SANTA CRUZ BIOTECHNOLOGY, INC.

AChRβ2 (270): sc-58596

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. AChRβ2, also known as EFNL3 or CHRNB2, is a 502 amino acid multi-pass membrane protein that is associated with nocturnal frontal lobe epilepsy type 3 (ENFL3), an autosomal dominant epilepsy characterized by nocturnal seizures with hyperkinetic automatisms and poorly organized stereotyped movements.

REFERENCES

1. Alkondon, M., et al. 1988. Acetylcholinesterase reactivators modify the functional properties of the nicotinic acetylcholine receptor ion channel. J. Pharmacol. Exp. Ther. 245: 543-556.
2. Betz, H. 1990. Ligand-gated ion channels in the brain: the amino acid receptor superfamily. Neuron 5: 383-392.
3. Baenziger, J.E., et al. 1992. Probing conformational changes in the nicotinic acetylcholine receptor by Fourier transform infrared difference spectroscopy. Biophys. J. 62: 64-66.
4. Daw, N.W., et al. 1993. The role of NMDA receptors in information processing. Annu. Rev. Neurosci. 16: 207-222.
5. Unwin, N. 1993. Neurotransmitter action: opening of ligand-gated ion channels. Cell 72: 31-41.
6. Stevens, C.F. 1993. Quantal release of neurotransmitter and long-term potentiation. Cell 72: 55-63.
7. Sargent, P.B. 1993. The diversity of neuronal nicotinic acetylcholine receptors. Annu. Rev. Neurosci. 16: 403-443.
8. Ramirez-Latorre, J., et al. 1996. Functional contributions of α5 subunit to neuronal acetylcholine receptor channels. Nature 380: 347-351.

CHROMOSOMAL LOCATION

Genetic locus: CHRNB2 (human) mapping to 1q21.3; Chrnb2 (mouse) mapping to 3 F1.

SOURCE

AChRβ2 (270) is a rat monoclonal antibody raised against purified AChRβ2 from brain tissue homogenate of chicken origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

AChRβ2 (270) is recommended for detection of AChRβ2 of mouse, rat, avian and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for AChRβ2 siRNA (h): sc-42536, AChRβ2 siRNA (m): sc-42537, AChRβ2 shRNA Plasmid (h): sc-42536-SH, AChRβ2 shRNA Plasmid (m): sc-42537-SH, AChRβ2 shRNA (h) Lentiviral Particles: sc-42536-V and AChRβ2 shRNA (m) Lentiviral Particles: sc-42537-V.

Molecular Weight of AChRβ2: 50 kDa.

Positive Controls: BC_3H1 cell lysate: sc-2299 or Daudi cell lysate: sc-2415.

SELECT PRODUCT CITATIONS

1. Whiting, P., et al. 1986. Pharmacological properties of immuno-isolated neuronal nicotinic receptors. J. Neurosci. 6: 3061-3069.
2. Xiao, Y., et al. 2016. Inhibited expression of α4β2 nicotinic acetylcholine receptor in blood leukocytes of Chinese patients with vascular dementia and in blood leukocytes as well as the hippocampus of brain from ischemic rats. Cell. Mol. Neurobiol. 36: 1377-1387.
3. Zhao, L., et al. 2018. Protection against the neurotoxic effects of β-Amyloid peptide on cultured neuronal cells by lovastatin involves elevated expression of α7 nicotinic acetylcholine receptors and activating phosphorylation of protein kinases. Am. J. Pathol. 188: 1081-1093.
4. Li, Z.L., et al. 2022. A novel effect of PDLIM5 in α7 nicotinic acetylcholine receptor upregulation and surface expression. Cell. Mol. Life Sci. 79: 64.
5. Qin, C., et al. 2022. CHRNB2 represses pancreatic cancer migration and invasion via inhibiting β-catenin pathway. Cancer Cell Int. 22: 340.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.