

## GAD 1 / GAD 67

Cat.No. 198 013; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H <sub>2</sub> O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	<b>WB:</b> not recommended <b>IP:</b> not tested yet <b>ICC:</b> 1 : 500 <b>IHC:</b> 1 : 200 up to 1 : 500 <b>IHC-P/FFPE:</b> 1 : 1000
Immunogen	Recombinant protein corresponding to AA 3 to 101 from mouse GAD1 (UniProt Id: P48318)
Reactivity	Reacts with: human (Q99259), rat (P18088), mouse (P48318). Other species not tested yet.
Specificity	Specific for GAD 1 / GAD 67.

### TO BE USED IN VITRO / FOR RESEARCH ONLY NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

The glutamic acid decarboxylases **GAD 1**, also referred to as **GAD 67**, and GAD 2 / GAD 65 synthesize γ-aminobutyric acid (GABA), the major inhibitory neurotransmitter in the central nervous system. The hydrophilic GAD 1 can heterodimerize with the membrane anchored GAD 2 and part of GAD 1 is targeted to inhibitory nerve terminals by this mechanisms. Although both proteins exhibit significant differences in their N-terminus they share high homology in the rest of the molecule. GADs are widely used markers for the GABAergic system. In type 1 diabetes GAD 1 has been identified as a major autoantigen.

### Selected References SYSY Antibodies

Abolished perineuronal nets and altered parvalbumin-immunoreactivity in the nucleus reticularis thalami of wildtype and 3xTg mice after experimental stroke.

Härtig W, Appel S, Suttkus A, Grosche J, Michalski D  
Neuroscience (2016) 337: 66-87. **IHC**

Directing astroglia from the cerebral cortex into subtype specific functional neurons.

Heinrich C, Blum R, Gascón S, Masserdotti G, Tripathi P, Sánchez R, Tiedt S, Schroeder T, Götz M, Berninger B  
PLoS biology (2010) 8(5): e1000373. **ICC; tested species: mouse**

Short-term plasticity and modulation of synaptic transmission at mammalian inhibitory cholinergic olivocochlear synapses.

Katz E, Elgoyhen AB

Frontiers in systems neuroscience (2014) 8: 224. **IHC; tested species: mouse**

Activation of presynaptic GABA(B(1a,2)) receptors inhibits synaptic transmission at mammalian inhibitory cholinergic olivocochlear-hair cell synapses.

Wedemeyer C, Zorrilla de San Martín J, Ballesteros J, Gómez-Casati ME, Torbidoni AV, Fuchs PA, Bettler B, Elgoyhen AB, Katz E  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(39): 15477-87. **IHC; tested species: mouse**

### Selected General References

A specific role for NR2A-containing NMDA receptors in the maintenance of parvalbumin and GAD67 immunoreactivity in cultured interneurons.

Kinney JW, Davis CN, Tabarean I, Conti B, Bartfai T, Behrens MM

The Journal of neuroscience : the official journal of the Society for Neuroscience (2006) 26(5): 1604-15.

Green fluorescent protein expression and colocalization with calretinin, parvalbumin, and somatostatin in the GAD67-GFP knock-in mouse.

Tamamaki N, Yanagawa Y, Tomioka R, Miyazaki J, Obata K, Kaneko T

The Journal of comparative neurology (2003) 467(1): 60-79.

The hydrophilic isoform of glutamate decarboxylase, GAD67, is targeted to membranes and nerve terminals independent of dimerization with the hydrophobic membrane-anchored isoform, GAD65.

Kanaani J, Lissin D, Kash SF, Baekkeskov S

The Journal of biological chemistry (1999) 274(52): 37200-9.

Differential expression of GAD65 and GAD67 in human, rat, and mouse pancreatic islets.

Kim J, Richter W, Aanstoot HJ, Shi Y, Fu Q, Rajotte R, Warnock G, Baekkeskov S

Diabetes (1993) 42(12): 1799-808.

Glutamate decarboxylases in nonneural cells of rat testis and oviduct: differential expression of GAD65 and GAD67.

Tillakaratne NJ, Erlander MG, Collard MW, Greif KF, Tobin AJ

Journal of neurochemistry (1992) 58(2): 618-27.