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SANTA CRUZ BIOTECHNOLOGY, INC.

urotensin II siRNA (m): sc-45576

BACKGROUND

Two major regulatory peptides, urotensin I and II, were originally isolated from fish urophysial extracts. In both frog and human, the urotensin II sequence is located at the carboxy-terminal position of the precursor. Human urotensin II is composed of only 11 amino acid residues, while fish and frog urotensin II possess 12 and 13 amino acid residues, respectively. The cyclic region of urotensin II, which is responsible for the biological activity of the peptide, has been fully conserved from fish to human. However, several substitutions have occurred in the amino-terminal region of the molecule. GPR14, a human G protein-coupled receptor, is the urotensin II receptor. Human urotensin II is found in both vascular and cardiac tissue, including coronary atheroma, and effectively constricts isolated arteries from non-human primates. Urotensin II may act as an autocrine and/or paracrine hormone rather than as a circulating hormone, by playing an important role in the development of ventricular hypertrophy induced by chronic hypoxia.

REFERENCES

1. Bern, H.A., et al. 1985. Neurohormones from fish tails: the caudal neurosecretory system. I. "Urophysiology" and the caudal neurosecretory system of fishes. Recent Prog. Horm. Res. 41: 533-552.
2. Coulouarn, Y., et al. 1998. Cloning of the cDNA encoding the urotensin II precursor in frog and human reveals intense expression of the urotensin II gene in motoneurons of the spinal cord. Proc. Natl. Acad. Sci. USA 95: 15803-15808.
3. Ames, R.S., et al. 1999. Human urotensin-II is a potent vasoconstrictor and agonist for the orphan receptor GPR14. Nature 401: 282-286.
4. Zhang, Y., et al. 2002. Effect of chronic hypoxia on contents of urotensin II and its functional receptors in rat myocardium. Heart Vessels 16: 64-68.
5. Chartrel, N., et al. 2004. Biochemical characterization and immunohistochemical localization of urotensin II in the human brainstem and spinal cord. J. Neurochem. 91: 110-118.
6. Russell, F.D., et al. 2004. Investigation of signaling pathways that mediate the inotropic effect of urotensin-II in human heart. Cardiovasc. Res. 63: 673-681.

CHROMOSOMAL LOCATION

Genetic locus: Uts2 (mouse) mapping to 4 E2.

PRODUCT

urotensin II 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 urotensin II shRNA Plasmid (m): sc-45576-SH and urotensin II shRNA (m) Lentiviral Particles: sc-45576-V as alternate gene silencing products.

For independent verification of urotensin II (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-45576A, sc-45576B and sc-45576C.

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

urotensin II siRNA (m) is recommended for the inhibition of urotensin II 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 urotensin II gene expression knockdown using RT-PCR Primer: urotensin II (m)-PR: sc-45576-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.

PROTOCOLS

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