SANTA CRUZ BIOTECHNOLOGY, INC.

DOCK 4 siRNA (h): sc-77170

BACKGROUND

DOCK 4 (dedicator of cytokinesis protein 4) is a cytoplasmic peripheral membrane protein that belongs to the DOCK family of cytokinesis-regulating proteins. Expressed ubiquitously with highest expression in prostate, ovary and skeletal muscle, DOCK 4 functions as a guanine nucleotide exchange factor (GEF) that activates the small GTPase Rap 1 and, via this activation, plays a role in the regulation of adherens junctions between cells. Similar to other DOCK family members, DOCK 4 contains an N-terminal SH3 domain, a C-terminal proline-rich region and two internal DOCK homology regions designated DHR1 and DHR2. Defects in the gene encoding DOCK 4 result in the inactivation of Rap 1 and are, thus, implicated in the pathogenesis of various cancers such as ovarian, prostate, glioma and colorectal carcinomas. Four isoforms of DOCK 4 are expressed due to alternative splicing events.

REFERENCES

1. Côté, J.F. and Vuori, K. 2002. Identification of an evolutionarily conserved superfamily of DOCK 180-related proteins with guanine nucleotide exchange activity. J. Cell Sci. 115: 4901-4913.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607679. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Yajnik, V., et al. 2003. DOCK 4, a GTPase activator, is disrupted during tumorigenesis. Cell 112: 673-684.
4. Hiramoto, K., et al. 2006. DOCK 4 is regulated by Rho G and promotes Rac-dependent cell migration. Exp. Cell Res. 312: 4205-4216.
5. Yan, D., et al. 2006. An isoform of GTPase regulator DOCK 4 localizes to the stereocilia in the inner ear and binds to harmonin (USH1C). J. Mol. Biol. 357: 755-764.
6. Kwofie, M.A. and Skowronski, J. 2008. Specific recognition of Rac 2 and Cdc42 by DOCK 2 and DOCK 9 guanine nucleotide exchange factors. J. Biol. Chem. 283: 3088-3096.

CHROMOSOMAL LOCATION

Genetic locus: DOCK4 (human) mapping to 7q31.1.

PRODUCT

DOCK 4 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 DOCK 4 shRNA Plasmid (h): sc-77170-SH and DOCK 4 shRNA (h) Lentiviral Particles: sc-77170-V as alternate gene silencing products.

For independent verification of DOCK 4 (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-77170A, sc-77170B and sc-77170C.

PROTOCOLS

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

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

DOCK 4 siRNA (h) is recommended for the inhibition of DOCK 4 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

DOCK 4 (R6Y): sc-100718 is recommended as a control antibody for monitoring of DOCK 4 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 DOCK 4 gene expression knockdown using RT-PCR Primer: DOCK 4 (h)-PR: sc-77170-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Qin, T., et al. 2021. DOCK4 stimulates MUC2 production through its effect on goblet cell differentiation. J. Cell. Physiol. 236: 6507-6519.

RESEARCH USE

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