SANTA CRUZ BIOTECHNOLOGY, INC.

neuropsin siRNA (m): sc-61190

BACKGROUND

The opsin family of proteins are G protein-coupled receptors that function in a light-dependent manner. Neuropsin is a 354-amino acid extracellular matrix serine protease expressed by neurons and glial cells involved in learning and memory. Neuropsin bears a lysine that forms a Schiff base with a chromophore, a C-terminal tail with sites for serine and threonine phosphorylation and a conserved DRY motif that is important for G-protein binding. Neuropsin has a role in neuronal plasticity, and its expression is upregulated in response to injury to the CNS. Its neuronal plasticity also plays a role in the formation of both the Schaffer-collateral long-term potentiation (LTP) effect and hippocampus-dependent forms of memory. The proteolytic function of neuropsin may also regulate the early phase of LTP. Neuropsin deficiency may be involved in the pathogenesis of multiple sclerosis caused by demyelination and oligodendroglial death.

REFERENCES

1. Komai, S., et al. 2000. Neuropsin regulates an early phase of Schaffer-collateral long-term potentiation and Shiosa in the murine hippocampus. Eur. J. Neurosci. 12: 1479-1486.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609042. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Li, Y., et al. 2004. Recent origin of a hominoid-specific splice form of neuropsin, a gene involved in learning and memory. Mol. Biol. Evol. 21: 2111-2115.
4. Terayama, R., et al. 2004. Differential expression of neuropsin and protease M after injury to the spinal cord. Glia 48: 91-101.
5. Terakita, A. 2005. The opsins. Genome Biol. 6: 213.
6. Terayama, R., et al. 2005. Involvement of neuropsin in the pathogenesis of experimental autoimmune encephalomyelitis. Glia 52: 108-118.
7. Kumbalasiri, T. and Provencio, I. 2005. Melanopsin and other novel mammalian opsins. Exp. Eye Res. 81: 368-375.
8. Tamura, H., et al. 2006. Neuropsin is essential for early processes of memory acquisition and Schaffer collateral long-term potentiation in adult mouse hippocampus *in vivo*. J. Physiol. 570: 541-551.
9. Nakamura, Y., et al. 2006. Role of neuropsin in formation and maturation of synaptic boutons. J. Cell Sci. 119: 1341-1349.

CHROMOSOMAL LOCATION

Genetic locus: Opn5 (mouse) mapping to 17 B3.

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

neuropsin 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 neuropsin shRNA Plasmid (m): sc-61190-SH and neuropsin shRNA (m) Lentiviral Particles: sc-61190-V as alternate gene silencing products.

For independent verification of neuropsin (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-61190A, sc-61190B and sc-61190C.

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

neuropsin siRNA (m) is recommended for the inhibition of neuropsin 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 neuropsin gene expression knockdown using RT-PCR Primer: neuropsin (m)-PR: sc-61190-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.