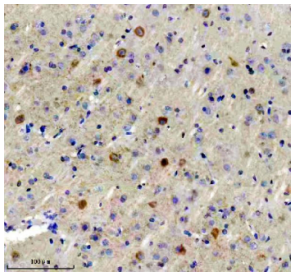
Glutamate decarboxylase 1 Antibody / GAD1 / GAD67 [clone AAGO-7] (FY13414)

Catalog No.	Formulation	Size
FY13414	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

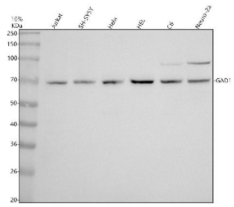
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat, Pig
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	AAGO-7
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q99259
Localization	Cytoplasm
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200
Limitations	This Glutamate decarboxylase 1 antibody is available for research use only.



Glutamate decarboxylase 1 Antibody Pig Brain IHC. Immunohistochemical staining of FFPE pig brain tissue with Glutamate decarboxylase 1 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Glutamate decarboxylase 1 Antibody WB. Western blot analysis of GAD1 expression in human Jurkat, SH-SY5Y, HeLa, HEL, rat C6, and mouse Neuro-2a cell lysates using Glutamate decarboxylase 1 antibody. A major band is detected at approximately 67-70 kDa, corresponding to GAD1 (GAD67). An additional higher molecular weight band of approximately 90 kDa is observed in C6 and Neuro-2a cells, which may reflect a modified or complex-associated form of GAD67 in neural cell lines.

Description

Glutamate decarboxylase 1 antibody targets Glutamate decarboxylase 1 (GAD1), also commonly referred to as GAD67, a pyridoxal phosphate-dependent enzyme responsible for catalyzing the conversion of glutamate to gamma-aminobutyric acid (GABA). GAD1 is predominantly localized in the cytoplasm of inhibitory neurons, where it plays a central role in neurotransmitter biosynthesis. As one of the two major glutamate decarboxylase isoforms, GAD67 contributes to the basal production of GABA required for maintaining inhibitory tone within the central nervous system.

Functionally, GAD1 is essential for regulating excitatory-inhibitory balance in neuronal circuits. By producing GABA, GAD1 supports synaptic inhibition, neuronal firing control, and network stability. Unlike the closely related GAD2 (GAD65), which is more tightly associated with synaptic vesicles and activity-dependent GABA synthesis, GAD1 is distributed more broadly within neurons and is thought to supply GABA for both synaptic and non-synaptic functions. A Glutamate decarboxylase 1 antibody supports studies focused on inhibitory neurotransmission and neuronal metabolism.

GAD1 expression is highly enriched in GABAergic neurons throughout the brain and spinal cord, including regions such as the cortex, hippocampus, cerebellum, and basal ganglia. Its expression pattern is often used as a marker to identify inhibitory neuronal populations in both developmental and adult nervous systems. Analysis of GAD1 localization and abundance provides valuable insight into the organization of inhibitory circuits and changes in neuronal phenotype under different physiological or experimental conditions.

From a biological and disease-relevance perspective, altered GAD1 expression or activity has been associated with a range of neurological and psychiatric conditions. Dysregulation of GABA synthesis can disrupt neural circuit balance and has been implicated in epilepsy, schizophrenia, anxiety disorders, and neurodevelopmental abnormalities. GAD1 is also of interest in studies of synaptic plasticity, neuronal differentiation, and brain development. Monitoring GAD1 expression helps clarify how inhibitory signaling contributes to both normal brain function and disease-associated phenotypes.

At the molecular level, GAD1 is encoded by the GAD1 gene and produces a protein of approximately 67 kDa, giving rise to the commonly used name GAD67. The enzyme requires pyridoxal phosphate as a cofactor for catalytic activity and forms functional homodimers in cells. Regulation of GAD1 occurs at transcriptional, post-transcriptional, and protein stability levels, allowing precise control of GABA production. A Glutamate decarboxylase 1 antibody supports research applications focused on neurotransmitter biosynthesis, inhibitory neuron identification, and neural circuit analysis, with NSJ Bioreagents providing reagents intended for research use.

For highly specific detection of GAD67 in inhibitory neurotransmitter pathway studies, see our GAD67 Antibody / GABA Synthesis Enzyme Antibody page featuring strong HuProt(TM) microarray specificity validation data.

Application Notes

Optimal dilution of the Glutamate decarboxylase 1 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Glutamate decarboxylase 1 protein was used as the immunogen for the Glutamate decarboxylase 1 antibody.

Storage

Store the Glutamate decarboxylase 1 antibody at -20oC.

Alternate Names

GAD1 antibody, GAD67 antibody, Glutamate decarboxylase 1 antibody, Glutamate decarboxylase 67 antibody, Gamma-aminobutyric acid synthesis enzyme antibody