

EAAT4 (6D9): sc-293344

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-ethyl-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: SLC1A6 (human) mapping to 19p13.12; Slc1a6 (mouse) mapping to 10 C1.

SOURCE

EAAT4 (6D9) is a mouse monoclonal antibody raised against amino acids 500-564 of EAAT4 of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

EAAT4 (6D9) is recommended for detection of EAAT4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

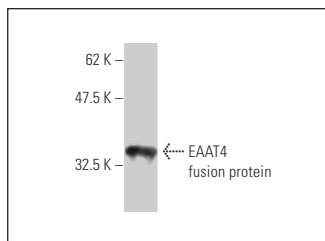
Suitable for use as control antibody for EAAT4 siRNA (h): sc-41942, EAAT4 siRNA (m): sc-41943, EAAT4 shRNA Plasmid (h): sc-41942-SH, EAAT4 shRNA Plasmid (m): sc-41943-SH, EAAT4 shRNA (h) Lentiviral Particles: sc-41942-V and EAAT4 shRNA (m) Lentiviral Particles: sc-41943-V.

Molecular Weight of EAAT4: 67 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



EAAT4 (6D9): sc-293344. Western blot analysis of human recombinant EAAT4 fusion protein.

SELECT PRODUCT CITATIONS

1. Martín-Hernández, D., et al. 2019. Chronic mild stress alters kynurenine pathways changing the glutamate neurotransmission in frontal cortex of rats. *Mol. Neurobiol.* 56: 490-501.

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 for detailed protocols and support products.