SANTA CRUZ BIOTECHNOLOGY, INC.

Neurophysin I siRNA (h): sc-43967

BACKGROUND

The nonapeptide hormones arginine vasopressin (AVP) and oxytocin are synthesized in the supraoptic and paraventricular nuclei of the hypothalamus together with their respective "carrier" proteins, the neurophysins. Vasopressin and oxytocin are produced by separate populations of magnocellular neurons in both nuclei. Neurophysin I (NPI) and neurophysin II (NPII) function as carrier proteins for oxytocin and vasopressin, respectively. Oxytocin is a pituitary hormone which induces uterine contractions during childbirth and the ejection of milk from the mammary glands during nursing. Vasopressin is involved in the metabolism of water and electrolytes and has been identified as a vasoconstrictor. Both neurophysin genes exist as three exons, with each exon encoding a functional protein domain. Studies show that the identically conserved middle region (exon B) is involved in NP-NP homodimer formation as well as being the site for the glycine 17 to valine point mutation responsible for familial diabetes insipidus. The genes encoding neurophysin I and II map to human chromosome 20p13.

REFERENCES

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2. North, W.G., et al. 1980. Isolation and partial characterization of two human neurophysins: their use in the development of specific radioimmunoassays. J. Clin. Endocrinol. Metab. 51: 884-891.
3. Ruppert, S., et al. 1984. Recent gene conversion involving bovine vasopressin and oxytocin precursor genes suggested by nucleotide sequence. Nature 308: 554-557.
4. Doris, P.A. 1984. Vasopressin and central integrative processes. Neuroendocrinology 38: 75-85.
5. Abercrombie, D.M., et al. 1984. Cooperative interactions in neurophysin-neuropeptide hormone complexes. Analytical affinity chromatography of native and covalently-modified neurophysins. Int. J. Pept. Protein Res. 24: 218-232.
6. Rao, V.V., et al. 1992. The human gene for oxytocin-neurophysin I (OXT) is physically mapped to chromosome 20p13 by *in situ* hybridization. Cytogenet. Cell Genet. 61: 271-273.
7. Olias, G., et al. 1996. Heterologous expression of human vasopressin-neurophysin precursors in a pituitary cell line: defective transport of a mutant protein from patients with familial diabetes insipidus. DNA Cell Biol. 15: 929-935.
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CHROMOSOMAL LOCATION

Genetic locus: OXT (human) mapping to 20p13.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

Neurophysin I siRNA (h) is a target-specific 19-25 nt siRNA 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 Neurophysin I shRNA Plasmid (h): sc-43967-SH and Neurophysin I shRNA (h) Lentiviral Particles: sc-43967-V as alternate gene silencing products.

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

Neurophysin I siRNA (h) is recommended for the inhibition of Neurophysin I 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 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 Neurophysin I gene expression knockdown using RT-PCR Primer: Neurophysin I (h)-PR: sc-43967-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.