

AChRβ1 (E-2): sc-166032

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. AChRβ1, also known as CHRNA1, CMS1D, CMS2A, SCCMS or CHRNA1, is a 501 amino acid protein that belongs to the ligand-gated ionic channel family. Defects in the gene encoding AChRβ1 may be the cause of congenital myasthenic syndrome slow-channel type (SCCMS), which is characterized by muscle weakness affecting the axial and limb muscles, the ocular muscles and the facial and bulbar musculature.

REFERENCES

1. Alkonon, 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.

CHROMOSOMAL LOCATION

Genetic locus: CHRNA1 (human) mapping to 17p13.1; Chna1 (mouse) mapping to 11 B3.

SOURCE

AChRβ1 (E-2) is a mouse monoclonal antibody raised against amino acids 356-456 mapping near the C-terminus of AChRβ1 of human origin.

PRODUCT

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

RESEARCH USE

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

APPLICATIONS

AChRβ1 (E-2) is recommended for detection of acetylcholine receptor β1 subunit of mouse, rat and 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 AChRβ1 siRNA (h): sc-29630, AChRβ1 siRNA (m): sc-29631, AChRβ1 shRNA Plasmid (h): sc-29630-SH, AChRβ1 shRNA Plasmid (m): sc-29631-SH, AChRβ1 shRNA (h) Lentiviral Particles: sc-29630-V and AChRβ1 shRNA (m) Lentiviral Particles: sc-29631-V.

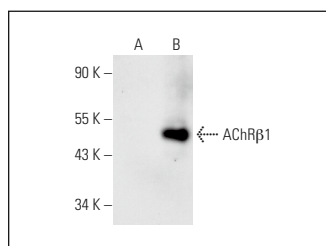
Molecular Weight of AChRβ1: 55 kDa.

Positive Controls: AChRβ1 (h): 293 Lysate: sc-111175, mouse heart extract: sc-2254 or rat skeletal muscle extract: sc-364810.

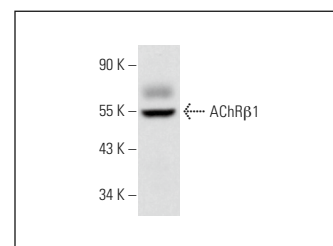
RECOMMENDED SUPPORT REAGENTS

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



AChRβ1 (E-2): sc-166032. Western blot analysis of AChRβ1 expression in non-transfected: sc-110760 (A) and human AChRβ1 transfected: sc-111175 (B) 293 whole cell lysates.



AChRβ1 (E-2): sc-166032. Western blot analysis of AChRβ1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Cai, Y., et al. 2021. A stable cell line expressing clustered AChR: a novel cell-based assay for anti-AChR antibody detection in myasthenia gravis. *Front. Immunol.* 12: 666046.

STORAGE

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