SANTA CRUZ BIOTECHNOLOGY, INC.

CHRNB4 (E-3): sc-514315

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Members of the ligand-gated ion channel receptor family are characterized by their fast transmitting response to neurotransmitters. Two important members of this family are the nicotinic acetylcholine and glutamate receptors, both of which are composed of five homologous subunits forming a transmembrane aqueous pore. These transmembrane receptors change conformation in response to their cognate neurotransmitter. Nicotinic acetylcholine receptors (AChRs) are found at the postsynaptic membrane of the neuromuscular junction and bind acetylcholine molecules, allowing ions to move through the pore. Glutamate receptors are found in the postsynaptic membrane of cells in the central nervous system. The activity that is generated at the synapse by the binding of acetylcholine is terminated by acetylcholinesterase, an enzyme that rapidly hydrolyzes acetylcholine. CHRNB4 (cholinergic receptor, nicotinic, β 4) is a 498 amino acid member of the ligand-gated ionic channel family. CHRNB4 plays a role in the glutamatergic pathway and my be associated with nicotine dependence.

REFERENCES

1. Marks, M.J., et al. 2006. Deletion of the α7, β2, or β4 nicotinic receptor subunit genes identifies highly expressed subtypes with relatively low affinity for [^{3}H]epibatidine. Mol. Pharmacol. 70: 947-959.
2. Shi, J., et al. 2007. No evidence for association between 19 cholinergic genes and bipolar disorder. Am. J. Med. Genet. B, Neuropsychiatr. Genet. 144B: 715-723.
3. De Marco, E.V., et al. 2007. Further evidence of genetic heterogeneity in families with autosomal dominant nocturnal frontal lobe epilepsy. Epilepsy Res. 74: 70-73.
4. Kedmi, M. and Orr-Urtreger, A. 2007. Differential brain transcriptome of β4 nAChR subunit-deficient mice: is it the effect of the null mutation or the background strain? Physiol. Genomics 28: 213-222.

CHROMOSOMAL LOCATION

Genetic locus: CHRNB4 (human) mapping to 15q25.1.

SOURCE

CHRNB4 (E-3) is a mouse monoclonal antibody raised against amino acids 336-432 mapping near the C-terminus within a cytoplasmic domain of CHRNB4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CHRNB4 (E-3) is available conjugated to agarose (sc-514315 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514315 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514315 PE), fluorescein (sc-514315 FITC), Alexa Fluor® 488 (sc-514315 AF488), Alexa Fluor® 546 (sc-514315 AF546), Alexa Fluor® 594 (sc-514315 AF594) or Alexa Fluor® 647 (sc-514315 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514315 AF680) or Alexa Fluor® 790 (sc-514315 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CHRNB4 (E-3) is recommended for detection of CHRNB4 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CHRNB4 siRNA (h): sc-72904, CHRNB4 shRNA Plasmid (h): sc-72904-SH and CHRNB4 shRNA (h) Lentiviral Particles: sc-72904-V.

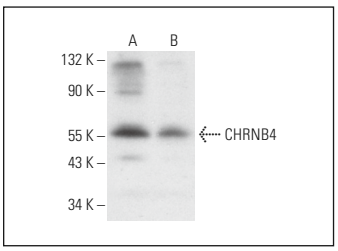
Molecular Weight of CHRNB4: 56 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812 or IMR-32 cell lysate: sc-2409.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CHRNB4 (E-3): sc-514315. Western blot analysis of CHRNB4 expression in SH-SY5Y (**A**) and IMR-32 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wu, H.F., et al. 2024. Protocol for generating postganglionic sympathetic neurons using human pluripotent stem cells for electrophysiological and functional assessments. STAR Protoc. 5: 102970.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.