SANTA CRUZ BIOTECHNOLOGY, INC.

AChRα1 (71): sc-65826

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. AChRα1, also known as ACHRD, CHRNA, CMS2A, FCCMS, SCCMS or CHRNA1, is a 482 amino acid multi-pass membrane protein that exists as two alternatively spliced isoforms, which are expressed in different tissues. Isoform 1 is only expressed in skeletal muscle whereas isoform 2 is constitutively expressed in skeletal muscle, brain, heart, kidney, liver, lung and thymus.

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 apcid 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. Unwin, N. 1993. Neurotransmitter action: opening of ligand-gated ion channels. Cell 72: 31-41.
5. Stevens, C.F. 1993. Quantal release of neurotransmitter and long-term potentiation. Cell 72: 55-63.
6. Daw, N.W., et al. 1993. The role of NMDA receptors in information processing. Annu. Rev. Neurosci. 16: 207-222.
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: Chrna1 (mouse) mapping to 2 C3.

SOURCE

AChRα1 (71) is a rat monoclonal antibody raised against intact AChRα1 from fetal muscle of bovine origin.

PRODUCT

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

APPLICATIONS

AChRα1 (71) is recommended for detection of nicotinic AChRα1 of mouse, rat and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of AChRα1 isoform 1: 52 kDa.

Molecular Weight of AChRα1 isoform 2: 55 kDa.

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.

See **AChRα1 (153): sc-65829** for AChRα1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.