SANTA CRUZ BIOTECHNOLOGY, INC.

GADL1 siRNA (h): sc-78302

BACKGROUND

There are two forms of glutamic acid decarboxylases (GADs) that exist in 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 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 transiently activates to assist in GABA production. As a member of the group II decarboxylase family, GADL1 (Glutamate decarboxylase-like protein 1) is a 521 amino acid protein that utilizes pyridoxal phosphate as a cofactor for its carboxylase activity. There are two isoforms of GADL1 that exist as a result of alternative splicing events.

REFERENCES

1. Kanter, I.C., et al. Cyclo-phosphamide for anti-GAD antibody-positive refractory status epilepticus. Epilepsia 49: 914-920.
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.
3. 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.
4. Wei, J. and Wu, J.Y. 2008. Post-translational regulation of L-glutamic acid decarboxylase in the brain. Neurochem. Res. 33: 1459-1465.
5. 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: GADL1 (human) mapping to 3p24.1.

PRODUCT

GADL1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GADL1 shRNA Plasmid (h): sc-78302-SH and GADL1 shRNA (h) Lentiviral Particles: sc-78302-V as alternate gene silencing products.

For independent verification of GADL1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-78302A, sc-78302B and sc-78302C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GADL1 siRNA (h) is recommended for the inhibition of GADL1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GADL1 gene expression knockdown using RT-PCR Primer: GADL1 (h)-PR: sc-78302-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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