

Neurotrypsin siRNA (m): sc-149939

BACKGROUND

Neurotrypsin, also known as PRSS12 (protease, serine, 12 (neurotrypsin, motopsin)) or leydin, is an 875 amino acid secreted protein that belongs to the peptidase S1 family and is involved in neuronal plasticity. Expressed in brain and the Leydig cells of testis, Neurotrypsin contains one kringle domain, four SRCR domains and a peptidase S1 domain. Neurotrypsin is implicated in structural reorganizations associated with learning and memory, and is encoded by a gene that maps to human chromosome 4q26. Defects in the Neurotrypsin gene are associated with the development of mental retardation autosomal recessive type 1 (MRT1). Human chromosome 4 represents approximately 6% of the human genome, contains nearly 900 genes and is associated with Huntington's disease, Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease.

REFERENCES

1. Kalchman, M.A., Graham, R.K., Xia, G., Koide, H.B., Hodgson, J.G., Graham, K.C., Goldberg, Y.P., Gietz, R.D., Pickart, C.M. and Hayden, M.R. 1996. Huntingtin is ubiquitinated and interacts with a specific ubiquitin-conjugating enzyme. *J. Biol. Chem.* 271: 19385-19394.
2. Yamamura, Y., Yamashiro, K., Tsuruoka, N., Nakazato, H., Tsujimura, A. and Yamaguchi, N. 1997. Molecular cloning of a novel brain-specific serine protease with a kringle-like structure and three scavenger receptor cysteine-rich motifs. *Biochem. Biophys. Res. Commun.* 239: 386-392.
3. Gschwend, T.P., Krueger, S.R., Kozlov, S.V., Wolfer, D.P. and Sonderegger, P. 1997. Neurotrypsin, a novel multidomain serine protease expressed in the nervous system. *Mol. Cell. Neurosci.* 9: 207-219.
4. Proba, K., Gschwend, T.P. and Sonderegger, P. 1998. Cloning and sequencing of the cDNA encoding human neurotrypsin. *Biochim. Biophys. Acta* 1396: 143-147.
5. Kozlov, S.V., Riegel, M., Kinter, J., Hintsch, G., Cinelli, P., Schinzel, A. and Sonderegger, P. 1999. Assignment of the gene encoding the neuronal multidomain serine protease Neurotrypsin (PRSS12) to human chromosome band 4q25→q26 by *in situ* hybridization. *Cytogenet. Cell Genet.* 84: 107-108.
6. Sommardahl, C., Cottrell, M., Wilkinson, J.E., Woychik, R.P. and Johnson, D.K. 2001. Phenotypic variations of orpk mutation and chromosomal localization of modifiers influencing kidney phenotype. *Physiol. Genomics* 7: 127-134.
7. Molinari, F., Rio, M., Meskenaite, V., Encha-Razavi, F., Auge, J., Bacq, D., Briault, S., Vekemans, M., Munnich, A., Attie-Bitach, T., Sonderegger, P. and Colleaux, L. 2002. Truncating Neurotrypsin mutation in autosomal recessive nonsyndromic mental retardation. *Science* 298: 1779-1781.
8. Molinari, F., Meskenaite, V., Munnich, A., Sonderegger, P. and Colleaux, L. 2003. Extracellular proteases and their inhibitors in genetic diseases of the central nervous system. *Hum. Mol. Genet.* 12: R195-R200.
9. Didelot, G., Molinari, F., Tchenio, P., Comas, D., Milhiet, E., Munnich, A., Colleaux, L. and Preat, T. 2006. Tequila, a neurotrypsin ortholog, regulates long-term memory formation in *Drosophila*. *Science* 313: 851-853.

CHROMOSOMAL LOCATION

Genetic locus: Prss12 (mouse) mapping to 3 G1.

PRODUCT

Neurotrypsin 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 Neurotrypsin shRNA Plasmid (m): sc-149939-SH and Neurotrypsin shRNA (m) Lentiviral Particles: sc-149939-V as alternate gene silencing products.

For independent verification of Neurotrypsin (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-149939A, sc-149939B and sc-149939C.

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

Neurotrypsin siRNA (m) is recommended for the inhibition of Neurotrypsin 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 Neurotrypsin gene expression knockdown using RT-PCR Primer: Neurotrypsin (m)-PR: sc-149939-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.