SANTA CRUZ BIOTECHNOLOGY, INC.

RCAN3 siRNA (h): sc-72777

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The Power to Question

BACKGROUND

RCAN3 (regulator of calcineurin 3), also known as Calcipressin-3, DSCR1L2 (Down syndrome candidate region 1-like protein 2) and MCIP3 (myocyte-enriched calcineurin-interacting protein 3), is a 241 amino acid protein that potentially is involved in central nervous system development. As its name suggests, RCAN3 binds to calcineurin. Overexpression of RCAN3 results in inhibition of calcineurin activity towards the nuclear factor of activated T-cells (NFAT) transcription factors and also downregulates NFAT-dependent cytokine gene expression in activated Jurkat T-cells. Though expressed ubiquitously at low levels, high expression of RCAN3 is found in kidney, heart, liver, peripheral blood lymphocytes and skeletal muscle. RCAN3 also interacts with cardiac troponin I, suggesting that it may play a role in cardiac contraction events. There are two isoforms of RCAN3 that are produced as a result of alternative splicing events.

REFERENCES

1. Strippoli, P., et al. 2000. The murine DSCR1-like (Down syndrome candidate region 1) gene family: conserved synteny with the human orthologous genes. Gene 257: 223-232.
2. Strippoli, P., et al. 2000. A new gene family including DSCR1 (Down syndrome candidate region 1) and ZAKI-4: characterization from yeast to human and identification of DSCR 1-like 2, a novel human member (DSCR1L2). Genomics 64: 252-263.
3. Ermak, G., et al. 2006. RCAN1 (DSCR 1 or Adapt78) stimulates expression of GSK-3β. FEBS J. 273: 2100-2109.
4. Canaider, S., et al. 2006. Proteins encoded by human down syndrome critical region gene 1-like 2 (DSCR1L2) mRNA and by a novel DSCR 1L2 mRNA isoform interact with cardiac Troponin I (TNNI3). Gene 372: 128-136.
5. Abbasi, S., et al. 2006. Protein kinase-mediated regulation of calcineurin through the phosphorylation of modulatory calcineurin-interacting protein 1. J. Biol. Chem. 281: 7717-7726.
6. Zobel, C., et al. 2007. Mechanisms of Ca^{2+}-dependent calcineurin activation in mechanical stretch-induced hypertrophy. Cardiology 107: 281-290.

CHROMOSOMAL LOCATION

Genetic locus: RCAN3 (human) mapping to 1p36.11.

PRODUCT

RCAN3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RCAN3 shRNA Plasmid (h): sc-72777-SH and RCAN3 shRNA (h) Lentiviral Particles: sc-72777-V as alternate gene silencing products.

For independent verification of RCAN3 (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-72777A, sc-72777B and sc-72777C.

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

RCAN3 siRNA (h) is recommended for the inhibition of RCAN3 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 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

RCAN2/3 (B-9): sc-374454 is recommended as a control antibody for monitoring of RCAN3 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 RCAN3 gene expression knockdown using RT-PCR Primer: RCAN3 (h)-PR: sc-72777-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.