SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc4 siRNA (h): sc-37547

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The F-box protein family is characterized by an approximately 40 amino acid motif known as the F-box. F-box proteins constitute one of the four subunits of ubiquitin protein ligase complex called SCFs (SKP1-Cullin-F-box), which function in phosphorylation-dependent ubiquitination. One family member, Cdc4, also known as AGO, FBW7, FBXW7, FBX30, SEL10, and FLJ11071, maps to human chromosome 4q31.3. Alternative splicing of this gene generates four transcript variants. In addition to an F-box, Cdc4 contains seven tandem WD40 repeats. Cdc4 binds directly to cyclin E and targets cyclin E for ubiquitin-mediated degradation. Mutations of the Cdc4 gene are detected in ovarian and breast cancer cell lines, suggesting that the gene may be involved in the pathogenesis of human cancers.

CHROMOSOMAL LOCATION

Genetic locus: FBXW7 (human) mapping to 4q31.3.

PRODUCT

Cdc4 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 Cdc4 shRNA Plasmid (h): sc-37547-SH and Cdc4 shRNA (h) Lentiviral Particles: sc-37547-V as alternate gene silencing products.

For independent verification of Cdc4 (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-37547A, sc-37547B and sc-37547C.

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

Cdc4 siRNA (h) is recommended for the inhibition of Cdc4 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

Cdc4 (3D1): sc-293423 is recommended as a control antibody for monitoring of Cdc4 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 Cdc4 gene expression knockdown using RT-PCR Primer: Cdc4 (h)-PR: sc-37547-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cassavaugh, J.M., et al. 2011. Negative regulation of HIF-1α by an FBW7-mediated degradation pathway during hypoxia. J. Cell. Biochem. 112: 3882-3890.
2. Yu, H.G., et al. 2013. FBW7 upregulation enhances cisplatin cytotoxicity in non-small cell lung cancer cells. Asian Pac. J. Cancer Prev. 14: 6321-6326.
3. Chen, Y., et al. 2016. Wnt-induced deubiquitination FoxM1 ensures nucleus β-catenin transactivation. EMBO J. 35: 668-684.
4. Kumar, Y., et al. 2016. Ubiquitin ligase, Fbw7, targets CDX2 for degradation via two phosphodegron motifs in a GSK3β-dependent manner. Mol. Cancer Res. 14: 1097-1109.
5. Chiang, C.H., et al. 2016. MiR-182 promotes proliferation and invasion and elevates the HIF-1α-VEGF-A axis in breast cancer cells by targeting FBXW7. Am. J. Cancer Res. 6: 1785-1798.
6. Xu, J., et al. 2017. miR-367 promotes the proliferation and invasion of non-small cell lung cancer via targeting FBXW7. Oncol. Rep. 37: 1052-1058.
7. Hartman, M.L., et al. 2019. Whole-exome sequencing reveals novel genetic variants associated with diverse phenotypes of melanoma cells. Mol. Carcinog. 58: 588-602.
8. Wu, Z., et al. 2020. Dioscin inhibited glycolysis and induced cell apoptosis in colorectal cancer via promoting c-Myc ubiquitination and subsequent hexokinase-2 suppression. Onco Targets Ther. 13: 31-44.
9. Lin, L., et al. 2020. Trametinib potentiates TRAIL-induced apoptosis via FBW7-dependent Mcl-1 degradation in colorectal cancer cells. J. Cell. Mol. Med. 24: 6822-6832.
10. Mishra, M., et al. 2021. FBW7 inhibits myeloid differentiation in acute myeloid leukemia via GSK3-dependent ubiquitination of PU.1. Mol. Cancer Res. 19: 261-273.
11. Yu, X., et al. 2022. Skp2 stabilizes Mcl-1 and confers radioresistance in colorectal cancer. Cell Death Dis. 13: 249.

RESEARCH USE

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