SANTA CRUZ BIOTECHNOLOGY, INC.

Pdcd-4 siRNA (h): sc-106389

BACKGROUND

The transformation suppressor gene Pdcd-4 (programmed cell death gene 4) inhibits the tumor-promoter-mediated transformation of mouse keratinocytes and is a potential tumor suppressor gene in the development of human lung cancer. Biochemical analysis suggests that the Pdcd-4 protein is involved in protein translation as well as in nuclear events. Pdcd-4 directly interacts with the RNA helicase eIF4A and inhibits protein synthesis by interfering with the assembly of the cap-dependent translation initiation complex. Pdcd-4 also suppresses the transactivation of AP-1-responsive promoters by c-Jun, suggesting that the transformation suppressor activity of Pdcd-4 might be due, at least in part, to the inhibition of c-Jun activity. In addition to affecting c-Jun phosphorylation, Pdcd-4 blocks the recruitment of the co-activator p300 by c-Jun.

CHROMOSOMAL LOCATION

Genetic locus: PDCD4 (human) mapping to 10q25.2.

PRODUCT

Pdcd-4 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 Pdcd-4 shRNA Plasmid (h): sc-106389-SH and Pdcd-4 shRNA (h) Lentiviral Particles: sc-106389-V as alternate gene silencing products.

For independent verification of Pdcd-4 (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-106389A, sc-106389B and sc-106389C.

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

Pdcd-4 siRNA (h) is recommended for the inhibition of Pdcd-4 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

Pdcd-4 (B-4): sc-376430 is recommended as a control antibody for monitoring of Pdcd-4 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 Pdcd-4 gene expression knockdown using RT-PCR Primer: Pdcd-4 (h)-PR: sc-106389-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. Reis, P.P., et al. 2010. Programmed cell death 4 loss increases tumor cell invasion and is regulated by miR-21 in oral squamous cell carcinoma. Mol. Cancer 9: 238.
2. Park, Y.M., et al. 2012. Heterogeneous nuclear ribonucleoprotein C1/C2 controls the metastatic potential of glioblastoma by regulating PDCD4. Mol. Cell. Biol. 32: 4237-4244.
3. Zhou, L., et al. 2013. MicroRNA-21 regulates the migration and invasion of a stem-like population in hepatocellular carcinoma. Int. J. Oncol. 43: 661-669.
4. Yang, X., et al. 2013. Stat5 and prolactin participate in a positive autocrine feedback loop that promotes angiogenesis. J. Biol. Chem. 32: 2809-2822.
5. Wen, S.W., et al. 2018. Isoalantolactone inhibits esophageal squamous cell carcinoma growth through downregulation of microRNA-21 and derepression of PDCD4. Dig. Dis. Sci. 63: 2285-2293.
6. Zhu, Y., et al. 2019. Effect of *Celastrus orbiculatus* in inhibiting *Helicobacter pylori* induced inflammatory response by regulating epithelial mesenchymal transition and targeting miR-21/PDCD4 signaling pathway in gastric epithelial cells. BMC Complement. Altern. Med. 19: 91.
7. Sun, L.H., et al. 2020. Exosomal miR-21 promotes proliferation, invasion and therapy resistance of colon adenocarcinoma cells through its target PDCD4. Sci. Rep. 10: 8271.

RESEARCH USE

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

PROTOCOLS

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