

AChR $\epsilon$  (D-6): sc-376826

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. AChR $\epsilon$ , also known as CMS1D, CMS1E, CMS2A, FCCMS, SCCMS or CHRNE, is a 493 amino acid multi-pass membrane protein associated with congenital myasthenic syndrome slow-channel type (SCCMS), congenital myasthenic syndrome fast-channel type (FCCMS) and congenital myasthenic syndrome with acetylcholine receptor deficiency.

## REFERENCES

- 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.
- Betz, H. 1990. Ligand-gated ion channels in the brain: the amino acid receptor superfamily. *Neuron* 5: 383-392.
- 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.
- Daw, N.W., et al. 1993. The role of NMDA receptors in information processing. *Annu. Rev. Neurosci.* 16: 207-222.
- Unwin, N. 1993. Neurotransmitter action: opening of ligand-gated ion channels. *Cell* 72: 31-41.
- Stevens, C.F. 1993. Quantal release of neurotransmitter and long-term potentiation. *Cell* 72: 55-63.

## CHROMOSOMAL LOCATION

Genetic locus: CHRNE (human) mapping to 17p13.2; Chrne (mouse) mapping to 11 B3.

## SOURCE

AChR $\epsilon$  (D-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 465-494 at the C-terminus of AChR $\epsilon$  of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376826 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

AChR $\epsilon$  (D-6) is recommended for detection of AChR $\epsilon$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 AChR $\epsilon$  siRNA (h): sc-42542, AChR $\epsilon$  siRNA (m): sc-42543, AChR $\epsilon$  shRNA Plasmid (h): sc-42542-SH, AChR $\epsilon$  shRNA Plasmid (m): sc-42543-SH, AChR $\epsilon$  shRNA (h) Lentiviral Particles: sc-42542-V and AChR $\epsilon$  shRNA (m) Lentiviral Particles: sc-42543-V.

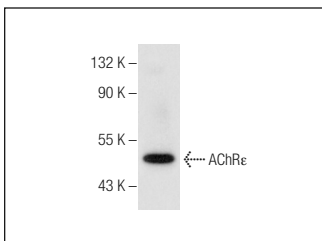
Molecular Weight of glycosylated AChR $\epsilon$ : 44-60 kDa.

Positive Controls: Saos-2 cell lysate: sc-2235, NIH/3T3 whole cell lysate: sc-2210 or SH-SY-5Y whole cell lysate.

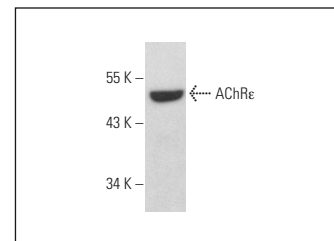
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



AChR $\epsilon$  (D-6): sc-376826. Western blot analysis of AChR $\epsilon$  expression in Saos-2 whole cell lysate.



AChR $\epsilon$  (D-6): sc-376826. Western blot analysis of AChR $\epsilon$  expression in NIH/3T3 whole cell lysate.

## SELECT PRODUCT CITATIONS

- Lin, C.Y., et al. 2019. iPSC-derived functional human neuromuscular junctions model the pathophysiology of neuromuscular diseases. *JCI Insight* 4: e124299.

## 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.