Revision 1

Store at -20C

#14380

Pan Na Channel α Subunit (D2I9C) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	230-260	Rabbit IgG	#Q14524, #P35499, #Q9Y5Y9, #Q9UQD0, #Q99250, #P35498, #Q01118, #Q9UI33, #Q15858	6331, 6329, 6336, 6334, 6326, 6323, 6332, 11280, 6335

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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

Pan Na Channel α Subunit (D2I9C) Rabbit mAb recognizes endogenous levels of Na channel α subunits.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to cytoplasmic residues between repeats of III and IV of all human Na channel α subunits.

Background

Voltage gated sodium channels are composed of a large alpha subunit and auxiliary beta subunits. The alpha subunit has 4 homologous domains, with each domain containing 6 transmembrane segments. These segments function as the voltage sensor and sodium permeable pore. Upon change of membrane potential, the sodium channel is activated, which allows sodium ions to flow through (1,2). When associated with beta subunits or other accessory proteins, the alpha subunit is regulated at the level of cell surface expression, kinetics, and voltage dependence (3,4).

There are 9 mammalian alpha subunits, named Nav1.1-Nav1.9 (5). These alpha subunits differ in tissue specificity and biophysical functions (6,7). Seven of these subunits are essential for the initiation and propagation of action potentials in the central and peripheral nervous system while Nav1.4 and Nav1.5 are mainly expressed in skeletal muscle and cardiac muscle (8,9). Mutations in these alpha channel subunits have been identified in patients with epilepsy, seizure, ataxia, sensitivity to pain, and cardiomyopathy (reviewed in 10).

Background References

1. Catterall, W.A. (2000) *Neuron* 26, 13-25.
2. Yu, F.H. and Catterall, W.A. (2003) *Genome Biol* 4, 207.
3. Isom, L.L. et al. (1994) *Neuron* 12, 1183-94.
4. Yu, F.H. et al. (2003) *J Neurosci* 23, 7577-85.
5. Goldin, A.L. et al. (2000) *Neuron* 28, 365-8.
6. Plummer, N.W. and Meisler, M.H. (1999) *Genomics* 57, 323-31.
7. Goldin, A.L. (2001) *Annu Rev Physiol* 63, 871-94.
8. George, A.L. et al. (1992) *Ann Neurol* 31, 131-7.
9. Ou, Y. et al. (2002) *Neurogastroenterol Motil* 14, 477-86.
10. Meisler, M.H. and Kearney, J.A. (2005) *J Clin Invest* 115, 2010-7.

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 **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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