SANTA CRUZ BIOTECHNOLOGY, INC.

Rab 31 siRNA (h): sc-76327

BACKGROUND

The Ras-related superfamily of guanine nucleotide binding proteins includes the R-Ras, Rap, Ral/Rec and Rho/Rab subfamilies all of which are thought to play an important role in either endocytosis or in biosynthetic protein transport. The process of transporting newly synthesized proteins from the endoplasmic reticulum (ER) to various stacks of the Golgi complex and to secretory vesicles involves the movement of carrier vesicles and requires Rab protein function. Rab proteins are also an integral part of endocytic pathways. Rab 31, also known as RAB22B, is a 194 amino lipid-anchored protein that localizes to the cytoplasmic side of the cell membrane and belongs to the Ras-related GTPase superfamily. Expressed at high levels in lung, brain and heart, Rab 31 may function in a similar manner to other Rab proteins, namely playing a role in protein transport.

REFERENCES

1. Chen, D., et al. 1996. Molecular cloning of two novel rab genes from human melanocytes. Gene 174: 129-134.
2. Rodriguez-Gabin, A.G., et al. 2001. Role of rRAB22b, an oligodendrocyte protein, in regulation of transport of vesicles from *trans* Golgi to endocytic compartments. J. Neurosci. Res. 66: 1149-1160.
3. Bao, X., et al. 2002. Molecular cloning, bacterial expression and properties of Rab 31 and Rab 32. Eur. J. Biochem. 269: 259-271.
4. Ng, E.L., et al. 2007. Rab22B's role in *trans*-Golgi network membrane dynamics. Biochem. Biophys. Res. Commun. 361: 751-757.
5. Lodhi, I.J., et al. 2007. Gapex-5, a Rab 31 guanine nucleotide exchange factor that regulates Glut4 trafficking in adipocytes. Cell Metab. 5: 59-72.

CHROMOSOMAL LOCATION

Genetic locus: RAB31 (human) mapping to 18p11.22.

PRODUCT

Rab 31 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 Rab 31 shRNA Plasmid (h): sc-76327-SH and Rab 31 shRNA (h) Lentiviral Particles: sc-76327-V as alternate gene silencing products.

For independent verification of Rab 31 (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-76327A, sc-76327B and sc-76327C.

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

Rab 31 siRNA (h) is recommended for the inhibition of Rab 31 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

Rab 31 (4D12): sc-517069 is recommended as a control antibody for monitoring of Rab 31 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 Rab 31 gene expression knockdown using RT-PCR Primer: Rab 31 (h)-PR: sc-76327-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. Sui, Y., et al. 2015. Rab 31 promoted hepatocellular carcinoma (HCC) progression via inhibition of cell apoptosis induced by PI3K/AKT/Bcl-2/BAX pathway. Tumour Biol. 36: 8661-8670.
2. Jalagadugula, G., et al. 2022. Defective Rab 31-mediated megakaryocytic early endosomal trafficking of VWF, EGFR, and M6PR in RUNX1 deficiency. Blood Adv. 6: 5100-5112.
3. Chen, K., et al. 2023. Rab31 promotes metastasis and cisplatin resistance in stomach adenocarcinoma through Twist1-mediated EMT. Cell Death Dis. 14: 115.

RESEARCH USE

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