SANTA CRUZ BIOTECHNOLOGY, INC.

Rap 1 siRNA (h): sc-36384

BACKGROUND

Ras oncogenes encode GTP-binding proteins that are capable of transforming immortalized cells in culture. Two Ras-related human genes, designated RAP1A and RAP1B, encode 95% homologous proteins that share with Ras proteins a similar C-terminal Cys-Ali-Ali-Xaa sequence and are ubiquitously expressed in mammalian tissues. The putative "effector" domain of Ras proteins whose integrity is required for cell transformation as well as interaction with the putative effector protein GAP is conserved in both Rap 1 proteins. It has been postulated that p21Rap 1 acts to interfere with Ras effector function by binding to Ras GAP. In fact, it is known that p21Rap 1 binds to Ras GAP *in vitro* in a GTP-dependent manner without affecting p21Rap 1 GTPase activity. A GAP protein specific for p21Rap 1 has been identified and the corresponding cDNA has been isolated.

REFERENCES

1. Pizon, V., et al. 1988. Human cDNAs Rap 1 and Rap 2 homologous to the *Drosophila* gene dRas3 encode proteins closely related to Ras in the "effector" region. Oncogene 3: 201-204.
2. Pizon, V., et al. 1988. Nucleotide sequence of a human cDNA encoding a Ras-related protein (Rap 1B). Nucleic Acids Res. 16: 7719.

CHROMOSOMAL LOCATION

Genetic locus: RAP1A (human) mapping to 1p13.2, RAP1B (human) mapping to 12q15.

PRODUCT

Rap 1 siRNA (h) is a pool of 4 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 Rap 1 shRNA Plasmid (h): sc-36384-SH and Rap 1 shRNA (h) Lentiviral Particles: sc-36384-V as alternate gene silencing products.

For independent verification of Rap 1 (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-36384A, sc-36384B, sc-36384C and sc-36384D.

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

Rap 1 siRNA (h) is recommended for the inhibition of Rap 1 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

Rap 1 (E-6): sc-398755 is recommended as a control antibody for monitoring of Rap 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).

SELECT PRODUCT CITATIONS

1. Calipel, A., et al. 2006. Extracellular signal-regulated kinase-dependent proliferation is mediated through the protein kinase A/B-Raf pathway in human uveal melanoma cells. J. Biol. Chem. 281: 9238-9250.
2. Yoshie, M., et al. 2010. Possible role of the exchange protein directly activated by cyclic AMP (Epac) in the cyclic AMP-dependent functional differentiation and syncytialization of human placental BeWo cells. Hum. Reprod. 25: 2229-2238.
3. Iguchi, K., et al. 2010. Pamidronate inhibits antiapoptotic Bcl-2 expression through inhibition of the mevalonate pathway in prostate cancer PC-3 cells. Eur. J. Pharmacol. 641: 35-40.
4. Nguyen, C.T., et al. 2014. *Streptococcus pneumoniae* ClpL modulates adherence to A549 human lung cells through Rap 1/Rac 1 activation. Infect. Immun. 82: 3802-3810.
5. Kusama, K., et al. 2015. EPAC2-mediated calreticulin regulates LIF and COX2 expression in human endometrial glandular cells. J. Mol. Endocrinol. 54: 17-24.
6. Li, Y., et al. 2016. Knockdown of Rap1b enhances apoptosis and autophagy in gastric cancer cells via the PI3K/Akt/mTOR pathway. Oncol. Res. 24: 287-293.
7. Rodríguez, C.I., et al. 2017. EPAC-RAP1 axis-mediated switch in the response of primary and metastatic melanoma to cyclic AMP. Mol. Cancer Res. 15: 1792-1802.
8. Vitali, E., et al. 2017. FLNA is implicated in pulmonary neuroendocrine tumors aggressiveness and progression. Oncotarget 8: 77330-77340.
9. Yoshie, M., et al. 2023. Small GTP-binding protein Rap1 mediates EGF and HB-EGF signaling and modulates EGF receptor expression in HTR-8/SVneo extravillous trophoblast cells. Reprod. Med. Biol. 22: e12537.

RESEARCH USE

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