SANTA CRUZ BIOTECHNOLOGY, INC.

mGluR-1a/b siRNA (m): sc-61027

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 cotransfection 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, BC. 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.
5. Topolnik, L., et al. 2006. mGluR1/5 subtype-specific calcium signalling and induction of long-term potentiation in rat hippocampal oriens/alveus interneurones. J. Physiol. 575: 115-131.
6. Kuang, D. and Hampson, D.R. 2006. Ion dependence of ligand binding to metabotropic glutamate receptors. Biochem. Biophys. Res. Commun. 345: 1-6.
7. Sen, M. and Gleason, E. 2006. Immunolocalization of metabotropic glutamate receptors 1 and 5 in the synaptic layers of the chicken retina. Vis. Neurosci. 23: 221-231.

CHROMOSOMAL LOCATION

Genetic locus: Grm1 (mouse) mapping to 10 A1.

PRODUCT

mGluR-1a/b 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-1a/b shRNA Plasmid (m): sc-61027-SH and mGluR-1a/b shRNA (m) Lentiviral Particles: sc-61027-V as alternate gene silencing products.

For independent verification of mGluR-1a/b (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-61027A, sc-61027B and sc-61027C.

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 (m) is recommended for the inhibition of mGluR-1 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-1 gene expression knockdown using RT-PCR Primer: mGluR-1a/b (m)-PR: sc-61027-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. Samarasinghe, R.A., et al. 2014. Transient muscarinic and glutamatergic stimulation of neural stem cells triggers acute and persistent changes in differentiation. Neurobiol. Dis. 70: 252-261.
2. Lin, J.J., et al. 2017. Melatonin suppresses neuropathic pain via MT2-dependent and -independent pathways in dorsal root ganglia neurons of mice. Theranostics 7: 2015-2032.

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.