SANTA CRUZ BIOTECHNOLOGY, INC.

Plk siRNA (h): sc-36277

BACKGROUND

Plk (for polo-like kinase) encodes a serine/threonine kinase that is closely related to polo and Cdc5, genes that are required for passage through mitosis in *Drosophila* and *Saccharomyces,* respectively. Polo and Cdc5 both code for proteins that are involved in regulating the function of the mitotic spindle. Plk protein accumulates in the cell during the S and G_2 phases of the cell cycle and both protein content and catalytic activity peak at the onset of mitosis, followed by a rapid reduction after mitosis. Plk expression is detectable in mitotically active tissues such as colon and placenta, as well as in tumors of various origins. It has also been suggested that Plk may serve as a marker of cell proliferation.

CHROMOSOMAL LOCATION

Genetic locus: PLK1 (human) mapping to 16p12.2.

PRODUCT

Plk siRNA (h) is a target-specific 19-25 nt siRNA 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 Plk shRNA Plasmid (h): sc-36277-SH and Plk shRNA (h) Lentiviral Particles: sc-36277-V as alternate gene silencing products.

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

Plk siRNA (h) is recommended for the inhibition of Plk 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.

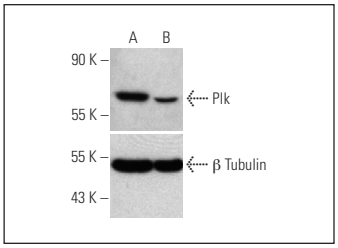
GENE EXPRESSION MONITORING

Plk (F-8): sc-17783 is recommended as a control antibody for monitoring of Plk 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 Plk gene expression knockdown using RT-PCR Primer: Plk (h)-PR: sc-36277-PR (20 µl, 566 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Plk siRNA (h): sc-36277. Western blot analysis of Plk expression in non-transfected control (**A**) and Plk siRNA transfected (**B**) HeLa cells. Blot probed with Plk (F-8): sc-17783. β Tubulin (D-10): sc-5274 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Wang, X.Q., et al. 2008. Aberrant polo-like kinase 1-Cdc25A pathway in metastatic hepatocellular carcinoma. Clin. Cancer Res. 14: 6813-6820.
2. Ikezoe, T., et al. 2009. A novel treatment strategy targeting polo-like kinase 1 in hematological malignancies. Leukemia 23: 1564-1576.
3. Liu, J., et al. 2012. MicroRNA-100 is a potential molecular marker of non-small cell lung cancer and functions as a tumor suppressor by targeting polo-like kinase 1. BMC Cancer 12: 519.
4. Hu, J., et al. 2013. Polo-like kinase 1 (PLK1) is involved in Toll-like receptor (TLR)-mediated TNF-α production in monocytic THP-1 cells. PLoS ONE 8: e78832.
5. Nair, J.S. and Schwartz, G.K. 2015. Inhibition of polo like kinase 1 in sarcomas induces apoptosis that is dependent on Mcl-1 suppression. Cell Cycle 14: 3101-3111.
6. Jeon, M.Y., et al. 2017. Volasertib enhances sensitivity to TRAIL in renal carcinoma Caki cells through downregulation of c-FLIP expression. Int. J. Mol. Sci. 18: 2568.
7. Kannan, S., et al. 2019. Anti-leukemia effects of Notch-mediated inhibition of oncogenic PLK1 in B-cell acute lymphoblastic leukemia. Mol. Cancer Ther. 18: 1615-1627.
8. Lee, J., et al. 2020. Differential dependency of human pancreatic cancer cells on targeting PTEN via PLK 1 expression. Cancers 12: 277.

RESEARCH USE

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