Revision 1

Store at -20C

#14684

Na Channel β1 Subunit (D9T5B) Rabbit mAb

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	38	Rabbit IgG	#Q07699	6324

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100

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

Na Channel β1 Subunit (D9T5B) Rabbit mAb recognizes endogenous levels of total sodium channel β1 subunit protein. This antibody also cross-reacts with an unidentified protein of 60 kDa in whole brain lysate.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala51 of human sodium channel β1 subunit protein.

Background

Mammalian voltage-gated sodium channels (VGSCs) are composed of a pore-forming α subunit and one or more regulatory β subunits (1). Four separate genes (SCN1B-SCN4B) encode the five mammalian β subunits β1, β1B, β2, β3, and β4. In general, β subunit proteins are type I transmembrane proteins, with the exception of secreted β1B protein (reviewed in 2). β subunits regulate α subunit gating and kinetics, which controls cell excitability (3,4). Sodium channel β subunits also function as Ig superfamily cell adhesion molecules that regulate cell adhesion and migration (5,6). Additional research reveals sequential processing of β subunit proteins by β-secretase (BACE1) and γ secretase, resulting in ectodomain shedding of β subunit and generation of an intracellular carboxy-terminal fragment (CTF). Generation of the CTF is thought to play a role in cell adhesion and migration (7,8). Multiple studies demonstrate a link between β subunit gene mutations and a number of disorders, including epilepsy, cardiac arrhythmia, multiple sclerosis, neuropsychiatric disorders, neuropathy, inflammatory pain, and cancer (9-13).
The sodium channel β1 subunit (SCN1B) plays a crucial role in neuronal migration and pathfinding during brain development (14). Mutations in the corresponding *SCN1B* gene are associated with generalized epilepsy with febrile seizures plus 1 (15), Brugada syndrome (16), and familial atrial fibrillation (17). A *SCN1B* loss of function mutation results in a severe form of pediatric epileptic encephalopathy known as Dravet syndrome (18).

Background References

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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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Limited Uses