10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

CHRNA7 Antibody (N-term) Blocking peptide
Synthetic peptide
Catalog # BP13898a

Specification

CHRNA7 Antibody (N-term) Blocking peptide - Product Information

Primary Accession P36544

CHRNA7 Antibody (N-term) Blocking peptide - Additional Information

Gene ID 1139;89832

Other Names
Neuronal acetylcholine receptor subunit alpha-7, CHRNA7, NACHRA7

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP13898a was selected from the N-term region of CHRNA7. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

CHRNA7 Antibody (N-term) Blocking peptide - Protein Information

Name CHRNA7 (HGNC:1960)

Synonyms NACHRA7

Function
Component of neuronal acetylcholine receptors (nAChRs) that function as pentameric, ligand-gated cation channels with high calcium permeability among other activities. nAChRs are excitatory neurotrasnmitter receptors formed by a collection of nAChR subunits known to mediate synaptic transmission in the nervous system and the neuromuscular junction. Each nAchR subunit confers differential attributes to channel properties, including activation, deactivation and desensitization kinetics, pH sensitivity, cation permeability, and binding to allosteric modulators (PubMed:15609996, PubMed:33735609, PubMed:8145738). CHRNA7 forms homopentameric neuronal acetylcholine receptors abundantly expressed in the central nervous system, characterized by fast desensitization and high calcium permeability

(PubMed:31560909, PubMed:33735609, PubMed:38382524, PubMed:8145738). Also forms heteropentamers with CHRNB2, mainly expressed in basal forebrain cholinergic neurons. Involved in the modulation of calcium- dependent signaling pathways and influences the release of neurotransmitters, including dopamine, glutamate and GABA (PubMed:33239400). Also expressed in non-neuronal cells such as immune cells like lymphocytes, monocytes and macrophages (PubMed:12508119, PubMed:16968406, PubMed:25259522). In T cells, activation induces metabotropic signaling that results in an increase of intracellular Ca2+ concentrations, independent of ionotropic receptor functions (PubMed:17709503). In macrophages, required for acetylcholine-mediated inhibition of TNF and other inflammatory cytokine release (PubMed:12508119). Once activated by acetylcholine, nicotine or other agonists, selectively inhibits production of pro-inflammatory cytokines while leaving anti-inflammatory cytokines undisturbed (PubMed:12508119, PubMed:25259522). Stimulates the cholinergic anti-inflammatory pathway, controlling inflammation by inhibiting NFKB nuclear translocation and activating the JAK2-STAT3 pathway, independently of ion channel activity (PubMed:16968406, PubMed:25259522). Also expressed in the urothelium where it modulates reflex bladder activity by increasing intracellular calcium through internal stores and decreasing basal ATP release (By similarity).

Cellular Location
Postsynaptic cell membrane {ECO:0000250|UniProtKB:Q05941}; Multi-pass membrane protein. Cell membrane; Multi-pass membrane protein. Note=TMEM35A/NACHO promotes its trafficking to the cell membrane (PubMed:27789755). RIC3 promotes its trafficking to the cell membrane (By similarity) {ECO:0000250|UniProtKB:Q05941, ECO:0000269|PubMed:27789755}

Tissue Location
Expressed in neuronal cells (PubMed:8145738). Expressed in macrophages (at protein level) (PubMed:12508119)

CHRNA7 Antibody (N-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

CHRNA7 Antibody (N-term) Blocking peptide - Images

CHRNA7 Antibody (N-term) Blocking peptide - Background

The nicotinic acetylcholine receptors (nAChRs) are membersof a superfamily of ligand-gated ion channels that mediate fastsignal transmission at synapses. The nAChRs are thought to behetero-pentamers composed of homologous subunits. The proposedstructure for each subunit is a conserved N-terminal extracellulardomain followed by three conserved transmembrane domains, avariable cytoplasmic loop, a fourth conserved transmembrane domain,and a short C-terminal extracellular region. The protein encoded bythis gene forms a homo-oligomeric channel, displays markedpermeability to calcium ions and is a major component of brainnicotinic receptors that are

blocked by, and highly sensitive to,alpha-bungarotoxin. Once this receptor binds acetylcholine, itundergoes an extensive change in conformation that affects allsubunits and leads to opening of an ion-conducting channel acrossthe plasma membrane. This gene is located in a region identified asa major susceptibility locus for juvenile myoclonic epilepsy and achromosomal location involved in the genetic transmission ofschizophrenia. An evolutionarily recent partial duplication eventin this region results in a hybrid containing sequence from thisgene and a novel FAM7A gene. Alternatively spliced transcriptvariants encoding different isoforms have been found for this gene.

CHRNA7 Antibody (N-term) Blocking peptide - References

Chernyavsky, A.I., et al. Am. J. Physiol., Cell Physiol. 299 (5), C903-C911 (2010) :Saccone, N.L., et al. Genes Brain Behav. 9(7):741-750(2010)Ruano, G., et al. Pharmacogenomics 11(7):959-971(2010)Jin, Y., et al. Int. J. Immunogenet. (2010) In press :Schraufstatter, I.U., et al. J Stem Cells 4(4):203-215(2009)