SANTA CRUZ BIOTECHNOLOGY, INC.

GAD-67 (A-4): sc-390383

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.

CHROMOSOMAL LOCATION

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

SOURCE

GAD-67 (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 4-31 at the N-terminus of GAD-67 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-390383 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

GAD-67 (A-4) is recommended for detection of GAD-67 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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-67 (A-4) is also recommended for detection of GAD-67 in additional species, including bovine.

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.

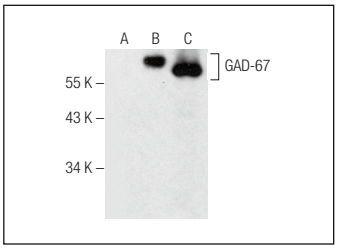
Molecular Weight of GAD-67: 67 kDa.

Positive Controls: GAD-67 (h4): 293T Lysate: sc-158540 or mouse brain extract: sc-2253.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



GAD-67 (A-4): sc-390383. 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 and mouse brain tissue extract (**C**).

SELECT PRODUCT CITATIONS

1. Yang, L., et al. 2016. The essential role of hippocampal α6 subunit-containing $GABA_A$ receptors in maternal separation stress-induced adolescent depressive behaviors. Behav. Brain Res. 313: 135-143.
2. Patricio, F., et al. 2022. Intrapallidal injection of cannabidiol or a selective GPR55 antagonist decreases motor asymmetry and improves fine motor skills in hemiparkinsonian rats. Front. Pharmacol. 13: 945836.

STORAGE

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

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.

CONJUGATES

See **GAD-67 (F-6): sc-28376** for GAD-67 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.