

GABA_A Ry1 siRNA (m): sc-42448

BACKGROUND

GAD-65 and GAD-67, glutamate decarboxylases, function to catalyze the production of GABA (γ -aminobutyric acid). In the central nervous system, GABA functions as the main inhibitory transmitter by increasing a Cl⁻ (chloride) conductance that inhibits neuronal firing. GABA has been shown to activate both ionotropic (GABA_A) and metabotropic (GABA_B) receptors, as well as a third class of receptors called GABA_C. The γ subunit of GABA_A receptors are important for benzodiazepine binding and modulation of GABA-mediated Cl⁻ current. GABA_A Ry1 (γ -aminobutyric acid (GABA) A receptor, γ 1), also known as GABRG1, is a 465 amino acid multi-pass membrane protein belonging to the ligand-gated ionic channel (TC 1.A.9) family. GABA_A Ry1 participates in neurotransmission inhibition and has been linked to alcohol dependence.

REFERENCES

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2. Whiting, P.J., et al. 1999. Molecular and functional diversity of the expanding GABA_A receptor gene family. *Ann. N.Y. Acad. Sci.* 868: 645-653.
3. Nymann-Andersen, J., et al. 2002. Subunit specificity and interaction domain between GABA_A receptor-associated protein (GABARAP) and GABA_A receptors. *J. Neurochem.* 80: 815-823.
4. Ittiwut, C., et al. 2008. Interpopulation linkage disequilibrium patterns of GABRA2 and GABRG1 genes at the GABA cluster locus on human chromosome 4. *Genomics* 91: 61-69.
5. Ray, L.A., et al. 2009. Associations among GABRG1, level of response to alcohol, and drinking behaviors. *Alcohol. Clin. Exp. Res.* 33: 1382-1390.
6. Enoch, M.A., et al. 2009. GABRG1 and GABRA2 as independent predictors for alcoholism in two populations. *Neuropsychopharmacology* 34: 1245-1254.
7. Craddock, N., et al. 2010. Strong genetic evidence for a selective influence of GABA_A receptors on a component of the bipolar disorder phenotype. *Mol. Psychiatry* 15: 146-153.

CHROMOSOMAL LOCATION

Genetic locus: Gabrg1 (mouse) mapping to 5 C3.1.

PRODUCT

GABA_A Ry1 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GABA_A Ry1 shRNA Plasmid (m): sc-42448-SH and GABA_A Ry1 shRNA (m) Lentiviral Particles: sc-42448-V as alternate gene silencing products.

For independent verification of GABA_A Ry1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42448A, sc-42448B and sc-42448C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GABA_A Ry1 siRNA (m) is recommended for the inhibition of GABA_A Ry1 expression in mouse 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 μ M in 66 μ l. 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 GABA_A Ry1 gene expression knockdown using RT-PCR Primer: GABA_A Ry1 (m)-PR: sc-42448-PR (20 μ l). 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.

PROTOCOLS

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