SANTA CRUZ BIOTECHNOLOGY, INC.

GluR-δ1 siRNA (m): sc-145448

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-δ1 (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-δ1 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-δ1 are associated with schizophrenia, a chronic and severe brain disorder.

REFERENCES

1. Yamazaki, M., et al. 1992. Molecular cloning of a cDNA encoding a novel member of the mouse glutamate receptor channel family. Biochem. Biophys. Res. Commun. 183: 886-892.
2. Treadaway, J. and Zuo, J. 1998. Mapping of the mouse glutamate receptor δ1 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 δ2 glutamate receptor subunit at parallel fiber synapses. J. Neurosci. 19: 3926-3934.
5. Yue, Z., et al. 2002. A novel protein complex linking the δ2 glutamate receptor and autophagy: implications for neurodegeneration in lurcher mice. Neuron 35: 921-933.
6. Ly, C.D., et al. 2002. Identification of rat EMAP, a δ-glutamate receptor binding protein. Biochem. Biophys. Res. Commun. 291: 85-90.

CHROMOSOMAL LOCATION

Genetic locus: Grid1 (mouse) mapping to 14 B.

PRODUCT

GluR-δ1 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 GluR-δ1 shRNA Plasmid (m): sc-145448-SH and GluR-δ1 shRNA (m) Lentiviral Particles: sc-145448-V as alternate gene silencing products.

For independent verification of GluR-δ1 (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-145448A, sc-145448B and sc-145448C.

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

GluR-δ1 siRNA (m) is recommended for the inhibition of GluR-δ1 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.

GENE EXPRESSION MONITORING

GluR-δ1 (2B7): sc-81878 is recommended as a control antibody for monitoring of GluR-δ1 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 GluR-δ1 gene expression knockdown using RT-PCR Primer: GluR-δ1 (m)-PR: sc-145448-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.