SANTA CRUZ BIOTECHNOLOGY, INC.

RasGRP2 siRNA (h): sc-96904

BACKGROUND

RasGRP2 (Ras guanyl releasing protein 2), also known as CDC25L or CALDAG-GEFI, is a 609 amino acid protein belonging to the RasGRP family of guanine nucleotide-releasing factors (GRFs) that activate Ras in mammalian cells and are preferentially expressed in hematopoietic cells. RasGRP2 acts as a calcium- and DAG-regulated nucleotide exchange factor that is expressed during fetal development in brain, lung, liver and kidney, and can also be found in heart, brain, lung, placenta, liver, skeletal muscle and kidney tissues of adults. Localizing to cytoplasm, RasGRP2 contains two EF-hand domains, which bind calcium, an N-terminal Ras-GEF domain and a phorbol-ester/DAG-type zinc finger, which binds DAG (diacylglycerol). RasGRP2 may participate in the muscarinic acetylcholine receptor (mAChR) signaling pathway as well as in aggregation of platelets and adhesion of T-lymphocytes and neutrophils through inside-out integrin activation. RasGRP2 exists as three alternatively spliced isoforms and is encoded by a gene located on human chromosome 11q13.1

REFERENCES

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3. Dupuy, A.J., et al. 2001. Activation of the Rap1 guanine nucleotide exchange gene, CalDAG-GEF I, in BXH-2 murine myeloid leukemia. J. Biol. Chem. 276: 11804-11811.
4. Katagiri, K., et al. 2004. Rap1-mediated lymphocyte function-associated antigen-1 activation by the T cell antigen receptor is dependent on phospholipase C-γ1. J. Biol. Chem. 279: 11875-11881.
5. Caloca, M.J., et al. 2004. F-Actin-dependent translocation of the Rap1 GDP/GTP exchange factor RasGRP2. J. Biol. Chem. 279: 20435-20446.
6. Ghandour, H., et al. 2007. Essential role for Rap1 GTPase and its guanine exchange factor CalDAG-GEFI in LFA-1 but not VLA-4 integrin mediated human T-cell adhesion. Blood 110: 3682-3690.
7. Bergmeier, W., et al. 2007. Mice lacking the signaling molecule CalDAG-GEFI represent a model for leukocyte adhesion deficiency type III. J. Clin. Invest. 117: 1699-1707.
8. Pasvolsky, R., et al. 2007. A LAD-III syndrome is associated with defective expression of the Rap-1 activator CalDAG-GEFI in lymphocytes, neutrophils, and platelets. J. Exp. Med. 204(7): 1571-1582. PMID: 17576779
9. Kuijpers, T.W., et al. 2009. LAD-1/variant syndrome is caused by mutations in FERMT3. Blood 113: 4740-4746.

ROMOSOMAL LOCATION

Genetic locus: RASGRP2 (human) mapping to 11q13.1.

PROTOCOLS

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

PRODUCT

RasGRP2 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 RasGRP2 shRNA Plasmid (h): sc-96904-SH and RasGRP2 shRNA (h) Lentiviral Particles: sc-96904-V as alternate gene silencing products.

For independent verification of RasGRP2 (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-96904A, sc-96904B and sc-96904C.

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

RasGRP2 siRNA (h) is recommended for the inhibition of RasGRP2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RasGRP2 gene expression knockdown using RT-PCR Primer: RasGRP2 (h)-PR: sc-96904-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.