Hailey disease and tight junctions: Claudins 1 and 4 are regulated by ATP2C1 gene encoding Ca(2+) /Mn (2+) ATPase SPCA1 in cultured keratinocytes." Author(s):Raiko L,Siljamäki E,Mahoney MG,Putala H,Suominen E,Peltonen J,Peltonen S PubMed Article URL: http://dx.doi.org/10.1111/j.1600-0625.2012.01520.x

2 Miscellaneous PubMed References

Species / Dilution	Summary
Rat / Not Cited	33-9111 was used in immunohistochemistry to study the regulation of adheren junction assembly. Endocrinology (2003; 144: 2141) "Adhering junction dynamics in the testis are regulated by an interplay of beta 1-integrin and focal adhesion complex-associated proteins." Author(s):Siu MK,Mruk DD, Lee WM,Cheng CY PubMed Article URL: http://dx.doi.org/10.1210/en.2002-221035
Human / Not Cited	33-9111 was used in immunocytochemistry to study the immune responses of uncomplicated versus cerebral malaria patients Cellular microbiology (2011; 13: 198) "Vascular endothelial cells cultured from patients with cerebral or uncomplicated malaria exhibit differential reactivity to TNF." Author(s):Wassmer SC,Moxon CA,Taylor T,Grau GE,Molyneux ME,Craig AG PubMed Article URL: http://dx.doi.org/10.1111/j.1462-5822.2010.01528.x

1 Flow Cytometry References

Species / Dilution	Summary
Not Applicable / Not Cited	33-9111 was used in flow cytometry to isolate and characterize multipotent mesenchymal stem cells from term human placenta American journal of obstetrics and gynecology (2010; 202: 193.e1) "Multipotent mesenchymal stem cells from human placenta: critical parameters for isolation and maintenance of stemness after isolation." Author(s):Semenov OV,Koestenbauer S,Riegel M,Zech N,Zimmermann R,Zisch AH, Malek A PubMed Article URL: http://dx.doi.org/10.1016/j.ajog.2009.10.869

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