

# AChR $\alpha$ 4 (H-133): sc-5591

## 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 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 $\alpha$ 4, also known as EBN, BFNC, EBN1, NACHR, NACRA4, NACHRA4 or CHRNA4, is a 627 amino acid multi-pass membrane protein associated with nocturnal frontal lobe epilepsy type 1 (ENFL1), an autosomal dominant epilepsy characterized by nocturnal seizures with hyperkinetic automatism and poorly organized stereotyped movements.

## CHROMOSOMAL LOCATION

Genetic locus: CHRNA4 (human) mapping to 20q13.33; Chrna4 (mouse) mapping to 2 H4.

## SOURCE

AChR $\alpha$ 4 (H-133) is a rabbit polyclonal antibody raised against amino acids 342-474 mapping near the C-terminus of AChR $\alpha$ 4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

AChR $\alpha$ 4 (H-133) is recommended for detection of AChR $\alpha$ 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), immunohistochemistry (including paraffin-embedded sections) (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 $\alpha$ 4 siRNA (h): sc-42528, AChR $\alpha$ 4 siRNA (m): sc-42529, AChR $\alpha$ 4 shRNA Plasmid (h): sc-42528-SH, AChR $\alpha$ 4 shRNA Plasmid (m): sc-42529-SH, AChR $\alpha$ 4 shRNA (h) Lentiviral Particles: sc-42528-V and AChR $\alpha$ 4 shRNA (m) Lentiviral Particles: sc-42529-V.

Molecular Weight of AChR $\alpha$ 4: 78 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, A-673 cell lysate: sc-2414 or Sol8 cell lysate: sc-2249.

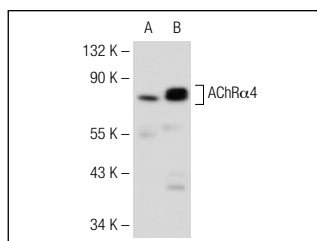
## STORAGE

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

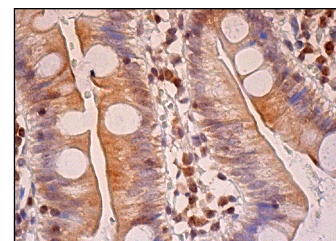
## RESEARCH USE

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

## DATA



AChR $\alpha$ 4 (H-133): sc-5591. Western blot analysis of AChR $\alpha$ 4 expression in Sol8 (A) and PC-12 (B) whole cell lysates.



AChR $\alpha$ 4 (H-133): sc-5591. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Wu, J. 2004.  $\beta$ -Amyloid directly inhibits human  $\alpha$ 4 $\beta$ 2-nicotinic acetylcholine receptors heterologously expressed in human SH-EP1 cells. *J. Biol. Chem.* 279: 37842-37851.
- Parker, S.L., et al. 2004. Up-regulation of brain nicotinic acetylcholine receptors in the rat during long-term self-administration of nicotine: disproportionate increase of the  $\alpha$ 6 subunit. *Mol. Pharmacol.* 65: 611-622.
- Xu, Q., et al. 2008. Site-specific regulation of gene expression by estrogen in the hypothalamus of adult female rats. *Neurosci. Lett.* 436: 35-39.
- Sun, X., et al. 2009. Rosiglitazone inhibits  $\alpha$ 4 nicotinic acetylcholine receptor expression in human lung carcinoma cells through peroxisome proliferator-activated receptor  $\gamma$ -independent signals. *Mol. Cancer Ther.* 8: 110-118.
- Pollock, V.V., et al. 2009. Cyclic AMP-dependent protein kinase A and protein kinase C phosphorylate  $\alpha$ 4 $\beta$ 2 nicotinic receptor subunits at distinct stages of receptor formation and maturation. *Neuroscience* 158: 1311-1325.
- Carbone, A.L., et al. 2009. Pentameric concatenated ( $\alpha$ 4) $_2$ ( $\beta$ 2) $_3$  and ( $\alpha$ 4) $_3$ ( $\beta$ 2) $_2$  nicotinic acetylcholine receptors: subunit arrangement determines functional expression. *Br. J. Pharmacol.* 156: 970-981.
- Kahlin, J., et al. 2010. Presence of nicotinic, purinergic and dopaminergic receptors and the TASK-1 K<sup>+</sup>-channel in the mouse carotid body. *Respir. Physiol. Neurobiol.* 172: 122-128.
- Shimizu, T., et al. 2011. Brain  $\alpha$ 4 $\beta$ 2 nicotinic acetylcholine receptors are involved in the secretion of noradrenaline and adrenaline from adrenal medulla in rats. *Eur. J. Pharmacol.* 654: 241-248.



Try **AChR $\alpha$ 4 (A-6): sc-74519** or **AChR $\alpha$ 4 (299): sc-65862**, our highly recommended monoclonal alternatives to AChR $\alpha$ 4 (H-133).