

Cdk9 siRNA (h): sc-29268

BACKGROUND

A family of proteins designated cyclin dependent kinases (Cdks) are critical regulators of cell cycle progression. Cdk family members, including Cdc2 p34, Cdk1-9, PISSLRE, KKIALRE, PITSLRE and PCTAIRE 1-3 are constitutively expressed throughout the cell cycle. Cdc2 p34 activity peaks during mitosis and Cdk2 activity rises in late G₁ or early S phase. Cdk4 and Cdk6 are critically involved in G₁ to S phase progression. The functions of Cdk3, Cdk5b, PISSLRE, KKIALRE and PCTAIRE 1-3 are less well defined. Cdk9 (also designated PITALRE) has been shown to specifically phosphorylate the retinoblastoma protein. The more recently cloned *Drosophila* protein, P-TEFb, is thought to be the homolog of mammalian PITALRE. P-TEFb has been shown to be required for HIV Tat transcriptional activation.

CHROMOSOMAL LOCATION

Genetic locus: CDK9 (human) mapping to 9q34.11.

PRODUCT

Cdk9 siRNA (h) is a pool of 4 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Cdk9 shRNA Plasmid (h): sc-29268-SH and Cdk9 shRNA (h) Lentiviral Particles: sc-29268-V as alternate gene silencing products.

For independent verification of Cdk9 (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-29268A, sc-29268B, sc-29268C and sc-29268D.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Cdk9 siRNA (h) is recommended for the inhibition of Cdk9 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 μ M in 66 μ l. 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.

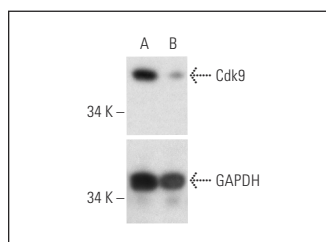
GENE EXPRESSION MONITORING

Cdk9 (D-7): sc-13130 is recommended as a control antibody for monitoring of Cdk9 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).

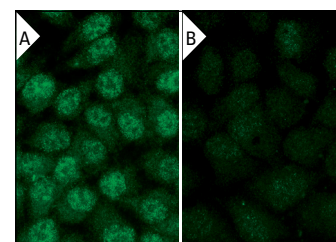
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Cdk9 gene expression knockdown using RT-PCR Primer: Cdk9 (h)-PR: sc-29268-PR (20 μ l, 496 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Cdk9 siRNA (h): sc-29268. Western blot analysis of Cdk9 expression in non-transfected control (A) and Cdk9 siRNA transfected (B) HeLa cells. Blot probed with Cdk9 (C-20): sc-484. GAPDH (FL-335): sc-25778 used as specificity and loading control.



Cdk9 siRNA (h): sc-29268. Immunofluorescence staining of methanol-fixed, control HeLa (A) and Cdk9 siRNA silenced HeLa (B) cells showing diminished cytoplasmic staining in the siRNA silenced cells. Cells probed with Cdk9 (D-7): sc-13130.

SELECT PRODUCT CITATIONS

- Wang, L., et al. 2014. MicroRNA-874 inhibits cell proliferation and induces apoptosis in human breast cancer by targeting CDK9. *FEBS Lett.* 588: 4527-4535.
- Rajput, S., et al. 2016. Inhibition of cyclin dependent kinase 9 by dinaciclib suppresses cyclin B1 expression and tumor growth in triple negative breast cancer. *Oncotarget* 7: 56864-56875.
- Nakajima, M., et al. 2018. Transcription elongation factor P-TEFb is involved in IL-17F signaling in airway smooth muscle cells. *Int. Arch. Allergy Immunol.* 176: 83-90.
- Cary, D.C., et al. 2019. HIV transcription is independent of mediator kinases. *AIDS Res. Hum. Retroviruses* 35: 710-717.
- Zhang, Y., et al. 2021. Cerebellar Kv3.3 potassium channels activate TANK-binding kinase 1 to regulate trafficking of the cell survival protein Hax-1. *Nat. Commun.* 12: 1731.

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.