

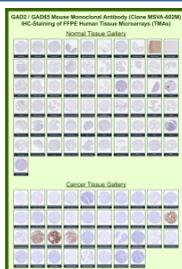
GAD2 Antibody for IHC / Glutamate decarboxylase 2 [clone MSVA-602M] (V6079)

Catalog No.	Formulation	Size
V6079-100UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V6079-20UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug

Recombinant **MOUSE MONOCLONAL**

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Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG1, kappa
Clone Name	MSVA-602M
UniProt	Q05329
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 1:100-1:200
Limitations	This GAD2/Glutamate decarboxylase 2 antibody is available for research use only.



Immunohistochemistry of GAD2 Antibody for IHC (clone MSVA-602M) in human tissue microarrays. Formalin-fixed, paraffin-embedded normal and cancer tissues demonstrate selective cytoplasmic staining in neuronal-rich regions of brain tissue, consistent with GABAergic neuron localization of Glutamate decarboxylase 2 / GAD65. Non-neuronal tissues show minimal staining, while tumor samples largely lack significant signal except in rare neuroendocrine or neuronal-derived contexts. The observed distribution pattern across normal and malignant tissues aligns with publicly available expression data from the Human Protein Atlas.

Description

Glutamate decarboxylase 2 is a pyridoxal phosphate-dependent enzyme encoded by the GAD2 gene and is commonly referred to as GAD65. The GAD2 Antibody for IHC is developed to evaluate the tissue distribution and cellular localization of this inhibitory neurotransmitter-synthesizing enzyme in formalin-fixed, paraffin-embedded specimens. GAD2 is located on chromosome 10p11.23 and encodes the 65 kDa isoform of glutamate decarboxylase responsible for catalyzing the conversion of glutamate to gamma-aminobutyric acid, the principal inhibitory neurotransmitter in the central nervous system.

In normal tissue, GAD65 expression is highly restricted to GABAergic neurons. Immunohistochemical staining typically demonstrates cytoplasmic labeling within neuronal cell bodies and proximal processes, particularly in cortical interneurons, hippocampal formations, cerebellar cortex, and other regions enriched for inhibitory circuitry. Staining is generally granular within the cytoplasm, reflecting association of GAD65 with synaptic vesicle membranes. Non-neuronal tissues and glial populations show minimal to absent staining, supporting its specificity for inhibitory neuronal populations in histologic sections.

Within layered brain structures, GAD2 immunoreactivity often highlights distinct interneuron populations distributed across cortical layers and within cerebellar molecular and granular layers. This spatial pattern allows visualization of inhibitory neuronal networks and contributes to mapping of excitatory-inhibitory balance within tissue architecture. Because GAD65 is associated with activity-dependent GABA synthesis, tissue-based detection provides insight into synaptic organization and functional circuitry in both normal and disease states.

In neuropathology research, GAD2 expression is evaluated in studies of epilepsy, neurodevelopmental disorders, neurodegeneration, and autoimmune neurologic syndromes. GAD65 is also a well-characterized autoantigen in type 1 diabetes and certain neurologic autoimmune conditions, making tissue localization relevant in immune-mediated contexts. Clone MSVA-602M is a recombinant mouse monoclonal antibody developed for immunohistochemical detection of GAD2 in central nervous system tissues, supporting research focused on inhibitory neuron identification and spatial mapping of GABAergic pathways.

Application Notes

1. Optimal dilution of the GAD2 antibody for IHC should be determined by the researcher.
2. This GAD2/Glutamate decarboxylase 2 antibody is recombinantly produced by expression in CHO cells.
3. Manual Protocol: Freshly cut sections should be used (less than 10 days between cutting and staining). Heat-induced antigen retrieval for 5 minutes in an autoclave at 121°C in pH 7.8 Target Retrieval Solution buffer. Apply the antibody at a dilution of 1:150 at 37°C for 60 minutes. Visualization of bound antibody by the EnVision Kit (Dako, Agilent) according to the manufacturer's directions.

Immunogen

A recombinant fragment of human GAD2 (GAD65) protein (around amino acids 1-200) (exact sequence is proprietary) was used as the immunogen for the GAD2 antibody for IHC.

Storage

GAD2/Glutamate decarboxylase 2 antibody with sodium azide - store at 2 to 8°C; antibody without sodium azide - store at -20 to -80°C.