SANTA CRUZ BIOTECHNOLOGY, INC.

GABA T-3 (K-13): sc-99419

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

As glutamate decarboxylases, GAD-65 and GAD-67 function to catalyze the production of GABA (γ-aminobutyric acid). In the central nervous system, GABA functions as the main inhibitory transmitter by increasing the chlorine 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 $GABA_C$. Both $GABA_A$ and $GABA_C$ are ligand-gated ion channels, however, they are structurally and functionally distinct. GABA transporters have also been identified and include GABA T-1, GABA T-2 and GABA T-3 (also designated GAT-1, -2 and -3). GABA T-3 is a 632 amino acid membrane protein that is expressed in brain, specifically in glial cells. The GABA transporters function to terminate GABA action by actively pumping GABA back into presynaptic terminals.

REFERENCES

1. Takayama, C., et al. 2005. Developmental expression of GABA transporter-1 and 3 during formation of the GABAergic synapses in the mouse cerebellar cortex. Brain Res. Dev. Brain Res. 158: 41-49.
2. Pow, D.V., et al. 2005. Differential expression of the GABA transporters GAT-1 and GAT-3 in brains of rats, cats, monkeys and humans. Cell Tissue Res. 320: 379-392.
3. Melone, M., et al. 2005. Neuronal localization of the GABA transporter GAT-3 in human cerebral cortex: a procedural artifact? J. Chem. Neuroanat. 30: 45-54.
4. Galvan, A., et al. 2005. GABAergic modulation of the activity of globus pallidus neurons in primates: *in vivo* analysis of the functions of GABA receptors and GABA transporters. J. Neurophysiol. 94: 990-1000.
5. Kinney, G.A. 2005. GAT-3 transporters regulate inhibition in the neocortex. J. Neurophysiol. 94: 4533-4537.
6. Birnbaum, A.D., et al. 2005. Cloning, immunolocalization, and functional expression of a GABA transporter from the retina of the skate. Vis. Neurosci. 22: 211-223.
7. Lee, T.S., et al. 2006. GAT-1 and GAT-3 expression are differently localized in the human epileptogenic hippocampus. Acta Neuropathol. 111: 351-363.
8. Fülep, G.H., et al. 2006. New highly potent GABA uptake inhibitors selective for GAT-1 and GAT-3 derived from (R)- and (S)-proline and homologous pyrrolidine-2-alkanoic acids. Eur. J. Med. Chem. 41: 809-824.
9. Byun, K., et al. 2006. Alteration of the glutamate and GABA transporters in the hippocampus of the Niemann-Pick disease, type C mouse using proteomic analysis. Proteomics 6: 1230-1236.

CHROMOSOMAL LOCATION

Genetic locus: SLC6A11 (human) mapping to 3p25.3.

SOURCE

GABA T-3 (K-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a C-terminal cytoplasmic domain of GABA T-3 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-99419 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GABA T-3 (K-13) is recommended for detection of GABA T-3 of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with GABA T-1 and GABA T-2.

Suitable for use as control antibody for GABA T-3 siRNA (h): sc-41962, GABA T-3 shRNA Plasmid (h): sc-41962-SH and GABA T-3 shRNA (h) Lentiviral Particles: sc-41962-V.

Molecular Weight of GABA T-3: 70 kDa.

Positive Controls: rat cerebellum extract: sc-2398 or rat brain extract: sc-2392.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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