SANTA CRUZ BIOTECHNOLOGY, INC.

GAD-65 (N-19): sc-7511

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 (γ-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 GAD-25 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 GAD-67 and novel GAD-67 splice variants during human fetal pancreas development: GAD-67 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 GAD-65 between ER-Golgi and post-Golgi membranes. J. Cell Sci. 121: 437-449.
5. Wei, J., et al. 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.

CHROMOSOMAL LOCATION

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

SOURCE

GAD-65 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of GAD-65 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-7511 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

GAD-65 (N-19) 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 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

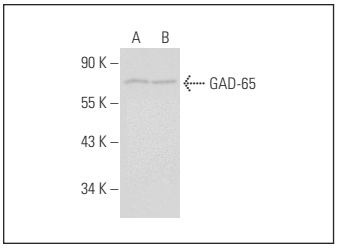
GAD-65 (N-19) is also recommended for detection of GAD-65 in additional species, including equine, bovine and porcine.

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

Molecular Weight of GAD-65: 65 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, HeLa nuclear extract: sc-2120 or rat cerebellum extract: sc-2398.

DATA



GAD-65 (N-19): sc-7511. Western blot analysis of GAD-65 expression in HeLa (**A**) and IMR-32 (**B**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Shah, M.M., et al. 2002. Molecular correlates of the M-current in cultured rat hippocampal neurons. J. Physiol. 544: 29-37.

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 or our catalog for detailed protocols and support products.