

#4166 Store at -20°C

# EAAT1 Antibody

✓ 100 µl  
(10 western blots)

**Orders** ■ 877-616-CELL (2355)  
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This product is for *in vitro* research use only and is not intended for use in humans or animals.  
This product is not intended for use as a therapeutic or in diagnostic procedures.

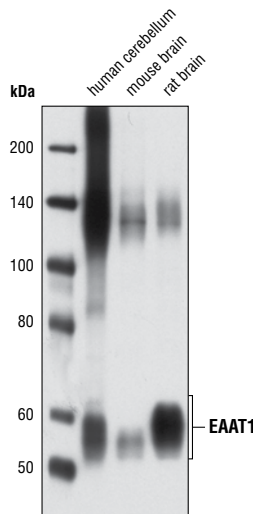
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R	58 kDa	Rabbit**

**Background:** Glutamate is the major excitatory neurotransmitter in the mammalian central nervous system. During neurotransmission, glutamate is released from vesicles of the pre-synaptic cell, and glutamate receptors (e.g. NMDA Receptor, AMPA Receptor) bind glutamate for activation at the opposing post-synaptic cell. Excitatory amino acid transporters (EAATs) regulate and maintain extracellular glutamate concentrations below excitotoxic levels. In addition, glutamate transporters may limit the duration of synaptic excitation by an electrogenic process in which the transmitter is cotransported with three sodium ions and one proton, followed by countertransport of a potassium ion. Five EAATs (EAAT1-5) are characterized: EAAT2 (GLT-1) is primarily expressed in astrocytes but is also expressed in neurons of the retina and during fetal development (1). Homozygous EAAT2 knockout mice have spontaneous, lethal seizures and an increased predisposition to acute cortical injury (2). PKC phosphorylates Ser113 of EAAT2 and coincides with glutamate transport (3).

EAAT2 accounts for up to 90% of the total glutamate transport in brain while EAAT1 contributes the remaining 5-10% (4). The contribution of EAAT1 in neurotransmission is unclear since EAAT2 is much more abundant. However, EAAT1 expression is upregulated by increasing concentrations of glutamate in the media of cultured primary astrocytes, potentially giving this glutamate transporter additional importance (5). EAAT1 has neuroprotective potential following ischemia since reactive astrocytes and activated microglia express EAAT1 but not EAAT2 (6).

**Specificity/Sensitivity:** EAAT1 Antibody detects endogenous levels of total EAAT1 protein.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide (KLH-coupled) corresponding to human EAAT1. Antibodies are purified by peptide affinity chromatography.



Western blot analysis of extracts from human cerebellum, mouse and rat brain using EAAT1 Antibody.

Entrez-Gene ID #6507  
Swiss-Prot Acc. #P43003

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C.  
Do not aliquot the antibody.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western blotting 1:1000

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Amara, S.G. and Fontana, A.C. (2002) *Neurochem Int* 41, 313-8.
- (2) Tanaka, K. et al. (1997) *Science* 276, 1699-702.
- (3) Casado, M. et al. (1993) *J Biol Chem* 268, 27313-7.
- (4) Hediger, M.A. (1999) *Am J Physiol* 277, F487-92.
- (5) Gegelashvili, G. et al. (1996) *Neuroreport* 8, 261-5.
- (6) Beschoner, R. et al. (2007) *Histopathology* 50, 897-910.

**IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine  
Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.