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. AChRα1, AChRα3 and AChRα5 belong to the family of ligand-gated ion channel receptors and may play a role in the mediation of fast signal transmission at synapses. Mutations in the gene encoding AChRα3 and AChRα5 are the cause of susceptibility to lung cancer type 2 and defects in the AChRα1 gene result in lethal type multiple pterygium syndrome.

REFERENCES


CHROMOSOMAL LOCATION

Genetic locus: CHRNA1 (human) mapping to 2q31.1, CHRNA3/CHRNA5 (human) mapping to 15q25.1; Chma1 (mouse) mapping to 2C3, Chma3/Chra5 (mouse) mapping to 9 B.

SOURCE

AChRα1/3/5 (35) is a rat monoclonal antibody raised against full length denatured AChRα1/3/5 of Electrophorus electricus origin.

PRODUCT

Each vial contains 200 µg IgG1 in 1.0 ml of PBS with <0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

AChRα1/3/5 (35) is recommended for detection of native nicotinic AChRα1, AChRα3 and AChRα5 of mouse, rat, human, Electrophorus electricus and canine origin by 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); may cross react with human AChRβ3.

Molecular Weight of AChRα1/3/5: 51/54/57 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rat IgG-HRP: sc-2006 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-rat IgG-HRP: sc-2032 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rat IgG-FITC: sc-2011 (dilution range: 1:100-1:400) or goat anti-rat IgG-TR: sc-2782 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS


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.

PROTOCOLS

See our website at www.scbt.com or our catalog for detailed protocols and support products.

See AChRα1 (153): sc-65829 for AChRα1 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.