



CRLR siRNA (h): sc-43705

BACKGROUND

Adrenomedullin (ADM) is a hypotensive peptide that belongs to a peptide superfamily, which includes the Calcitonin gene-related peptide (CGRP), a potent vasodilator, and amylin. Three distinct receptors have the ability to bind ADM and are designated ADM receptor (also designated L1), RDC-1 and Calcitonin receptor-like receptor (CRLR). CRLR associates with receptor activity-modifying proteins (RAMPs), which determine the specificity of CRLR binding. Co-expression with RAMP1 results in CRLR binding to CGRP, whereas association with RAMP2 or RAMP3 results in ADM binding. These RAMP proteins mediate the level of glycosylation of CRLR, which in turn, determines the specificity of the receptors. CRLR is expressed in heart and blood vessels, which suggests its involvement in vasodilation, smooth muscle relaxation and angiogenesis. RDC-1 is also expressed in heart as well as lung and primarily binds CGRP.

REFERENCES

- Autelitano, D.J. 1998. Cardiac expression of genes encoding putative adrenomedullin/Calcitonin gene-related peptide receptors. *Biochem. Biophys. Res. Commun.* 250: 689-693.
- Autelitano, D.J. and Tang, F. 1999. Co-expression of prepro-adrenomedullin with a putative adrenomedullin receptor gene in vascular smooth muscle. *Clin. Sci.* 96: 493-498.
- Mazzocchi, G., et al. 1999. Distribution, functional role, and signaling mechanism of adrenomedullin receptors in the rat adrenal gland. *Peptides* 20: 1479-1487.

CHROMOSOMAL LOCATION

Genetic locus: CALCLRL (human) mapping to 2q32.1.

PRODUCT

CRLR 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 CRLR shRNA Plasmid (h): sc-43705-SH and CRLR shRNA (h) Lentiviral Particles: sc-43705-V as alternate gene silencing products.

For independent verification of CRLR (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-43705A, sc-43705B and sc-43705C.

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

CRLR siRNA (h) is recommended for the inhibition of CRLR 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CRLR gene expression knockdown using RT-PCR Primer: CRLR (h)-PR: sc-43705-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

- Albertin, G., et al. 2010. Involvement of vascular endothelial growth factor signaling in CLR/RAMP1 and CLR/RAMP2-mediated pro-angiogenic effect of intermedin on human vascular endothelial cells. *Int. J. Mol. Med.* 26: 289-294.
- Bell, D., et al. 2012. AM₁-receptor-dependent protection by intermedin of human vascular and cardiac non-vascular cells from ischaemia-reperfusion injury. *J. Physiol.* 590: 1181-1197.
- Bell, D., et al. 2016. Endothelium-derived intermedin/adrenomedullin-2 protects human ventricular cardiomyocytes from ischaemia-reoxygenation injury predominantly via the AM₁ receptor. *Peptides* 76: 1-13.
- Davis, R.B., et al. 2017. Lymphatic deletion of Calcitonin receptor-like receptor exacerbates intestinal inflammation. *JCI Insight* 2: e92465.
- Holmes, D., et al. 2020. Protective effects of intermedin/adrenomedullin-2 in a cellular model of human pulmonary arterial hypertension. *Peptides* 126: 170267.
- Wende, B., et al. 2023. Expression of the Calcitonin receptor-like receptor (CALCLRL) in normal and neoplastic tissues. *Int. J. Mol. Sci.* 24: 3960.

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.