SANTA CRUZ BIOTECHNOLOGY, INC.

mGluR-1a/b siRNA (h): sc-61026

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-1, which can form a homodimer acts as a receptor for glutamate. It may also be involved in glutamate activity in the CNS.

REFERENCES

1. Desai, M.A., et al. 1995. Cloning and expression of a human enhanced coupling on co-transfection with a glutamate transporter. Mol. Pharmacol. 48: 648-657.
2. Stephan, D., et al. 1997. Human metabotropic glutamate receptor 1: mRNA distribution, chromosome localization and functional expression of two splice variants. Neuropharmacology 35: 1649-1660.
3. Ray, K. and Hauschild, B.C. 2000. Cys-140 is critical for metabotropic glutamate receptor-1 dimerization. J. Biol. Chem. 275: 34245-34251.
4. 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.

CHROMOSOMAL LOCATION

Genetic locus: GRM1 (human) mapping to 6q24.3.

PRODUCT

mGluR-1a/b 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-1a/b shRNA Plasmid (h): sc-61026-SH and mGluR-1a/b shRNA (h) Lentiviral Particles: sc-61026-V as alternate gene silencing products.

For independent verification of mGluR-1a/b (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-61026A, sc-61026B and sc-61026C.

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-1a/b siRNA (h) is recommended for the inhibition of mGluR-1a/b 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-1a/b (1F7): sc-293437 is recommended as a control antibody for monitoring of mGluR-1a/b 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-1a/b gene expression knockdown using RT-PCR Primer: mGluR-1a/b (h)-PR: sc-61026-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, C., et al. 2015. Anti-cancer effect of metabotropic glutamate receptor 1 inhibition in human glioma U87 cells: involvement of PI3K/Akt/mTOR pathway. Cell. Physiol. Biochem. 35: 419-432.

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.