

Nav1.7 Antibody



Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	M R	Endogenous	230-250	Rabbit	#Q15858	6335

Product Usage Information

Application

Western Blotting
Immunoprecipitation

Dilution

1:1000
1:50

Storage

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

Specificity/Sensitivity

Nav1.7 Antibody recognizes endogenous levels of total Nav1.7 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human Nav1.7 protein. Antibodies are purified by protein A and peptide affinity chromatography.

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).

The Nav1.7 alpha subunit (Nav1.7, SCN9A) plays an important role in nociception signaling and is essential for acute, inflammatory, and neuropathic pain perception (11,12). Mutations in the corresponding *SCN9A* gene are associated with primary erythralgia, autosomal recessive congenital indifference to pain, and paroxysmal extreme pain disorder (13-15). Mutations in *SCN9A* cause the GEFS7 form of generalized epilepsy with febrile seizures, and are implicated in many cases of Dravet syndrome, a severe form of pediatric epileptic encephalopathy (16).

Background References

- Catterall, W.A. (2000) *Neuron* 26, 13-25.
- Yu, F.H. and Catterall, W.A. (2003) *Genome Biol* 4, 207.
- Isom, L.L. et al. (1994) *Neuron* 12, 1183-94.
- Yu, F.H. et al. (2003) *J Neurosci* 23, 7577-85.
- Goldin, A.L. et al. (2000) *Neuron* 28, 365-8.
- Plummer, N.W. and Meisler, M.H. (1999) *Genomics* 57, 323-31.
- Goldin, A.L. (2001) *Annu Rev Physiol* 63, 871-94.
- George, A.L. et al. (1992) *Ann Neurol* 31, 131-7.
- Ou, Y. et al. (2002) *Neurogastroenterol Motil* 14, 477-86.
- Meisler, M.H. and Kearney, J.A. (2005) *J Clin Invest* 115, 2010-7.
- Minett, M.S. et al. (2012) *Nat Commun* 3, 791.
- Minett, M.S. et al. (2014) *PLoS One* 9, e104458.
- Yang, Y. et al. (2004) *J Med Genet* 41, 171-4.
- Cox, J.J. et al. (2010) *Hum Mutat* 31, E1670-86.
- Fertleman, C.R. et al. (2006) *Neuron* 52, 767-74.
- Mulley, J.C. et al. (2013) *Epilepsia* 54, e122-6.

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

M: Mouse **R:** Rat

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.