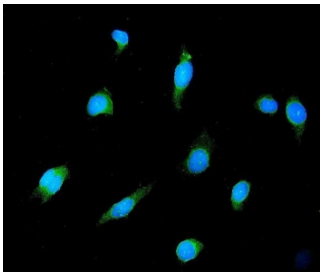
GAD2 Antibody / Glutamate Decarboxylase 2 Antibody [clone 7G2] (RQ5856)

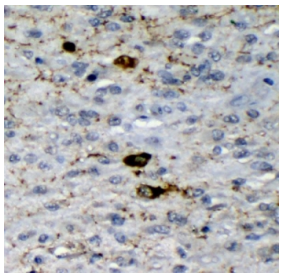
Catalog No.	Formulation	Size
RQ5856	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

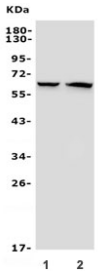
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a
Clone Name	7G2
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	Q05329
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry : 1-2ug/ml Immunofluorescence : 2-4ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This GAD2 Antibody / Glutamate Decarboxylase 2 Antibody is available for research use only.



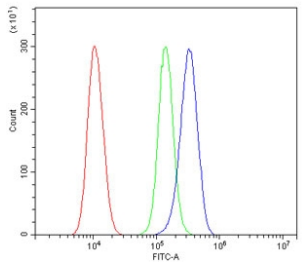
GAD2 Antibody HeLa Immunofluorescence. Immunofluorescent analysis of formalin-fixed human HeLa cells stained with GAD2 Antibody clone 7G2 demonstrates diffuse cytoplasmic green fluorescence consistent with Glutamate decarboxylase 2 / GAD65-associated inhibitory neurotransmitter synthesis pathways. This Glutamate decarboxylase 2 antibody highlights GABA synthesis-associated signaling and neuronal enzyme expression patterns within epithelial-derived cells. Nuclei are counterstained with DAPI nuclear stain (blue). Heat-induced epitope retrieval was performed by steaming sections in pH 6 citrate buffer for 20 min prior to antibody incubation.



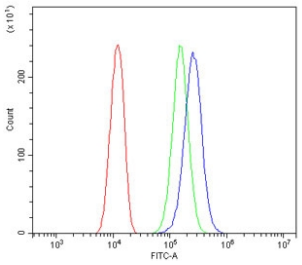
GAD2 Antibody Glioma IHC. Immunohistochemistry analysis of FFPE human glioma tissue stained with mouse monoclonal GAD2 Antibody clone 7G2 demonstrates focal cytoplasmic HRP-DAB brown staining within scattered neural-associated tumor cell populations, consistent with Glutamate decarboxylase 2 / GAD65-associated inhibitory neurotransmitter synthesis pathway expression. This Glutamate decarboxylase 2 antibody highlights GABAergic signaling-associated cellular regulation and neural differentiation biology within glioma tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



GAD2 Antibody Brain WB. Western blot analysis of 1) rat brain and 2) mouse brain lysates using mouse monoclonal GAD2 Antibody clone 7G2 detects strong bands at approximately 65 kDa, consistent with the predicted molecular weight of Glutamate decarboxylase 2 / GAD65. This Glutamate decarboxylase 2 antibody highlights abundant expression of inhibitory neurotransmitter-associated signaling machinery within central nervous system tissue and supports characterization of GABAergic neuronal differentiation pathways.



GAD2 Antibody 293T FACS. Flow cytometry analysis of human 293T cells stained with GAD2 Antibody clone 7G2 demonstrates a distinct right-shifted fluorescence population relative to the isotype control, consistent with Glutamate decarboxylase 2 / GAD65-associated inhibitory neurotransmitter synthesis pathway expression. This Glutamate decarboxylase 2 antibody supports characterization of GABA synthesis-associated signaling and neuronal differentiation-related protein expression in human cells. Red=cells alone, Green=isotype control, Blue=GAD2 antibody.



GAD2 Antibody U-2 OS FACS. Flow cytometry analysis of human U-2 OS cells stained with GAD2 Antibody clone 7G2 demonstrates a distinct right-shifted fluorescence population relative to the isotype control, consistent with Glutamate decarboxylase 2 / GAD65-associated inhibitory neurotransmitter synthesis pathway expression. This Glutamate decarboxylase 2 antibody supports characterization of GABA synthesis-associated signaling and neuronal differentiation-related protein expression in osteosarcoma-derived cells. Red=cells alone, Green=isotype control, Blue=GAD2 antibody.

Description

Glutamate decarboxylase 2 (GAD2), commonly known as GAD65, is a pyridoxal phosphate-dependent neuronal enzyme responsible for synthesis of gamma-aminobutyric acid (GABA), the major inhibitory neurotransmitter within the central nervous system. GAD2 localizes predominantly to presynaptic and synaptic vesicle-associated compartments where it supports activity-dependent GABA production required for inhibitory neurotransmission and synaptic signaling regulation. GAD2 Antibody is useful for investigations involving inhibitory neurotransmitter biology, synaptic signaling pathways, interneuron differentiation, and GABAergic neural circuit organization.

GAD2 antibody, also referred to as GAD65 antibody and Glutamate decarboxylase 65 antibody in the literature, recognizes a neuronal enzyme encoded on chromosome 10p11.23. GAD2 is highly enriched within inhibitory interneurons and presynaptic neural compartments throughout cortical and subcortical brain regions. Expression of GAD2 has been associated with inhibitory synaptic signaling, neuronal activity-dependent neurotransmitter release, autoimmune neurologic disease, epilepsy, neurodevelopmental disorders, and synaptic dysfunction-associated pathology.

GAD2 Antibody / Glutamate Decarboxylase 2 Antibody is uniquely positioned for studies involving inhibitory synaptic neurotransmission and GABAergic neuronal signaling pathways. This mouse monoclonal antibody, clone 7G2, supports detection of GAD2-associated inhibitory neurotransmitter synthesis pathways in neural tissues and neuronal cellular

populations.

GAD2 contributes directly to inhibitory synaptic transmission through regulated synthesis of GABA linked to synaptic vesicle cycling and neuronal activity-dependent neurotransmitter release. Because GAD2 expression is highly associated with inhibitory synapses and GABAergic neuronal populations, it serves as an important marker for studies involving inhibitory neural circuitry, synaptic neurotransmission, and interneuron-associated signaling pathways. Altered GAD2 expression has additionally been associated with autoimmune neurologic disease and neural dysfunction-associated signaling abnormalities.

In tissue-based and cellular detection systems, GAD2 expression commonly demonstrates cytoplasmic and synaptic-associated localization patterns consistent with inhibitory neuronal signaling activity. Neural tissues enriched for inhibitory interneurons may demonstrate strong GAD2-associated staining reflecting active GABA synthesis pathways and inhibitory synaptic organization. GAD2-associated signaling networks are essential for maintenance of neural circuit balance and suppression of excitotoxic neuronal activity.

This GAD2 Antibody supports research involving GABA synthesis, inhibitory neurotransmitter signaling, synaptic neurotransmission pathways, interneuron differentiation, neural circuit organization, neurodevelopment-associated signaling, and GABAergic neuronal biology. The antibody may be incorporated into tissue-based and cellular investigations examining inhibitory neural signaling pathways in normal and diseased 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

Optimal dilution of the GAD2 Antibody / Glutamate Decarboxylase 2 Antibody should be determined by the researcher.

Immunogen

Amino acids KVIDFHYPNELLQEYNWELADQPQNLEEILMHCQ from the human protein were used as the immunogen for the GAD2 antibody mouse monoclonal 7G2.

Storage

After reconstitution, the GAD2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

GAD2 antibody, GAD65 antibody, Glutamate decarboxylase 2 antibody, Glutamate decarboxylase 65 antibody, GABA synthesis enzyme antibody