SANTA CRUZ BIOTECHNOLOGY, INC.

Renin siRNA (m): sc-41645

BACKGROUND

Renin is a highly specific endopeptidase that mediates the cleavage of the circulating substrate angiotensinogen to yield Angiotensin I. Angiotensin-converting enzyme I (ACE) then completes the conversion from Angiotensin I to Angiotensin II which is significant in the regulation of electrolyte balance and blood pressure. Sympathetic stimulation (β_1-adrenergic receptors), renal artery hypotension and decreases in sodium delivery to the distal tubules of the kidney signal the release of Renin. The Renin-Angiotensin system (RAS) is essential for regulating blood volume, arterial pressure and normal cardiac and vascular function. Renin is synthesized and secreted by modified smooth muscle cells in the juxtaglomerular apparatus (JGA) of the kidney. Expression of Renin in other tissues, including brain, has been verified although the homeostatic role it may play is yet to be firmly established.

REFERENCES

1. Field, L.J., et al. 1985. Ren1 and Ren2 loci are expressed in mouse kidney. Proc. Natl. Acad. Sci. USA 82: 6196-6200.
2. Fritz, L.C., et al. 1986. Characterization of human prorenin expressed in mammalian cells from cloned cDNA. Proc. Natl. Acad. Sci. USA 83: 4114-4118.
3. Kim, H.S., et al. 1999. Homeostasis in mice with genetically decreased angiotensinogen is primarily by an increased number of Renin-producing cells. J. Biol. Chem. 274: 14210-14217.
4. Morris, B.J., et al. 2001. Renin gene expression: the switch and the fingers. Clin. Exp. Pharmacol. Physiol. 28: 1044-1047.
5. Matsusaka, T., et al. 2002. The Renin-Angiotensin system and kidney development. Annu. Rev. Physiol. 64: 551-561.
6. Greene, A.S. and Amaral, S.L. 2002. Microvascular angiogenesis and the Renin-Angiotensin system. Curr. Hypertens. Rep. 4: 56-62.
7. Adams, D.J., et al. 2003. HADHB, HuR and CP1 bind to the distal 3'-untranslated region of human Renin mRNA and differentially modulate Renin expression. J. Biol. Chem. 278: 44894-44903.
8. Konoshita, T., et al. 2004. Candidate *cis*-elements for human Renin gene expression in the promoter region. J. Cell. Biochem. 93: 327-336.

CHROMOSOMAL LOCATION

Genetic locus: Ren2 (mouse) mapping to 1 E4.

PRODUCT

Renin 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 Renin shRNA Plasmid (m): sc-41645-SH and Renin shRNA (m) Lentiviral Particles: sc-41645-V as alternate gene silencing products.

For independent verification of Renin (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-41645A, sc-41645B and sc-41645C.

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

Renin siRNA (m) is recommended for the inhibition of Renin 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.

GENE EXPRESSION MONITORING

Renin (B-12): sc-133145 is recommended as a control antibody for monitoring of Renin 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Renin gene expression knockdown using RT-PCR Primer: Renin (m)-PR: sc-41645-PR (20 µl, 480 bp). 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.