

GluR- δ 1 siRNA (h): sc-90605

BACKGROUND

Glutamate receptors mediate most excitatory neurotransmissions in the brain and play an important role in neural plasticity, neural development and neurodegeneration. Ionotropic glutamate receptors are divided into two categories, namely NMDA receptors and kainate/AMPA receptors, both of which contain glutamate-gated, cation-specific ion channels. Kainate/AMPA receptors consist of seven structurally related subunits, designated GluR-1 to -7, and are primarily responsible for fast excitatory neurotransmissions carried out by glutamate. GluR- δ 1 (Glutamate receptor δ -1 subunit), also known as GRID1, is a multi-pass membrane protein that belongs to the kainate/AMPA receptor family and is expressed primarily in the brain. Localized to the cell junction and the postsynaptic cell membrane, GluR- δ 1 functions as a glutamate receptor that regulates synaptic transmissions in the central nervous system (CNS) and is thought to play an important role in synaptic plasticity. Defects in the gene encoding GluR- δ 1 are associated with schizophrenia, a chronic and severe brain disorder.

REFERENCES

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2. Treadaway, J. and Zuo, J. 1998. Mapping of the mouse glutamate receptor δ 1 subunit (Grid1) to chromosome 14. *Genomics* 54: 359-360.
3. Nagase, T., et al. 1999. Prediction of the coding sequences of unidentified human genes. XV. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. *DNA Res.* 6: 337-345.
4. Roche, K.W., et al. 1999. Postsynaptic density-93 interacts with the δ 2 glutamate receptor subunit at parallel fiber synapses. *J. Neurosci.* 19: 3926-3934.
5. Yue, Z., et al. 2002. A novel protein complex linking the δ 2 glutamate receptor and autophagy: implications for neurodegeneration in lurcher mice. *Neuron* 35: 921-933.
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CHROMOSOMAL LOCATION

Genetic locus: GRID1 (human) mapping to 10q23.1.

PRODUCT

GluR- δ 1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GluR- δ 1 shRNA Plasmid (h): sc-90605-SH and GluR- δ 1 shRNA (h) Lentiviral Particles: sc-90605-V as alternate gene silencing products.

For independent verification of GluR- δ 1 (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-90605A, sc-90605B and sc-90605C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GluR- δ 1 siRNA (h) is recommended for the inhibition of GluR- δ 1 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 μ M in 66 μ l. 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

GluR- δ 1 (2B7): sc-81878 is recommended as a control antibody for monitoring of GluR- δ 1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 GluR- δ 1 gene expression knockdown using RT-PCR Primer: GluR- δ 1 (h)-PR: sc-90605-PR (20 μ l). 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.