SANTA CRUZ BIOTECHNOLOGY, INC.

p-GABA$_A$ Rγ2 (Ser 365): sc-135693

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GAD-65 and GAD-67, glutamate decarboxylases, function to catalyze the production of GABA (gamma-aminobutyric acid). In the central nervous system, GABA functions as the main inhibitory transmitter by increasing a Cl- (chloride) conductance that inhibits neuronal firing. GABA has been shown to activate both ionotropic (GABA$_A$) and metabotropic (GABA$_B$) receptors, as well as a third class of receptors called GABA$_C$. The γ subunit of GABA$_A$ receptors are important for benzodiazepine binding and modulation of GABA-mediated Cl- current. GABA$_A$ Rγ2 is a 467 amino acid mulit-pass membrane protein localized to the postsynaptic cell membrane. Present as a pentamer with other GABA$_A$ receptor chains (α, β, γ, δ and ρ), the GABA$_A$ ligand-gated Cl- channels selectively complex with D5DR to enable mutual inhibitory functional interactions between the two receptor systems. Defects in the gene encoding GABA$_A$ Rγ2 have been found to be the cause of childhood absence epilepsy type 2, familial febrile convulsions type 8, generalized epilepsy with febrile seizures plus type 3 and severe myoclonic epilepsy in infancy. Mouse, rat and human GABA$_A$ Rγ2 are subject to phosphorylation on Ser 365.

REFERENCES

1. Pritchett, D.B., et al. 1989. Importance of a novel GABA$_A$ receptor subunit for benzodiazepine pharmacology. Nature 338: 582-585.
2. Wang, H., et al. 1999. GABA$_A$-receptor-associated protein links GABA$_A$ receptors and the cyto-skeleton. Nature 397: 69-72.
3. Kucken, A.M., et al. 2000. Identification of benzodiazepine binding site residues in the γ2 subunit of the GABA$_A$ receptor. Mol. Pharmacol. 57: 932-939.
4. Liu, F., et al. 2000. Direct protein-protein coupling enables cross-talk between dopamine D5 and GABA$_A$ receptors. Nature 403: 274-280.
5. Baulac, S., et al. 2001. First genetic evidence of GABA$_A$ receptor dysfunction in epilepsy: a mutation in the γ2 subunit gene. Nat. Genet. 28: 46-48.
6. Kananura, C., et al. 2002. A splice-site mutation in GABRG2 associated with childhood absence epilepsy and febrile convulsions. Arch. Neurol. 59: 1137-1141.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 137164.World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Kang, J.Q., et al. 2006. Why does fever trigger febrile seizures? GABA$_A$ receptor γ2 subunit mutations associated with idiopathic generalized epilepsies have temperature-dependent trafficking deficiencies. J. Neurosci. 26: 2590-2597.
9. Audenaert, D., et al. 2006. A novel GABRG2 mutation associated with febrile seizures. Neurology 67: 687-690.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

CHROMOSOMAL LOCATION

Genetic locus: GABRG2 (human) mapping to 5q34; Gabrg2 (mouse) mapping to 11 A5.

SOURCE

p-GABA$_A$ Rγ2 (Ser 365) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 365 of GABA$_A$ Rγ2 of mouse origin.

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

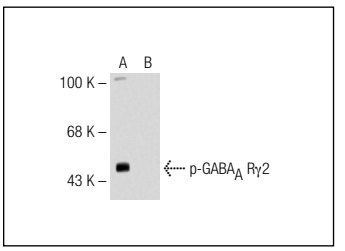
APPLICATIONS

p-GABA$_A$ Rγ2 (Ser 365) is recommended for detection of Ser 365 phosphorylated GABAA Rγ2 of mouse and rat origin and correspondingly Ser 366 phosphorylated GABAA Rγ2 of human origin of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for GABAA Rγ2 siRNA (h): sc-42449, GABAA Rγ2 siRNA (m): sc-42450, GABAA Rγ2 shRNA Plasmid (h): sc-42449-SH, GABAA Rγ2 shRNA Plasmid (m): sc-42450-SH, GABAA Rγ2 shRNA (h) Lentiviral Particles: sc-42449-V and GABAA Rγ2 shRNA (m) Lentiviral Particles: sc-42450-V.

Molecular Weight of p-GABA$_A$ Rγ2: 54 kDa.

DATA



p-GABA$_A$ Rγ2 (Ser 365): sc-135693. Western blot analysis of GABA$_A$ Rγ2 phosphorylation in rat prefrontal cortex tissue extract. Blots were probed with p-GABA$_A$ Rγ2 (Ser 365): sc-135693 (**A**) and p-GABA$_A$ Rγ2 (Ser 365): sc-135693 preincubated with its cognate phosphorylated peptide (**B**).

RESEARCH USE

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

PROTOCOLS

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