

# GAD-65 (B96): sc-53541

## BACKGROUND

There are two forms of glutamic acid decarboxylases (GADs) that are found in the brain: GAD-65 (also known as GAD2) and GAD-67 (also known as GAD1, GAD or SCP). GAD-65 and GAD-67 are members of the group II decarboxylase family of proteins and are responsible for catalyzing the rate limiting step in the production of GABA (gamma-aminobutyric acid) from L-glutamic acid. Although both GADs are found in the brain, GAD-65 localizes to synaptic vesicle membranes in nerve terminals, while GAD-67 is distributed throughout the cell. GAD-67 is responsible for the basal levels of GABA synthesis. In the case of a heightened demand for GABA in neurotransmission, GAD-65 will transiently activate to assist in GABA production. The loss of GAD-65 is detrimental and can impair GABA neurotransmission, however the loss of GAD-67 is lethal. Due to alternative splicing, two isoforms exist for GAD-67, the predominant GAD-67 form and the minor GAD-25 form. GAD-25 is not expressed in brain but can be found in a variety of endocrine tissues.

## REFERENCES

1. Chessler, S.D., et al. 2002. Immune reactivity to GAD25 in type 1 diabetes mellitus. *Autoimmunity* 35: 335-341.
2. Kanter, I.C., et al. 2007. Cyclophosphamide for anti-GAD antibody-positive refractory status epilepticus. *Epilepsia* 49: 914-920.
3. Korpershoek, E., et al. 2007. Expression of GAD67 and novel GAD67 splice variants during human fetal pancreas development: GAD67 expression in the fetal pancreas. *Endocr. Pathol.* 18: 31-36.
4. Kanaani, J., et al. 2008. A palmitoylation cycle dynamically regulates partitioning of the GABA-synthesizing enzyme GAD65 between ER-Golgi and post-Golgi membranes. *J. Cell Sci.* 121: 437-449.
5. Wei, J. and Wu, J.Y. 2008. Post-translational regulation of L-glutamic acid decarboxylase in the brain. *Neurochem. Res.* 33: 1459-1465.
6. Hwang, I.K., et al. 2008. Comparison of glutamic acid decarboxylase 67 immunoreactive neurons in the hippocampal CA1 region at various age stages in dogs. *Neurosci. Lett.* 431: 251-255.
7. Ito, T., et al. 2008. Some  $\gamma$ -motoneurons contain  $\gamma$ -aminobutyric acid in the rat cervical spinal cord. *Brain Res.* 1201: 78-87.

## CHROMOSOMAL LOCATION

Genetic locus: GAD2 (human) mapping to 10p12.1; Gad2 (mouse) mapping to 2 A3.

## SOURCE

GAD-65 (B96) is a human monoclonal antibody raised against amino acids 451-570 of GAD-65 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

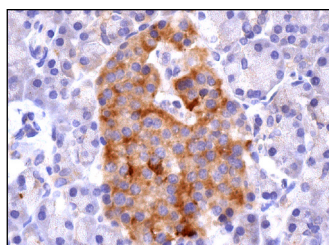
## APPLICATIONS

GAD-65 (B96) is recommended for detection of GAD-65 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with GAD 67.

Suitable for use as control antibody for GAD-65 siRNA (h): sc-41964, GAD-65 siRNA (m): sc-41965, GAD-65 siRNA (r): sc-61888, GAD-65 shRNA Plasmid (h): sc-41964-SH, GAD-65 shRNA Plasmid (m): sc-41965-SH, GAD-65 shRNA Plasmid (r): sc-61888-SH, GAD-65 shRNA (h) Lentiviral Particles: sc-41964-V, GAD-65 shRNA (m) Lentiviral Particles: sc-41965-V and GAD-65 shRNA (r) Lentiviral Particles: sc-61888-V.

Molecular Weight of GAD-65: 65 kDa.

## DATA



GAD-65 (B96): sc-53541. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## CONJUGATES

See **GAD-65 (A-3): sc-377145** for GAD-65 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647.