

Claudin-4, Mouse Monoclonal Antibody - Alexa Fluor 594

Catalog no. 329494

(See product label for lot information)

Product Description

100 µg monoclonal antibody conjugated to Alexa Fluor 594.

Clone/PAD: 3E2C1
Isotype: Mouse IgG1
Qty: 100 µg
Volume: 200 µL

Formulation

Supplied as a 200 µL aliquot at a concentration of 0.5 mg/mL in PBS, pH 7.4, containing 0.1% sodium azide, and 4 mg/mL BSA.

Purification Method

This monoclonal antibody is highly purified from mouse ascites by protein A chromatography, before conjugation.

Validation

See www.invitrogen.com/antibodies for protocols

Immunofluorescence: 2.5-10 µg/mL

Western Blotting (un-conjugated): 1-3 µg/mL

Immunohistochemistry: 2-3 µg/mL

Reactivity

Reactivity has been confirmed with human, rat ileum homogenates, and canine MDCK cell lysates by Western blotting and immunofluorescence. Reactivity has also been confirmed with formalin-fixed, paraffin-embedded (FFPE) human normal colon and colon cancer tissues by immunohistochemistry.

Specificity

This antibody reacts specifically with the ~ 22 kDa Claudin-4 protein and does not cross-react with the protein at 55 kDa.

Immunogen

Synthetic peptide corresponding to a 22 amino acid sequence derived from the C-terminal region of human Claudin-4

Storage

Store reagents at 2-8°C. Light exposure should be avoided.

Expiration Date

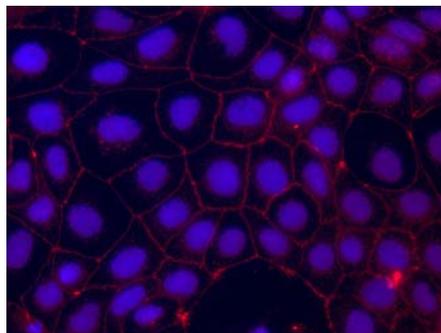
Expires one year from date of receipt when stored as instructed.

<u>Catalog No.</u>	<u>Conjugation</u>	<u>EX (nm)</u>	<u>EM (nm)</u>
329400	Un-conjugated	--	--
329488	Alexa 488®	495	519
329494	Alexa 594®	590	617

Background

Initially only transmembrane protein known to be associated with tight junctions was occludin, an ~65 kDa protein with four transmembrane domains. Despite widespread expectation, a critical structural role for occludin in TJ strands was ruled out by the observation of apparently normal tight junctions formed between cells disrupted at both occludin alleles. (1) A closer examination of isolated tight junctions uncovered two related ~22 kDa, four-transmembrane domain proteins, claudin-1 and claudin-2, with no similarity to occludin. In contrast to occludin, which induces only a small number of short strands at cell-cell contact sites when introduced into fibroblasts lacking tight junctions, claudin-1 and -2 induce networks of strands characteristic of true tight junctions. (2,3) Though inconclusive, these findings suggest that claudin-1 and -2 are major structural components of TJ strands and that occludin plays some other accessory role. Excitement in the tight junction field continues to rise following the recent discovery of claudins -3, -4, -5, -6, -7, and -8 and experiments suggesting that tight junctions in different tissues are comprised of different sets of claudin family proteins.4

The overexpression of Claudin-4 was found to decrease paracellular electrical conductance due to a selective decrease in Na⁺ permeability, with no significant change for Cl⁻. Claudin-4 is the first to confer ionic selectivity to paracellular transport, leading to the prediction that the combination of different claudins defines the overall selectivity of different junctions. Thus, Claudin-4 forms channels through the tight junctions that discriminate against Na⁺ ions and are indifferent to Cl⁻ ions. (5)



Immunofluorescence: Claudin-4, Mouse Monoclonal Antibody - Alexa Fluor 594: Catalog No. 329494

Human Caco-2 cells stained with Claudin-4, Mouse Monoclonal Antibody - Alexa Fluor 594 (Cat.No. 329494). DNA is counter stained with blue Hoechst 33258 (Cat. No H3569). For high resolution colored figure, please visit the product page online.

References

1. Saitou M, et al. J Cell Biol 141:397-408, 1998.
2. Furuse M, et al. J Cell Biol 143:391-401, 1998.
3. Tsukita S, Furuse M. Genes Cells 3:569-573, 1998.
4. Morita K, et al. PNAS 96:511-516, 1999.
5. Van Itallie CM, et al. J Clin Invest 107(10):1319-1327, 2001.

Explanation of symbols			
Symbol	Description	Symbol	Description
	Catalogue Number		Batch code
	Research Use Only		In vitro diagnostic medical device
	Use by		Temperature limitation
	Manufacturer		European Community authorised representative
	Without, does not contain		With, contains
	Protect from light		Consult accompanying documents
	Directs the user to consult instructions for use (IFU), accompanying the product.		

For research use only. CAUTION: Not for human or animal therapeutic or diagnostic use.

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