

EAAT5 (G-20): sc-18779

BACKGROUND

Excitatory amino acid transporters (EAATs) are membrane-bound proteins that are localized in glial cells and pre-synaptic glutamatergic nerve endings. EAATs transport the excitatory neurotransmitters L-glutamate and D-aspartate, a process that is essential for terminating the postsynaptic action of glutamate. The re-uptake of amino acid neurotransmitters by EAAT proteins has been shown to protect neurons from excitotoxicity, which is caused by the accumulation of amino acid neurotransmitters. EAAT4 is an aspartate/glutamate transporter that is expressed predominantly in the cerebellum. The transport activity encoded by EAAT4 has high apparent affinity for L-aspartate and L-glutamate, and has a pharmacologic profile consistent with previously described cerebellar transport activities. EAAT5 is a glutamate transporter coupled to a chloride conductance which is expressed primarily in retina. Although EAAT5 shares the structural homologies of the EAAT family, a novel feature of the EAAT5 sequence is a carboxy-terminal motif previously identified in N-methyl-D-aspartate receptors and potassium channels and shown to confer interactions with a family of synaptic proteins that promote ion channel clustering.

REFERENCES

1. Arriza, J.L., et al. 1994. Functional comparisons of three glutamate transporter subtypes cloned from human motor cortex. *J. Neurosci.* 14: 5559-5569.
2. Fairman, W.A., et al. 1995. An excitatory amino-acid transporter with properties of a ligand-gated chloride channel. *Nature* 375: 599-603.
3. Ikeda, J., et al. 1996. Nuclear disintegration as a leading step of glutamate excitotoxicity in brain neurons. *J. Neurosci. Res.* 43: 613-622.
4. Arriza, J.L., et al. 1997. Excitatory amino acid transporter 5, a retinal glutamate transporter coupled to a chloride conductance. *Proc. Natl. Acad. Sci. USA* 94: 4155-4160.
5. Rauen, T., et al. 1998. High-affinity glutamate transporters in the rat retina: a major role of the glial glutamate transporter GLAST-1 in transmitter clearance. *Cell Tissue Res.* 291: 19-31.
6. Jackson, M., et al. 2001. Modulation of the neuronal glutamate transporter EAAT4 by two interacting proteins. *Nature* 410: 89-93.

CHROMOSOMAL LOCATION

Genetic locus: SLC1A7 (human) mapping to 1p32.3; Slc1a7 (mouse) mapping to 4 C7.

SOURCE

EAAT5 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of EAAT5 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-18779 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

EAAT5 (G-20) is recommended for detection of EAAT5 of mouse, rat and human 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).

EAAT5 (G-20) is also recommended for detection of EAAT5 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for EAAT5 siRNA (h): sc-41944, EAAT5 siRNA (m): sc-41945, EAAT5 shRNA Plasmid (h): sc-41944-SH, EAAT5 shRNA Plasmid (m): sc-41945-SH, EAAT5 shRNA (h) Lentiviral Particles: sc-41944-V and EAAT5 shRNA (m) Lentiviral Particles: sc-41945-V.

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.

SELECT PRODUCT CITATIONS

1. Liang, J., et al. 2008. Excitatory amino acid transporter expression by astrocytes is neuroprotective against microglial excitotoxicity. *Brain Res.* 1210: 11-19.
2. Dalet, A., et al. 2012. Glutamate transporters EAAT4 and EAAT5 are expressed in vestibular hair cells and calyx endings. *PLoS ONE* 7: e46261.

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.