

GAD-67 (K-87): sc-58531

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. 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.

CHROMOSOMAL LOCATION

Genetic locus: GAD1 (human) mapping to 2q31.1; Gad1 (mouse) mapping to 2 C2.

SOURCE

GAD-67 (K-87) is a mouse monoclonal antibody raised against amino acids 87-106 of GAD-67 of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GAD-67 (K-87) is recommended for detection of GAD-67 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

Suitable for use as control antibody for GAD-67 siRNA (h): sc-35435, GAD-67 siRNA (m): sc-35436, GAD-67 siRNA (r): sc-61889, GAD-67 shRNA Plasmid (h): sc-35435-SH, GAD-67 shRNA Plasmid (m): sc-35436-SH, GAD-67 shRNA Plasmid (r): sc-61889-SH, GAD-67 shRNA (h) Lentiviral Particles: sc-35435-V, GAD-67 shRNA (m) Lentiviral Particles: sc-35436-V and GAD-67 shRNA (r) Lentiviral Particles: sc-61889-V.

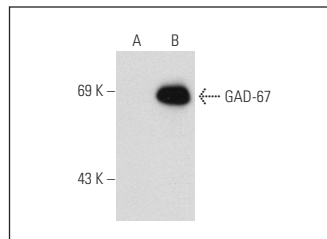
Molecular Weight of GAD-67: 67 kDa.

Positive Controls: GAD-67 (h2): 293T Lysate: sc-175894.

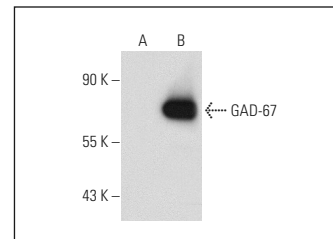
STORAGE

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

DATA



GAD-67 (K-87): sc-58531. Western blot analysis of GAD-67 expression in non-transfected: sc-117752 (A) and human GAD-67 transfected: sc-175894 (B) 293T whole cell lysates.



GAD-67 (K-87): sc-58531. Western blot analysis of GAD-67 expression in non-transfected: sc-117752 (A) and human GAD-67 transfected: sc-158540 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lee, M., et al. 2011. Astrocytes are GABAergic cells that modulate microglial activity. *Glia* 59: 152-165.
2. Horvath, L., et al. 2011. Knockdown of GAD67 protein levels normalizes neuronal activity in a rat model of Parkinson's disease. *J. Gene Med.* 13: 188-197.
3. Yang, J.M., et al. 2013. Development of GABA circuitry of fast-spiking basket interneurons in the medial prefrontal cortex of erbb4-mutant mice. *J. Neurosci.* 33: 19724-19733.
4. Schwab, C., et al. 2013. GAD65, GAD67, and GABAT immunostaining in human brain and apparent GAD65 loss in Alzheimer's disease. *J. Alzheimers Dis.* 33: 1073-1088.
5. Wettergren, E.E., et al. 2014. Gene therapy using synthetic microRNA directed against GAD67 has beneficial effect on motor behaviour in 6-OHDA lesioned rats. *J. Gene Ther. Aspects* E-published.
6. Kanao, M., et al. 2015. Gene transfer of glutamic acid decarboxylase 67 by herpes simplex virus vectors suppresses neuropathic pain induced by human immunodeficiency virus gp120 combined with ddC in rats. *Anesth. Analg.* 120: 1394-1404.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **GAD-67 (F-6): sc-28376** for GAD-67 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647.