

EAAT 1 cytoplasmic domain

Cat.No. 250 113; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	WB: 1 : 1000 up to 1 : 10000 (AP staining) IP: yes ICC: 1 : 1000 up to 1 : 5000 IHC: 1 : 1000 up to 1 : 5000 IHC-P/FFPE: not tested yet
Immunogen	Synthetic peptide corresponding to AA 522 to 541 from rat EAAT1 (UniProt Id: P24942)
Reactivity	Reacts with: human (P43003), rat (P24942), mouse (P56564). Other species not tested yet.
Specificity	Specific for EAAT 1. (K.O. verified)
matching control	250-11P

TO BE USED IN VITRO / FOR RESEARCH ONLY

NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Glutamate is the major excitatory neurotransmitter in the mammalian central nervous system. After the release of glutamate from synaptic vesicles into the synaptic cleft during neurotransmission, excitatory amino acid transporters (EAATs) remove extracellular glutamate to avoid excitotoxic levels. Five EAATs with differential expression patterns have been described so far: **EAAT 1**, also referred to as **GLAST** and **SLC1A3**, has neuroprotective potential following ischemia and is expressed by reactive astrocytes and activated microglia. **EAAT 2 (GLT-1, SLC1A2)** is the most abundant and primarily expressed in astrocytes. **EAAT 3 / SLC1A1** is expressed in neurons and has also been shown to be involved in the uptake of extracellular cysteine. EAAT 4 shows weak expression in the forebrain and high levels in Purkinje cells of the cerebellum. EAAT 5 has only been described for humans and is primarily expressed in the retina.

Selected General References

Specificity controls for immunocytochemistry: the antigen preadsorption test can lead to inaccurate assessment of antibody specificity.

Holmseth S, Zhou Y, Follin-Arbelet VV, Lehre KP, Bergles DE, Danbolt NC

The Journal of histochemistry and cytochemistry : official journal of the Histochemistry Society (2012) 60(3): 174-87.

Reactive astrocytes and activated microglial cells express EAAT1, but not EAAT2, reflecting a neuroprotective potential following ischaemia.

Beschorner R, Simon P, Schauer N, Mittelbronn M, Schluesener HJ, Trautmann K, Dietz K, Meyermann R

Histopathology (2007) 50(7): 897-910.

Expression of EAAT1 reflects a possible neuroprotective function of reactive astrocytes and activated microglia following human traumatic brain injury.

Beschorner R, Dietz K, Schauer N, Mittelbronn M, Schluesener HJ, Trautmann K, Meyermann R, Simon P

Histology and histopathology (2007) 22(5): 515-26.

Binding and transport of [3H](2S,4R)- 4-methylglutamate, a new ligand for glutamate transporters, demonstrate labeling of EAAT1 in cultured murine astrocytes.

Apricò K, Beart PM, Crawford D, O'Shea RD

Journal of neuroscience research (2004) 75(6): 751-9.

Motor discoordination and increased susceptibility to cerebellar injury in GLAST mutant mice.

Watake K, Hashimoto K, Kano M, Yamada K, Watanabe M, Inoue Y, Okuyama S, Sakagawa T, Ogawa S, Kawashima N, Hori S, et al.

The European journal of neuroscience (1998) 10(3): 976-88.

Identification of functional domains of the human glutamate transporters EAAT1 and EAAT2.

Mitrovic AD, Amara SG, Johnston GA, Vandenberg RJ

The Journal of biological chemistry (1998) 273(24): 14698-706.

Epilepsy and exacerbation of brain injury in mice lacking the glutamate transporter GLT-1.

Tanaka K, Watake K, Manabe T, Yamada K, Watanabe M, Takahashi K, Iwama H, Nishikawa T, Ichihara N, Kikuchi T, Okuyama S, et al.

Science (New York, N.Y.) (1997) 276(5319): 1699-702.

The mouse and human excitatory amino acid transporter gene (EAAT1) maps to mouse chromosome 15 and a region of syntenic homology on human chromosome 5.

Kirschner MA, Arriza JL, Copeland NG, Gilbert DJ, Jenkins NA, Magenis E, Amara SG

Genomics (1994) 22(3): 631-3.

High-affinity glutamate transporter GLAST/EAAT1 regulates cell surface expression of glutamine/neutral amino acid transporter ASCT2 in human fetal astrocytes.

Gegelashvili M, Rodriguez-Kern A, Pirozhkova I, Zhang J, Sung L, Gegelashvili G

Neurochemistry international () 48(6-7): 611-5.