SANTA CRUZ BIOTECHNOLOGY, INC.

EAAT1 (A-3): sc-515839

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Excitatory amino acid transporter 1 (EAAT1) is one of the two glial glutamate transporters that clear the extracellular glutamate generated during neuronal signal transmission. 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 acction of glutamate. The reuptake 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. Three glutamate transporters have been identified in human brain, designated EAAT1-3. EAAT1 and EAAT3 are also expressed in various non-nervous tissues, while EAAT2 expression appears to be restricted to the brain. Surface expression of the glial glutamate transporter EAAT1 is stimulated by Insulin-like growth factor 1 through activation of phosphatidylinositol-3-kinase.

CHROMOSOMAL LOCATION

Genetic locus: SLC1A3 (human) mapping to 5p13.2; Slc1a3 (mouse) mapping to 15 A1.

SOURCE

EAAT1 (A-3) is a mouse monoclonal antibody raised against amino acids 1-50 mapping near the N-terminus of EAAT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

EAAT1 (A-3) is available conjugated to agarose (sc-515839 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515839 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515839 PE), fluorescein (sc-515839 FITC), Alexa Fluor® 488 (sc-515839 AF488), Alexa Fluor® 546 (sc-515839 AF546), Alexa Fluor® 594 (sc-515839 AF594) or Alexa Fluor® 647 (sc-515839 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515839 AF680) or Alexa Fluor® 790 (sc-515839 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

EAAT1 (A-3) is recommended for detection of EAAT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), 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).

Suitable for use as control antibody for EAAT1 siRNA (h): sc-35253, EAAT1 siRNA (m): sc-35254, EAAT1 shRNA Plasmid (h): sc-35253-SH, EAAT1 shRNA Plasmid (m): sc-35254-SH, EAAT1 shRNA (h) Lentiviral Particles: sc-35253-V and EAAT1 shRNA (m) Lentiviral Particles: sc-35254-V.

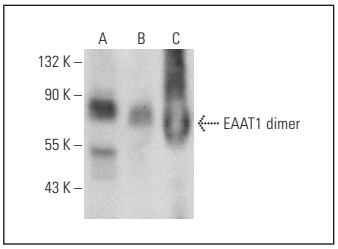
Molecular Weight of EAAT1: 65 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, IMR-32 cell lysate: sc-2409 or human cerebellum extract: sc-516706.

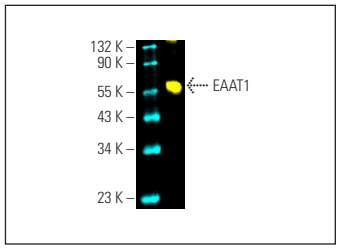
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



EAAT1 (A-3): sc-515839. Western blot analysis of EAAT1 expression in HeLa (**A**) and IMR-32 (**B**) whole cell lysates and human cerebellum tissue extract (**C**).



EAAT1 (A-3) Alexa Fluor® 488: sc-515839 AF488. Direct fluorescent western blot analysis of EAAT1 expression in human cerebellum tissue extract. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 647: sc-516791.

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.
2. McColl, E.R. and Piquette-Miller, M. 2019. Poly(I:C) alters placental and fetal brain amino acid transport in a rat model of maternal immune activation. Am. J. Reprod. Immunol. 81: e13115.
3. Zhang, Y., et al. 2020. Generation of a novel mouse model of Parkinson's disease via targeted knockdown of glutamate transporter GLT-1 in the substantia nigra. ACS Chem. Neurosci. 11: 406-417.
4. Sheng, L., et al. 2020. Erythrocytic α-synuclein contained in microvesicles regulates astrocytic glutamate homeostasis: a new perspective on Parkinson's disease pathogenesis. Acta Neuropathol. Commun. 8: 102.
5. Li, W., et al. 2020. Effects of combined Bushen Zhichan recipe and levodopa in a rodent model of Parkinson disease: potential mechanisms. Med. Sci. Monit. 26: e922345.
6. McGilvray, P.T., et al. 2020. An ER translocon for multi-pass membrane protein biogenesis. Elife 9: e56889.
7. Saba, J., et al. 2020. Astrocytes from cortex and striatum show differential responses to mitochondrial toxin and BDNF: implications for protection of striatal neurons expressing mutant huntingtin. J. Neuroinflammation 17: 290.
8. Restall, I.J., et al. 2020. Brain tumor stem cell dependence on glutaminase reveals a metabolic vulnerability through the amino acid deprivation response pathway. Cancer Res. E-published.

RESEARCH USE

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