

GRIP2 siRNA (m): sc-42163

BACKGROUND

Glutamate receptors mediate most excitatory neurotransmission in the brain and play an important role in neural plasticity, neural development and neurodegeneration. The glutamate receptor interacting proteins, GRIP1 and GRIP2, are members of the PDZ domain-containing protein family, and they specifically bind to the carboxy-terminus of AMPA receptor subunits, GluR-2 and GluR-3. GRIP1 and GRIP2 are involved in the targeting of GluR-2 and GluR-3 to the synapse. GRIP1 and GRIP2 are widely expressed in brain, with the highest levels in the cerebral cortex, hippocampus and olfactory bulb. They are both enriched in synaptic plasma and postsynaptic density fractions. GRIP1 is expressed in early development before the expression of AMPA receptors, specifically postnatal days 8-10, while GRIP2 expression parallels that of AMPA receptors during later developmental stages. GRIP1 and GRIP2 may mediate the endocytotic rate of GluR-2 and GluR-3 in response to the phosphorylation of the receptors on Ser 880 by PKC, which is implicated in the induction of cerebellar long-term depression (LTD).

REFERENCES

1. Choi, D.W., et al. 1990. The role of glutamate neurotoxicity in hypoxic-ischemic neuronal death. *Annu. Rev. Neurosci.* 13: 171-182.
2. Nakanishi, S. 1992. Molecular diversity of glutamate receptors and implications for brain function. *Science* 258: 597-603.
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4. Dong, H., et al. 1999. Characterization of the glutamate receptor-interacting proteins GRIP1 and GRIP2. *J. Neurosci.* 19: 6930-6941.
5. Osten, P., et al. 2000. Mutagenesis reveals a role for ABP/GRIP binding to GluR2 in synaptic surface accumulation of the AMPA receptor. *Neuron* 27: 313-325.
6. Xia, J., et al. 2000. Cerebellar long-term depression requires PKC-regulated interactions between GluR2/3 and PDZ domain-containing proteins. *Neuron* 28: 499-510.
7. Matsuda, S., et al. 2000. Disruption of AMPA receptor GluR2 clusters following long-term depression induction in cerebellar Purkinje neurons. *EMBO J.* 19: 2765-2774.
8. Yamazaki, M., et al. 2001. Differential palmitoylation of two mouse glutamate receptor interacting protein 1 forms with different N-terminal sequences. *Neurosci. Lett.* 304: 81-84.

CHROMOSOMAL LOCATION

Genetic locus: Grip2 (mouse) mapping to 6 D1.

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.

PRODUCT

GRIP2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GRIP2 shRNA Plasmid (m): sc-42163-SH and GRIP2 shRNA (m) Lentiviral Particles: sc-42163-V as alternate gene silencing products.

For independent verification of GRIP2 (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-42163A, sc-42163B and sc-42163C.

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

GRIP2 siRNA (m) is recommended for the inhibition of GRIP2 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GRIP2 gene expression knockdown using RT-PCR Primer: GRIP2 (m)-PR: sc-42163-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.