

#13950 Store at -20°C

Na Channel $\beta 1$ Subunit (D4Z2N) Rabbit mAb



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

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 μ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C . Do not aliquot the antibody.

Specificity / Sensitivity

Na Channel $\beta 1$ Subunit (D4Z2N) Rabbit mAb recognizes endogenous levels of total sodium channel $\beta 1$ subunit protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human sodium channel $\beta 1$ 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 $\beta 1$, $\beta 1B$, $\beta 2$, $\beta 3$, and $\beta 4$. In general, β subunit proteins are type I transmembrane proteins, with the exception of secreted $\beta 1B$ 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 $\beta 1$ 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

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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