

NPS siRNA (m): sc-150055

BACKGROUND

Neuropeptides are regulators of synaptic transmission and their effects are mediated by G protein-coupled receptors. NPS (neuropeptide S) is a 20 amino acid peptide cleaved from a larger precursor that contains a hydrophobic signal peptide and proteolytic cleavage processing sites. The N-terminal residue of NPS is always a serine regardless of the species. NPS is predominantly found in the central nervous system and plays an important role regulating sleep/wake functions, locomotion, arousal/anxiety responses and food intake. NPS functions by binding and activating its receptor, NPSR, and increasing intracellular calcium levels thereby acting as an excitatory transmitter. In addition, NPS stimulates the hypothalamo-pituitary adrenal (HPA) axis via the release of corticotropin-releasing factor (CRF) and arginine vasopressin (AVP). NPS and its receptor NPSR may also play a role in asthma pathogenesis.

REFERENCES

1. Xu, Y.L., Reinscheid, R.K., Huitron-Resendiz, S., Clark, S.D., Wang, Z., Lin, S.H., Brucher, F.A., Zeng, J., Ly, N.K., Henriksen, S.J., de Lecea, L. and Civelli, O. 2004. Neuropeptide S: a neuropeptide promoting arousal and anxiolytic-like effects. *Neuron* 43: 487-497.
2. Reinscheid, R.K. and Xu, Y.L. 2005. Neuropeptide S as a novel arousal promoting peptide transmitter. *FEBS J.* 272: 5689-5693.
3. Reinscheid, R.K. and Xu, Y.L. 2005. Neuropeptide S and its receptor: a newly orphanized G protein-coupled receptor system. *Neuroscientist* 11: 532-538.
4. Roth, A.L., Marzola, E., Rizzi, A., Arduin, M., Trapella, C., Corti, C., Vergura, R., Martinelli, P., Salvadori, S., Regoli, D., Corsi, M., Cavanni, P., Caló, G. and Guerrini, R. 2006. Structure-activity studies on neuropeptide S: identification of the amino acid residues crucial for receptor activation. *J. Biol. Chem.* 281: 20809-20816.
5. Bernier, V., Stocco, R., Bogusky, M.J., Joyce, J.G., Parachoniak, C., Grenier, K., Arget, M., Mathieu, M.C., O'Neill, G.P., Slipetz, D., Crackower, M.A., Tan, C.M. and Therien, A.G. 2006. Structure-function relationships in the neuropeptide S receptor: molecular consequences of the asthma-associated mutation N107I. *J. Biol. Chem.* 281: 24704-24712.
6. Smith, K.L., Patterson, M., Dhillo, W.S., Patel, S.R., Semjonous, N.M., Gardiner, J.V., Ghatei, M.A. and Bloom, S.R. 2006. Neuropeptide S stimulates the hypothalamo-pituitary-adrenal axis and inhibits food intake. *Endocrinology* 147: 3510-3518.
7. Chung, S. and Civelli, O. 2006. Orphan neuropeptides. Novel neuropeptides modulating sleep or feeding. *Neuropeptides* 40: 233-243.
8. Tancredi, T., Guerrini, R., Marzola, E., Trapella, C., Caló, G., Regoli, D., Reinscheid, R.K., Camarda, V., Salvadori, S. and Temussi, P.A. 2007. Conformation-activity relationship of neuropeptide S and some structural mutants: helicity affects their interaction with the receptor. *J. Med. Chem.* 50: 4501-4508.
9. Lage, R., González, C.R., Dieguez, C. and López, M. 2007. Nicotine treatment regulates neuropeptide S system expression in the rat brain. *Neurotoxicology* 28:1129-1135.

CHROMOSOMAL LOCATION

Genetic locus: Nps (mouse) mapping to 7 F3.

PRODUCT

NPS siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NPS shRNA Plasmid (m): sc-150055-SH and NPS shRNA (m) Lentiviral Particles: sc-150055-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 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

NPS siRNA (m) is recommended for the inhibition of NPS 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 NPS gene expression knockdown using RT-PCR Primer: NPS (m)-PR: sc-150055-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.

PROTOCOLS

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