SANTA CRUZ BIOTECHNOLOGY, INC.

mGluR-7 siRNA (m): sc-61039

BACKGROUND

The mGluR proteins (metabotropic glutamate receptors) are members of the G protein-coupled receptor family and are functionally and pharmacologically distinct from the GluR proteins (ionotropic glutamate receptors). The eight currently known mGluR proteins are mediated by two G proteins with opposing regulation of adenylate cyclase pathways. The activities of mGluR1 and mGluR5 are mediated by a G protein that activates a phosphatidylinositol-calcium second messenger system and generates a calcium-activated chloride current. The remainder of the eight subtypes of mGluR have an activity mediated by a G protein that inhibits adenylate cyclase activity. mGluR-7, which can interact with PRKCABP, acts as a receptor for glutamate. It is highly expressed in various areas of the brain, but highest levels are detected in cerebellum, cerebral cortex and hippocampus.

REFERENCES

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2. Flor, P.J., et al. 1997. A novel splice variant of a metabotropic glutamate receptor, human mGluR7b. Neuropharmacology 36: 153-159.
3. Wu, S., et al. 1998. Group III human metabotropic glutamate receptors 4, 7 and 8: molecular cloning, functional expression, and comparison of pharmacological properties in RGT cells. Brain Res. Mol. Brain Res. 53: 88-97.
4. Bolonna, A.A., et al. 2001. Polymorphisms in the genes for mGluR types 7 and 8: association studies with schizophrenia. Schizophr. Res. 47: 99-103.
5. Schulz, H.L., et al. 2002. Characterization of three novel isoforms of the metabotrobic glutamate receptor 7 (GRM7). Neurosci. Lett. 326: 37-40.
6. Cryan, J.F., et al. 2003. Antidepressant and anxiolytic-like effects in mice lacking the group III metabotropic glutamate receptor mGluR-7. Eur. J. Neurosci. 17: 2409-2417.
7. Millán, C., et al. 2003. Co-expression of metabotropic glutamate receptor 7 and N-type Ca^{2+} channels in single cerebrocortical nerve terminals of adult rats. J. Biol. Chem. 278: 23955-23962.
8. Yang, Z.Q. 2005. Agonists and antagonists for group III metabotropic glutamate receptors 6, 7 and 8. Curr. Top. Med. Chem. 5: 913-918.

CHROMOSOMAL LOCATION

Genetic locus: Grm7 (mouse) mapping to 6 E3.

PRODUCT

mGluR-7 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see mGluR-7 shRNA Plasmid (m): sc-61039-SH and mGluR-7 shRNA (m) Lentiviral Particles: sc-61039-V as alternate gene silencing products.

For independent verification of mGluR-7 (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-61039A, sc-61039B and sc-61039C.

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

mGluR-7 siRNA (m) is recommended for the inhibition of mGluR-7 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 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 mGluR-7 gene expression knockdown using RT-PCR Primer: mGluR-7 (m)-PR: sc-61039-PR (20 µl, 446 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gu, Z., et al. 2012. Regulation of N-methyl-D-aspartic acid (NMDA) receptors by metabotropic glutamate receptor 7. J. Biol. Chem. 287: 10265-10275.

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.