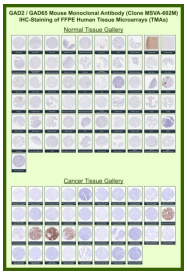
GAD2 Antibody for IHC / GAD65 Antibody [clone MSVA-602M] (V6079)

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

Bulk quote request

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 / GAD65 antibody is available for research use only.



GAD2 Antibody for IHC Tissue Microarray (TMA). Immunohistochemistry analysis of Glutamate decarboxylase 2 GAD2, also known as GAD65, in formalin-fixed paraffin-embedded human normal and cancer tissue microarrays using mouse monoclonal antibody clone MSVA-602M. Tissue microarray (TMA) staining with HRP-DAB brown chromogen demonstrates selective cytoplasmic localization in neuronal-rich regions of brain tissue, consistent with GABAergic neuron expression, while non-neuronal tissues show minimal to absent staining. Within tumor tissue microarrays, most malignancies lack significant signal, with occasional staining observed in rare neuroendocrine or neuronal-derived tumor contexts. Evaluation across large TMA panels enables direct comparison of GAD2 expression across diverse tissue types under standardized conditions. The observed staining patterns align with reported expression profiles in the Human Protein Atlas and support its use as a marker of GABAergic neuronal differentiation.

Description

GAD65 (GAD2) is a pyridoxal phosphate-dependent enzyme encoded by the GAD2 gene on chromosome 10p11.23 and represents 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. Commonly referred to as GAD65, this enzyme plays a central role in inhibitory neurotransmission. A GAD2 Antibody for IHC is used to evaluate the tissue distribution and cellular localization of GAD65 in formalin-fixed, paraffin-embedded specimens, enabling visualization of GABAergic neuronal populations in histologic sections.

GAD65 antibody, also known as GAD2 antibody and Glutamate decarboxylase 2 antibody in the literature, recognizes a cytoplasmic enzyme 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 often granular, reflecting association of GAD65 with synaptic vesicle membranes and its role in activity-dependent GABA synthesis. Non-neuronal tissues and glial populations show minimal to absent staining, supporting specificity for inhibitory neuronal populations.

Within layered brain structures, GAD65 expression highlights distinct interneuron populations distributed across cortical layers and within cerebellar molecular and granular layers. This spatial pattern enables visualization of inhibitory neuronal networks and contributes to mapping of excitatory-inhibitory balance within tissue architecture. Because GAD65 is functionally linked to synaptic activity and neurotransmitter cycling, tissue-based detection provides insight into neuronal signaling dynamics in both normal and disease states. A GAD2 Antibody for IHC typically demonstrates selective cytoplasmic staining in these neuronal populations, supporting detailed neuroanatomical analysis.

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

This antibody is part of a broader collection of IHC antibodies validated by tissue microarray analysis, supporting consistent staining across normal and cancer tissues.

For highly specific detection of GAD65 in inhibitory synaptic signaling studies, see our GAD65 Antibody / Synaptic GABA Marker Antibody page featuring clone GAD2/2362 with strong HuProt(TM) microarray specificity validation data.

Application Notes

1. Optimal dilution of the GAD2 antibody for IHC should be determined by the researcher.

2. This GAD2 / GAD65 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 121oC in pH 7.8 Target Retrieval Solution buffer. Apply the antibody at a dilution of 1:150 at 37oC 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 / GAD65 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.

Alternate Names

GAD65 antibody, GAD2 antibody, Glutamate decarboxylase 2 antibody, Glutamate decarboxylase 65 antibody

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