SANTA CRUZ BIOTECHNOLOGY, INC.

Rab 14 siRNA (h): sc-76312

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 14, also known as FBP, is a 215 amino acid protein that is lipid-anchored to the cytoplasmic side of the cell membrane. One of several members of the Rab subfamily of small GTPases, Rab 14 is thought to be involved in vesicular trafficking and neurotransmitter release throughout the body and is expressed at high levels in brain, lung, kidney, spleen and thymus.

REFERENCES

1. Olkkonen, V.M., et al. 1993. Molecular cloning and subcellular localization of three GTP-binding proteins of the Rab subfamily. J. Cell Sci. 106: 1249-1261.
2. Chen, D., et al. 1997. Rab GTPases expressed in human melanoma cells. Biochim. Biophys. Acta 1355: 1-6.
3. Zhao, H., et al. 2002. Intracellular membrane trafficking pathways in bone-resorbing osteoclasts revealed by cloning and subcellular localization studies of small GTP-binding Rab proteins. Biochem. Biophys. Res. Commun. 293: 1060-1065.
4. Junutula, J.R., et al. 2004. Rab 14 is involved in membrane trafficking between the Golgi complex and endosomes. Mol. Biol. Cell 15: 2218-2229.
5. Echard, A. 2008. Membrane traffic and polarization of lipid domains during cytokinesis. Biochem. Soc. Trans. 36: 395-399.
6. Gou, D., et al. 2008. Annexin A2 interactions with Rab 14 in alveolar type II cells. J. Biol. Chem. 283: 13156-13164.
7. Fukuda, M., et al. 2008. Large scale screening for novel Rab effectors reveals unexpected broad Rab binding specificity. Mol. Cell. Proteomics 7: 1031-1042.
8. Kitt, K.N., et al. 2008. Rab 14 regulates apical targeting in polarized epithelial cells. Traffic 9: 1218-1231.

CHROMOSOMAL LOCATION

Genetic locus: RAB14 (human) mapping to 9q33.2.

PRODUCT

Rab 14 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 14 shRNA Plasmid (h): sc-76312-SH and Rab 14 shRNA (h) Lentiviral Particles: sc-76312-V as alternate gene silencing products.

For independent verification of Rab 14 (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-76312A, sc-76312B and sc-76312C.

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 14 siRNA (h) is recommended for the inhibition of Rab 14 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 14 (D-5): sc-271401 is recommended as a control antibody for monitoring of Rab 14 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 Rab 14 gene expression knockdown using RT-PCR Primer: Rab 14 (h)-PR: sc-76312-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. Kadiu, I., et al. 2011. Macrophage endocytic trafficking of antiretroviral nanoparticles. Nanomedicine 6: 975-994.
2. Li, Y., et al. 2017. miR-320a serves as a negative regulator in the progression of gastric cancer by targeting Rab 14. Mol. Med. Rep. 16: 2652-2658.
3. Phatak, P., et al. 2022. MiR-214-3p targets Ras-related protein 14 (RAB14) to inhibit cellular migration and invasion in esophageal cancer cells. BMC Cancer 22: 1265.

RESEARCH USE

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