

Product No. G-6642

Lot 116H4815

Anti-Glutamate

Developed in Rabbit
Delipidized, Whole Antiserum

Anti-Glutamate is developed in rabbit using purified glutamate conjugated to KLH as the immunogen. The antiserum has been treated to remove lipoproteins. Rabbit Anti-Glutamate is supplied as a liquid containing 0.1% sodium azide (see MSDS)* as preservative.

Specificity

Antiserum reacts with Glu-KLH, Glu-BSA, and KLH, but not with BSA using a dot blot immunobinding assay. Antiserum also reacts with L-glutamate, Asp-Glu, Gly-Glu. No reactivity is seen with L-aspartate, L-glutamine, L-asparagine, L-alanine. Weak cross-reactivity seen with Gly-Asp, GABA, β -alanine, glycine and 5-aminovaleric acid.

Description

The amino acids L-glutamate (Glu) and L-aspartate (Asp) are considered the major excitatory neurotransmitters in the central nervous system (CNS) and represent the most abundant mammalian neurotransmitter class. Both L-glutamate and L-aspartate are present in the brain at high concentrations and are distributed in most excitatory pathways in the CNS.^{1,2} Glu- and Asp-immunoreactivities are localized in high concentrations in synaptic terminals.^{3,4} In nerve terminals, L-glutamate is formed by deamidation of its major precursor, L-glutamine, by the enzyme glutaminase.⁵ The actions of the excitatory amino acids on neurons are mediated by different receptor subtypes.⁶ These receptors are coupled to integral ion channels or to a second messenger system which utilizes inositol triphosphate (IP3). L-glutamate and L-aspartate may play an important role in the pathogenesis of certain neurological disorders such as Huntington's disease, Alzheimer's disease, epilepsy and brain ischemia.⁷ The excitotoxic and neurotoxic effects of L-glutamate, leading to extensive neuronal damage, appear to be mediated by the N-methyl-D-aspartate (NMDA) receptor subtype.^{6,7}

Protein Concentration: 58 mg/ml by Biuret.

Working Dilution

A working dilution of 1:15,000 was determined by dot blot immunoassay using Glutamate-BSA (100 ng/dot). In order to obtain best results in different preparations, it is recommended that each individual user determine their optimal working dilutions by titration assay.

Uses

Antiserum to L-glutamate may be used in immunohistochemical techniques on formalin- or glutaraldehyde-fixed, vibratome or frozen sections of human or animal tissues. Immunohistochemical methods provide increased anatomical resolution over conventional biochemical methods.

Storage

For continuous use, store 2-8°C. For extended storage, solution may be frozen in working aliquots. Repeated freezing and thawing is **not** recommended. Storage in "frost-free" freezers is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation before use.

*Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

References

1. Storm-Mathisen, J., et al., In: "Excitatory Amino Acids," Roberts, P., et al., (Eds.), pp. 101, McMillan (1986).
2. Cotman, C., et al., Trends Neurosci., **10**, 273 (1987).

References (cont.)

3. Somogyi, P., et al., *Neuroscience*, **19**, 1045, (1986).
4. Ottersen, D., and Storm-Mathisen, J., *Neuroscience*, **16**, 589 (1985).
5. Wenthold, R., and Altschuler, R., In: "Glutamine, Glutamate and GABA in the Central Nervous System." Hertz, L., et al., (Eds.), Alan R. Liss (1983).
6. Cotman, C., and Iversen, L., *Trends Neurosci.*, **10**, 263 (1987).
7. Olney, J.W., *Drug Dev. Res.*, **17**, 299 (1989).