

AChR α 9 (8E4): sc-293282

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. AChR α 9 is the only AChR found in cochlear hair cells. In adult rat cochlear outer hair cells (OHCs), AChR α 9 is expressed primarily in basal regions, where it is a component of the cholinergic receptor, while in inner hair cells (IHCs), it is expressed primarily in apical regions. The α 9 subunit mediates efferent synaptic transmission between cholinergic olivocochlear fibers and OHCs. One of the main functions of the AChR α 9 channel is to provide a pathway for calcium ion influx. AChR α 9 may also influence the arrival of efferent axons.

REFERENCES

- Changeux, J., et al. 1987. The nicotinic acetylcholine receptor: molecular architecture of a ligand-regulated ion channel. *Trends Pharmacol. Sci.* 8: 459-465.
- Elgoyhen, A.B., et al. 1994. α 9: an acetylcholine receptor with novel pharmacological properties expressed in rat cochlear hair cells. *Cell* 79: 705-715.
- Simmons, D.D., et al. 1998. Differential expression of the α 9 nicotinic acetylcholine receptor subunit in neonatal and adult cochlear hair cells. *Brain Res. Mol. Brain Res.* 56: 287-292.
- Vetter, D.E., et al. 1999. Role of α 9 nicotinic ACh receptor subunits in the development and function of cochlear efferent innervation. *Neuron* 23: 93-103.
- Lustig, L.R., et al. 1999. Vestibular hair cells of the chick express the nicotinic acetylcholine receptor subunit α 9. *J. Vestib. Res.* 9: 359-367.

CHROMOSOMAL LOCATION

Genetic locus: CHR9A9 (human) mapping to 4p14; Chrna9 (mouse) mapping to 5 C3.1.

SOURCE

AChR α 9 (8E4) is a mouse monoclonal antibody raised against amino acids 139-221 of AChR α 9 of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

AChR α 9 (8E4) is recommended for detection of AChR α 9 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

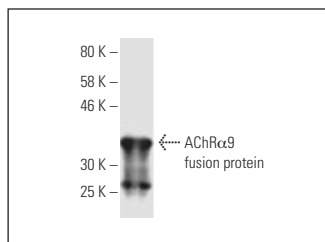
Suitable for use as control antibody for AChR α 9 siRNA (h): sc-42534, AChR α 9 siRNA (m): sc-42535, AChR α 9 shRNA Plasmid (h): sc-42534-SH, AChR α 9 shRNA Plasmid (m): sc-42535-SH, AChR α 9 shRNA (h) Lentiviral Particles: sc-42534-V and AChR α 9 shRNA (m) Lentiviral Particles: sc-42535-V.

Molecular Weight of AChR α 9: 50 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).

DATA



AChR α 9 (8E4): sc-293282. Western blot analysis of human recombinant AChR α 9 fusion protein.

SELECT PRODUCT CITATIONS

- Liu, Y., et al. 2019. Cervical cancer correlates with the differential expression of nicotinic acetylcholine receptors and reveals therapeutic targets. *Mar. Drugs* 17: 256.
- Sun, Z., et al. 2020. Differential expression of nicotine acetylcholine receptors associates with human breast cancer and mediates antitumor activity of α O-conotoxin GeXIVA. *Mar. Drugs* 18: 61.
- Sun, Z., et al. 2020. α O-conotoxin GeXIVA inhibits the growth of breast cancer cells via interaction with α 9 nicotine acetylcholine receptors. *Mar. Drugs* 18: 195.
- Zhao, H.B., et al. 2022. Efferent neurons control hearing sensitivity and protect hearing from noise through the regulation of gap junctions between cochlear supporting cells. *J. Neurophysiol.* 127: 313-327.

RESEARCH USE

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