SANTA CRUZ BIOTECHNOLOGY, INC.

GRINA siRNA (h): sc-77447

BACKGROUND

Glutamate receptors mediate most excitatory neurotransmission in the brain and play an important role in neural plasticity, neural development and neurodegeneration. Ionotropic glutamate receptors are categorized into NMDA receptors and kainate/AMPA receptors, both of which contain glutamate-gated, cation-specific ion channels. Synaptic and extrasynaptic NMDA receptors have been shown to have opposite effects on neuronal survival, CREB function and gene regulation. As one of the four major proteins of the NMDA receptor ion channel, GRINA (glutamate [NMDA] receptor-associated protein 1), also designated NMDA receptor glutamate-binding subunit or putative MAPK-activating protein PM02, is a 371 amino acid multi-pass transmembrane protein. Due to the chromosomal location of the gene encoding GRINA, studies have linked possible GRINA involvement with a form of idiopathic generalized epilepsy.

REFERENCES

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2. Collins, C., et al. 1993. Mapping of the human NMDA receptor subunit (NMDAR1) and the proposed NMDA receptor glutamate-binding subunit (NMDARA1) to chromosomes 9q34.3 and chromosome 8, respectively. Genomics 17: 237-239.
3. Karp, S.J., et al. 1993. Molecular cloning and chromosomal localization of the key subunit of the human N-methyl-D-aspartate receptor. J. Biol. Chem. 268: 3728-3733.
4. Nakanishi, S., et al. 1994. Molecular diversity of glutamate receptors and their physiological functions. EXS 71: 71-80.
5. Pellicena-Pallé, A. and Salz, H.K. 1995. The putative *Drosophila* NMDARA1 gene is located on the second chromosome and is ubiquitously expressed in embryogenesis. Biochim. Biophys. Acta 1261: 301-303.
6. Lewis, T.B., et al. 1996. Localization of a gene for a glutamate binding subunit of a NMDA receptor (GRINA) to 8q24. Genomics 32: 131-133.
7. Hardingham, G.E., et al. 2002. Extrasynaptic NMDARs oppose synaptic NMDARs by triggering CREB shut-off and cell death pathways. Nat. Neurosci. 5: 405-414.

CHROMOSOMAL LOCATION

Genetic locus: GRINA (human) mapping to 8q24.3.

PRODUCT

GRINA 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 GRINA shRNA Plasmid (h): sc-77447-SH and GRINA shRNA (h) Lentiviral Particles: sc-77447-V as alternate gene silencing products.

For independent verification of GRINA (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-77447A, sc-77447B and sc-77447C.

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

GRINA siRNA (h) is recommended for the inhibition of GRINA 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GRINA gene expression knockdown using RT-PCR Primer: GRINA (h)-PR: sc-77447-PR (20 µl). 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.