SANTA CRUZ BIOTECHNOLOGY, INC.

IQGAP1 siRNA (h): sc-35700

BACKGROUND

IQGAP1, for IQ motif containing GTPase activating protein, is a RasGAP-related, Actin-binding protein that interacts with the small GTPases Cdc42 and Rac1. The C-terminus of IQGAP1 is essential for interacting with Cdc42 and, in addition, IQGAP1 contains a WW domain and a predicted N-terminal coiled-coil region, which may be involved in IQGAP dimerization. Expression of IQGAP1 is highest in placenta, lung and kidney, where it co-localizes with Cdc42 to the cytoskeleton and assists with Cdc42 in mediating the regulation of cell proliferation, polarity and cell morphology. IQGAP1 regulates cadherin-mediated cell adhesion via binding to E-cadherin, β-catenin and α-catenin. This association induces the accumulation of these proteins at the site of cell-cell contact. IQGAP1 is negatively regulated by calmodulin, which binds to IQGAP1 in a calcium-dependent manner and disrupts IQGAP1 from associating with Cdc42.

REFERENCES

1. Weissbach, L., et al. 1994. Identification of a human RasGAP-related protein containing calmodulin-binding motifs. J. Biol. Chem. 269: 20517-20521.
2. Kuroda, S., et al. 1996. Identification of IQGAP as a putative target for the small GTPases, Cdc42 and Rac1. J. Biol. Chem. 271: 23363-23367.
3. Bashour, A.M., et al. 1997. IQGAP1, a Rac- and Cdc42-binding protein, directly binds and cross-links microfilaments. J. Cell Biol. 137: 1555-1566.

CHROMOSOMAL LOCATION

Genetic locus: IQGAP1 (human) mapping to 15q26.1.

PRODUCT

IQGAP1 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 IQGAP1 shRNA Plasmid (h): sc-35700-SH and IQGAP1 shRNA (h) Lentiviral Particles: sc-35700-V as alternate gene silencing products.

For independent verification of IQGAP1 (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-35700A, sc-35700B and sc-35700C.

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

IQGAP1 siRNA (h) is recommended for the inhibition of IQGAP1 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

IQGAP1 (C-9): sc-376021 is recommended as a control antibody for monitoring of IQGAP1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IQGAP1 gene expression knockdown using RT-PCR Primer: IQGAP1 (h)-PR: sc-35700-PR (20 µl, 422 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. David, S., et al. 2011. Angiopoietin-1 requires IQ domain GTPase-activating protein 1 to activate Rac 1 and promote endothelial barrier defense. Arterioscler. Thromb. Vasc. Biol. 31: 2643-2652.
2. Zoheir, K.M., et al. 2016. IQGAP1 gene silencing induces apoptosis and decreases the invasive capacity of human hepatocellular carcinoma cells. Tumour Biol. 37: 13927-13939.
3. Morgan, C.J., et al. 2019. Endogenous IQGAP1 and IQGAP3 do not functionally interact with Ras. Sci. Rep. 9: 11057.
4. Sheen, Y.S., et al. 2020. Purpuric drug eruptions induced by EGFR tyrosine kinase inhibitors are associated with IQGAP1-mediated increase in vascular permeability. J. Pathol. 250: 452-463.
5. Faria, M., et al. 2021. Analysis of NIS plasma membrane interactors discloses key regulation by a SRC/RAC1/PAK1/PIP5K/EZRIN pathway with potential implications for radioiodine re-sensitization therapy in thyroid cancer. Cancers 13: 5460.
6. Zoheir, K.M.M.A., et al. 2022. Novel approach using shRNA of IQGAP1 for colon cancer therapy: HCT166 as a surrogate model colorectal carcinoma. Asian Pac. J. Cancer Prev. 23: 2387-2395.
7. Thines, L., et al. 2023. IQGAP1 is a phosphotyrosine-regulated scaffold for SH2-containing proteins. Cells 12: 483.

RESEARCH USE

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