SANTA CRUZ BIOTECHNOLOGY, INC.

mGluR-2 siRNA (h): sc-61028

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 sub-types of mGluR have an activity mediated by a G protein that inhibits adenylate cyclase activity. mGluR-2, which may interact with GRASP, acts as a receptor for glutamate. It may also be involved in the regulation of neurotransmission suppression and in synaptogenesis or synaptic stablization.

REFERENCES

1. Flor, P.J., et al. 1995. Molecular cloning, functional expression and pharmacological characterization of the human metabotropic glutamate receptor type 2. Eur. J. Neurosci. 7: 622-629.
2. Kammermeier, P.J., et al. 2005. Activation of metabotropic glutamate receptor 1 dimers requires glutamate binding in both subunits. J. Pharmacol. Exp. Ther. 312: 502-508.
3. Sarría, R., et al. 2005. Immunocytochemical localization of metabotropic (mGluR2/3 and mGluR4a) and ionotropic (GluR2/3) glutamate receptors in adrenal medullary ganglion cells. Histol. Histopathol. 21: 141-147.
4. Yoshimizu, T., et al. 2006. An mGluR2/3 antagonist, MGS0039, exerts antidepressant and anxiolytic effects in behavioral models in rats. Psychopharmacology 186: 587-593.
5. Alexander, G.M. and Godwin, D.W. 2006. Metabotropic glutamate receptors as a strategic target for the treatment of epilepsy. Epilepsy Res. 71: 1-22.
6. Lee, Y., et al. 2006. The mGlu2/3 receptor agonist LY354740 suppresses immobilization stress-induced increase in rat prefrontal cortical BDNF mRNA expression. Neurosci. Lett. 398: 328-332.
7. Pacheco Otalora, L.F., et al. 2006 Abnormal mGluR2/3 expression in the perforant path termination zones and mossy fibers of chronically epileptic rats. Brain Res. 1098: 170-185.

CHROMOSOMAL LOCATION

Genetic locus: GRM2 (human) mapping to 3p21.2.

PRODUCT

mGluR-2 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 mGluR-2 shRNA Plasmid (h): sc-61028-SH and mGluR-2 shRNA (h) Lentiviral Particles: sc-61028-V as alternate gene silencing products.

For independent verification of mGluR-2 (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-61028A, sc-61028B and sc-61028C.

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-2 siRNA (h) is recommended for the inhibition of mGluR-2 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.

GENE EXPRESSION MONITORING

mGluR-2 (A-7): sc-271655 is recommended as a control antibody for monitoring of mGluR-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor mGluR-2 gene expression knockdown using RT-PCR Primer: mGluR-2 (h)-PR: sc-61028-PR (20 µl, 534 bp). 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.