PRODUCT INFORMATION

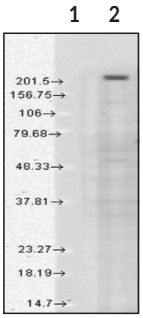
TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74)

Item No. 13720

Overview and Properties

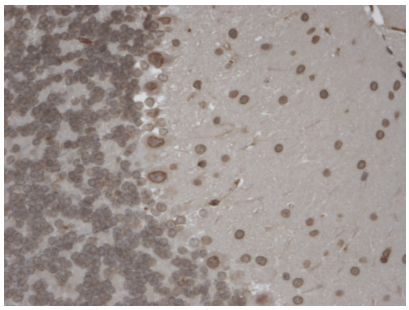
Contents:	This vial contains 100 µg of protein G-affinity purified monoclonal antibody.
Immunogen:	Fusion protein amino acids 1,817-1,863 of mouse TRPM7
Species Reactivity:	(+) Human, mouse, rat; other species not tested
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.4, with 50% glycerol and 0.09% sodium azide
Concentration:	1 mg/ml
Clone:	S74
Host:	Mouse
Isotype:	IgG1
Applications:	Immunocytochemistry (ICC), Immunofluorescence (IF), Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution is 1:100 for ICC and IF and 1:1,000 for IHC and WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Lane 1: MW Markers
Lane 2: Human cell lysates (15 µg)

WB of TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74) at a dilution of 1:1,000 for two hours at room temperature.



Immunohistochemical staining of formalin-fixed and paraffin-embedded mouse brain slice using TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74) at a dilution of 1:1,000 for one hour at room temperature. Following incubation with TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74), cells/tissues were incubated with biotinylated goat anti-mouse, streptavidin peroxidase, and DAB chromogen (brown) for 30 minutes at room temperature, then counterstained using Mayer Hematoxylin (purple/blue) nuclear stain at a concentration of 250-500 µl for five minutes at room temperature.

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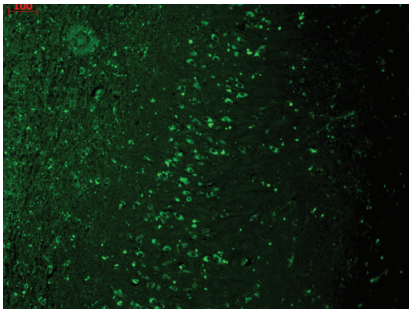
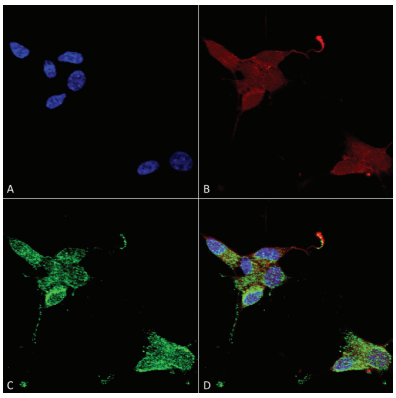
Images continued



Immunohistochemical staining of formalin-fixed and paraffin-embedded human hippocampus using TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74) at a dilution of 1:1,000 for one hour at room temperature. Following incubation with TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74), cells/tissues were incubated with FITC goat anti-mouse (green) at a dilution of 1:50 for one hour at room temperature.



Immunocytochemistry/Immunofluorescence staining of formalin-fixed human neuroblastoma cells using TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74) at a dilution of 1:50 overnight at 4°C with slow rocking. Following incubation with TRPM7 Ion Channel Ser/Thr Kinase Monoclonal Antibody (Clone S74), cells/tissues were incubated with AlexaFluor 488 at a dilution of 1:1,000 for one hour at room temperature and stained with Phalloidin-iFluor 647 (red) F-Actin stain, Hoechst (blue) nuclear stain at 1:800, 1.6 mM for 20 minutes at room temperature with the following: (A) Hoechst (blue) nuclear stain. (B) Phalloidin-iFluor 647 (red) F-Actin stain. (C) HCN1 Antibody (D) Composite.

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Description

Ion channels are integral membrane proteins that help establish and control the small voltage gradient across the plasma membrane of living cells by allowing the flow of ions down their electrochemical gradient.[1] They are present in the membranes that surround all biological cells and their main function is to regulate the flow of ions across this membrane. Whereas some ion channels permit the passage of ions based on charge, others conduct based on a ionic species, such as sodium or potassium. Furthermore, in some ion channels, the passage is governed by a gate which is controlled by chemical or electrical signals, temperature, or mechanical forces. There are a few main classifications of gated ion channels. There are voltage-gated ion channels, ligand-gated, other gating systems, and finally those that are classified differently, having more exotic characteristics. The first are voltage-gated ion channels which open and close in response to membrane potential. These are then seperated into sodium, calcium, potassium, proton, transient receptor, and cyclic nucleotide-gated channels, each of which is responsible for a unique role. Ligand-gated ion channels are also known as ionotropic receptors and they open in response to specific ligand molecules binding to the extracellular domain of the receptor protein. The other gated classifications include activation and inactivation by second messengers, inward-rectifier potassium channels, calcium-activated potassium channels, two-pore-domain potassium channels, light-gated channels, mechano-sensitive ion channels, and cyclic nucleotide-gated channels. Finally, the other classifications are based on less normal characteristics such as two-pore channels and transient receptor potential channels.[2] TRPs, mammalian homologs of the *Drosophila* transient receptor potential (TRP) protein, are ion channels that are thought to mediate capacitative calcium entry into the cell. TRP-PLIK is a protein that is both an ion channel and a kinase. As a channel, it conducts calcium and monovalent calcium. As a kinase, it is capable of phosphorylating itself and other substrates. The kinase activity is necessary for channel function, as shown by its dependence on intracellular ATP and by the kinase mutant.[3,4]

References

1. Hille, B. *Ion Channels of Excitable Membranes*. 3rd ed., *Sinauer Associates Inc*. Sunderland, MA (2001).
2. What are ion channels? Retrieved October 22, 2009 from https://www.ionchannels.org/.
3. Brauchi, S., Krapivinsky, G., Krapivinsky, L., *et al*. TRPM7 facilitates cholinergic vesicle fusion with the plasma membrane. *Proc. Natl. Acad. Sci. USA* **105(24)**, 8304-8308 (2008).
4. Numata, T. and Okada, Y. Proton conductivity through the human TRPM7 channel and its molecular determinants. *J. Biol. Chem*. **283(22)**, 15097-15103 (2008).

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