SANTA CRUZ BIOTECHNOLOGY, INC.

Ect2 siRNA (h): sc-35259

BACKGROUND

Numerous cellular functions such as proliferation, differentiation, apoptosis, vesicular trafficking, nuclear transport and cytoskeletal organization are controlled by GTPases. It has become increasingly clear that GTPases act in cascades in which their activities are linked by GTPase-activating proteins (GAPs) and guanine nucleotide exchange factors (GEFs). In a search for new epithelial cell-specific oncogenes using a highly efficient cDNA expression cloning system, the ost oncogene was isolated from rat osteosarcoma cells. The Ost proto-oncogene protein contains DH and PH domains and catalyzes guanine nucleotide exchange on RhoA and Cdc42 and interacts specifically with the GTP-bound form of Rac1. A similar protein, Ect2, specifically interacts with Rho and Rac proteins *in vitro*. Ect2 shares sequence homology with the 255 amino acid central core of the breakpoint cluster gene, Bcr, as well as with yeast Cdc24 and the Dbl oncogene, all of which have been shown to modulate the function of small Rho-like GTP binding proteins. The Ect2 contains both PH and DH domains.

REFERENCES

1. Miki, T., et al. 1991. Development of a highly efficient expression cDNA cloning system: application to oncogene isolation. Proc. Natl. Acad. Sci. USA 88: 5167-5171.
2. Ron, D., et al. 1991. A region of proto-Dbl essential for its transforming activity shows sequence similarity to a yeast cell cycle gene, CDC24, and the human breakpoint cluster gene, Bcr. New Biol. 3: 372-379.

CHROMOSOMAL LOCATION

Genetic locus: ECT2 (human) mapping to 3q26.31.

PRODUCT

Ect2 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 Ect2 shRNA Plasmid (h): sc-35259-SH and Ect2 shRNA (h) Lentiviral Particles: sc-35259-V as alternate gene silencing products.

For independent verification of Ect2 (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-35259A, sc-35259B and sc-35259C.

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.

RESEARCH USE

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

APPLICATIONS

Ect2 siRNA (h) is recommended for the inhibition of Ect2 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

Ect2 (G-4): sc-514750 is recommended as a control antibody for monitoring of Ect2 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 Ect2 gene expression knockdown using RT-PCR Primer: Ect2 (h)-PR: sc-35259-PR (20 µl, 506 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Nacak, T.G., et al. 2007. The BTB-Kelch protein KLEIP controls endothelial migration and sprouting angiogenesis. Circ. Res. 100: 1155-1163.
2. Xie, J., et al. 2015. Small interfering RNA-induced inhibition of epithelial cell transforming sequence 2 suppresses the proliferation, migration and invasion of osteosarcoma cells. Exp. Ther. Med. 9: 1881-1886.
3. Tan, H., et al. 2016. Oncogenic role of epithelial cell transforming sequence 2 in lung adenocarcinoma cells. Exp. Ther. Med. 12: 2088-2094.
4. Chen, Z., et al. 2017. Role of epithelial cell transforming sequence 2 (Ect2) in predicting prognosis of osteosarcoma. Med. Sci. Monit. 23: 3861-3868.
5. Xie, J., et al. 2021. Small interfering RNA-induced inhibition of epithelial cell transforming sequence 2 suppresses the proliferation, migration and invasion of osteosarcoma cells. Exp. Ther. Med. 22: 976.
6. Law, R.A., et al. 2023. Cytokinesis machinery promotes cell dissociation from collectively migrating strands in confinement. Sci. Adv. 9: eabq6480.
7. Tran, A.T., et al. 2024. Cytoplasmic accumulation and plasma membrane association of anillin and Ect2 promote confined migration and invasion. Res. Sq. E-published.

PROTOCOLS

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