

Preprotachykinin 1 siRNA (h): sc-42297

BACKGROUND

The tachykinin family consists of amidated neuropeptides that share a carboxy-terminal sequence (Phe-X-Gly-Leu-Met-NH₂). Preprotachykinin I, also designated protachykinin 1 precursor (PPT), is a common precursor of tachykinins. Preprotachykinin I alternately splices to form various isoforms. These isoforms include: substance P; neurokinin A (NKA, substance K, neuromedin L); neurokinin B; neuropeptide K (NPK); neuropeptide γ ; and C-terminal flanking peptide. Substance P is expressed primarily in the small diameter primary sensory fibers of the peripheral nervous system, and in the superficial dorsal horn of the spinal cord, the substantia nigra, and the medial amygdaloid nucleus of the central nervous system. Tachykinin peptides have many pleiotropic functions including: neurotransmission, immune/hematopoietic modulation, angiogenesis, and mitogenesis. Preprotachykinin I has been implicated in breast cancer and bone marrow metastasis. Substance P plays a role in depression.

REFERENCES

1. McGregor, G.P., et al. 1990. Characterization of the C-terminal flanking peptide of human β -preprotachykinin. *Peptides* 11: 907-910.
2. Lai, J.P., et al. 1998. Identification of a δ isoform of preprotachykinin mRNA in human mononuclear phagocytes and lymphocytes. *J. Neuroimmunol.* 9: 121-128.
3. Kramer, M.S., et al. 1998. Distinct mechanism for antidepressant activity by blockade of central substance P receptors. *Science* 281: 1640-1645.
4. Page, N.M., et al. 2000. Excessive placental secretion of neurokinin B during the third trimester causes pre-eclampsia. *Nature* 405: 797-800.
5. Ribeiro-da-Silva, A. and Hokfelt, T. 2000. Neuroanatomical localization of substance P in the CNS and sensory neurons. *Neuropeptides* 34: 256-271.
6. Singh, D., et al. 2000. Increased expression of preprotachykinin-I and neurokinin receptors in human breast cancer cells: implications for bone marrow metastasis. *Proc. Natl. Acad. Sci. USA* 97: 388-393.
7. Qian, J., et al. 2001. Cloning of human preprotachykinin-I oriniter and the role of cyclic adenosine 5'-monophosphate response elements in its expression by IL-1 and stem cell factor. *J. Immunol.* 166: 2553-2561.

CHROMOSOMAL LOCATION

Genetic locus: TAC1 (human) mapping to 7q21.3.

PRODUCT

Preprotachykinin 1 siRNA (h) 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 Preprotachykinin 1 shRNA Plasmid (h): sc-42297-SH and Preprotachykinin 1 shRNA (h) Lentiviral Particles: sc-42297-V as alternate gene silencing products.

For independent verification of Preprotachykinin 1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42297A, sc-42297B and sc-42297C.

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

Preprotachykinin 1 siRNA (h) is recommended for the inhibition of Preprotachykinin 1 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 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.

GENE EXPRESSION MONITORING

Tachykinin (H-2): sc-25266 is recommended as a control antibody for monitoring of Preprotachykinin 1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Preprotachykinin 1 gene expression knockdown using RT-PCR Primer: Preprotachykinin 1 (h)-PR: sc-42297-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hua, F., et al. 2018. DR region of Na⁺-K⁺-ATPase is a new target to protect heart against oxidative injury. *Sci. Rep.* 8: 13100.

RESEARCH USE

For research use only, not for use in diagnostic procedures.