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# DSCR 1 siRNA (m): sc-45481

## BACKGROUND

DSCR1 (Down syndrome critical region 1), also known as Calcipressin-1, Adapt78, MCIP1 (myocyte-enriched calcineurin-interacting protein 1) or regulator of calcineurin 1, is a 252 amino acid protein that belongs to the RCAN family and exists as four alternatively spliced isoforms. Abundantly expressed in skeletal muscle, brain and heart, DSCR 1 is thought to influence cardiac and nervous system development. Overexpression of DSCR1 may play a role in the pathogenesis of Down syndrome. DSCR1 interacts with Raf-1 and has been observed to inhibit calcineurin-dependent transcriptional responses by binding to the catalytic domain of calcineurin A. The gene encoding DSCR 1 maps to human chromosome 21, which houses approximately 300 genes and comprises nearly 1.5% of the human genome. Chromosome 21-associated disorders include Alzheimer's disease, amyotrophic lateral sclerosis and, most notably, Down syndrome (also known as trisomy 21).

## REFERENCES

1. Fuentes, J.J., et al. 1995. A new human gene from the Down syndrome critical region encodes a proline-rich protein highly expressed in fetal brain and heart. *Hum. Mol. Genet.* 4: 1935-1944.
2. Fuentes, J.J., et al. 1997. Genomic organization, alternative splicing, and expression patterns of the DSCR1 (Down syndrome candidate region 1) gene. *Genomics* 44: 358-361.
3. Fuentes, J.J., et al. 2000. DSCR1, overexpressed in Down syndrome, is an inhibitor of calcineurin-mediated signaling pathways. *Hum. Mol. Genet.* 9: 1681-1690.

## CHROMOSOMAL LOCATION

Genetic locus: Rcan1 (mouse) mapping to 16 C4.

## PRODUCT

DSCR 1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DSCR 1 shRNA Plasmid (m): sc-45481-SH and DSCR 1 shRNA (m) Lentiviral Particles: sc-45481-V as alternate gene silencing products.

For independent verification of DSCR 1 (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-45481A, sc-45481B and sc-45481C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

DSCR 1 siRNA (m) is recommended for the inhibition of DSCR 1 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  $\mu$ M in 66  $\mu$ 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

DSCR 1 (G-2): sc-377507 is recommended as a control antibody for monitoring of DSCR 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 DSCR 1 gene expression knockdown using RT-PCR Primer: DSCR 1 (m)-PR: sc-45481-PR (20  $\mu$ l, 518 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Vázquez-Navarrete, J., et al. 2018. RCAN1 knockdown reverts defects in the number of calcium-induced exocytotic events in a cellular model of Down syndrome. *Front. Cell. Neurosci.* 12: 189.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.