

**GUINEA PIG ANTI-GLUTAMATE TRANSPORTER GLAST
POLYCLONAL ANTIBODY**

CATALOG NUMBER:	AB1782	QUANTITY:	50 µL
LOT NUMBER:			
ALTERNATE NAMES:	EAAT1, Sodium-dependent glutamate/aspartate transporter 1, Glial glutamate transporter, GLAST-1		
BACKGROUND:	<p>Glutamate transporters (GluT) function to remove L-glutamate (Glu), the primary excitatory neurotransmitter in the mammalian central nervous system (CNS), from the synaptic cleft. By clearing the synapse in this manner Glu can be recycled for later use, the proper diffusion gradient can be maintained and excitotoxicity can be prevented.</p> <p>In the spinal cord, GLAST protein is strongly expressed in the substantia gelatinosa of the dorsal horn and around the central canal, but comparatively weak in other gray-white matter areas. Differences in regional expression levels of GLAST protein or mRNA were also noted in the thalamus and other subcortical areas. More detailed studies show that all astrocytes in the brain express GLAST to some extent and that astrocytic membranes facing capillaries, pi, or stem dendrites have lower amounts of GLAST protein than those facing nerve terminals, axons and spines. Finally, GLAST expression is not restricted to astrocytes. GLAST mRNA can be found in ependymal cells lining the cerebral ventricles and in meningeal cells and tanocytes. {information taken from <i>Neurotransmitter Transporters: Structure, Function, and Regulation</i> by Maarten E. A. Reith, Humana Press, 2002 pg 279).</p>		
SPECIFICITY:	Glial Glutamate Transporter GLAST (EAAT1). The antibody has been tested on central nervous system tissue. Preabsorption of the antiserum with the immunogen peptide (Catalog number AG377) completely abolishes the immunostaining.		
IMMUNOGEN:	Synthetic peptide from the carboxy-terminus of rat GLAST, amino acids 521-543 {KPYQLIAQDNEPEKPVADSETKM}.		
APPLICATIONS:	<p>Western Blot: 1:1,000 – 1: 10,000 dilutions on adult rat brain tissue lysate, Size will vary slightly depending upon tissue. It is approximately 62Kda in forebrain, but 67-68kDa in retina and cerebellum {Lehre, KP et al, 1997, Brain Res. 1(2):129-137}. Because of the titer and unpurified nature of this antibody non-specific bands may be seen. Membrane preparations with proteinase inhibitors can increase sensitivity and specificity as well and are recommended.</p> <p>Immunohistochemistry: 1:3,000-1:8:000 with fluorescent detection on 4% PFA fixed tissues permeabilized with 0.1% triton X-100 in the block only. DAB or enzymatic detection methods will require substantially higher dilutions. Epitope is internal, and C-terminus, light fixation is essential because of binding proteins interfering with antibody binding; alternative antigen recovery methods have not been examined.</p>		
SPECIES REACTIVITY:	Rat. Expected to work on mouse due to peptide sequence homology.		
PRESENTATION:	Unpurified, guinea pig antiserum containing with 0.1% sodium azide as a preservative.		

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STORAGE/HANDLING: Maintain at -20°C in undiluted aliquots for up to 12 months after date of receipt. Avoid repeated freeze/thaw cycles.

RELATED REFERENCES:

1. Suarez, I. et al., Brain Research (2000) 859:293-302.
2. Su, G., et al., Am. J. Physiol. Cell Physiol. (2000) 279:C1710-C1721.
3. Gottlieb, M. et al., Journal of Cerebral Blood Flow and Metabolism (2000) 20:678-687.
4. Connors and Kofuji, J. Neuroscience (2002) 22:4321-4327.
5. Heins, N., et al., Nature Neuroscience (2002) 5:308-315.
6. Mao, J. et al., J. Neuroscience (2002) 22:8312-8323.
7. Tanaka, M., et al., J. Neuroscience (2003) 23:2804-2814.
8. Ward, M. et al., Cell Tissue Res (2004) 315:305-310.
9. Grass, D., et al., J. Neuroscience (2004) 24:1358-1365.
10. Vanhoutte, N., et al., Neuroscience Letters (2004) 370:230-235.
11. De Hemptinne, I., et al., J. Neurochemistry (2004) 91:155-166.
12. Spasky, N. et al., J. Neuroscience (2005) 25:10-18.
13. Vermeiren, C., et al., Neurochemistry International (2005) 46:137-147.
14. Waclaw, R., et al., Neuron (2006) 49:503-516.
15. Yang, Z., et al., J. Neuroscience (2006) 26:3829-3839.

ADDITIONAL REFERENCES:

1. PNAS.USA (1992) 89:10955-10959. A good reference for the comparative staining of EAAC1, GLAST and GLT-1 is: Neuron (1994) 13:713-725.

Important Note: *During shipment, small volumes of product will occasionally become entrapped in the seal of the product vial. For products with volumes of 200 μ L or less, we recommend gently tapping the vial on a hard surface or briefly centrifuging the vial in a tabletop centrifuge to dislodge any liquid in the container's cap.*

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