

Cdk5 siRNA (h): sc-29263

BACKGROUND

Cell cycle progression is controlled in part by a family of cyclin proteins and cyclin dependent kinases (Cdks). Cdk proteins work in concert with the cyclins to phosphorylate key substrates involved in each phase of cell cycle progression. Another family of proteins, Cdk inhibitors, also plays a role in regulating cell cycle by binding to cyclin-Cdk complexes and modulating their activity. Several Cdk proteins have been identified, including Cdk2-Cdk8, PCTAIRE-1-3, PITSLRE and PITSLRE. Cdk5 is thought to be involved in the G₁-S transition of the cell cycle and is highly expressed in mature neurons. Activity of Cdk5 increases significantly during neuronal differentiation. Cdk5 has been postulated to be a neurofilament or tau protein kinase, based on its ability to phosphorylate these proteins *in vitro*.

CHROMOSOMAL LOCATION

Genetic locus: CDK5 (human) mapping to 7q36.1.

PRODUCT

Cdk5 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Cdk5 shRNA Plasmid (h): sc-29263-SH and Cdk5 shRNA (h) Lentiviral Particles: sc-29263-V as alternate gene silencing products.

For independent verification of Cdk5 (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-29263A, sc-29263B and sc-29263C.

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

Cdk5 siRNA (h) is recommended for the inhibition of Cdk5 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.

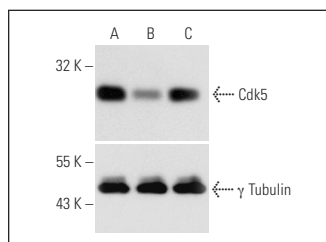
GENE EXPRESSION MONITORING

Cdk5 (J-3): sc-6247 is recommended as a control antibody for monitoring of Cdk5 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 Cdk5 gene expression knockdown using RT-PCR Primer: Cdk5 (h)-PR: sc-29263-PR (20 μ l, 535 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Cdk5 siRNA (h): sc-29263. Western blot analysis of human Cdk5 expression in non-transfected (A), Cdk5 siRNA Plasmid transfected (B) and control siRNA Plasmid transfected (C) HeLa cells. Blot probed with Cdk5 (J-3): sc-6247. γ Tubulin (D-10): sc-17788 used as specificity and loading control.

SELECT PRODUCT CITATIONS

- Orlando, L.R., et al. 2009. Phosphorylation of the homer-binding domain of group I metabotropic glutamate receptors by cyclin-dependent kinase 5. *J. Neurochem.* 110: 557-569.
- Tripathi, B.K., et al. 2014. Cdk5 is a major regulator of the tumor suppressor DLC1. *J. Cell Biol.* 207: 627-642.
- Yu, H.P., et al. 2015. TIGAR regulates DNA damage and repair through pentosephosphate pathway and Cdk5-ATM pathway. *Sci. Rep.* 5: 9853.
- Park, S.J., et al. 2016. Transforming growth factor- β 1 induces cell cycle arrest by activating atypical cyclin-dependent kinase 5 through up-regulation of Smad3-dependent p35 expression in human MCF10A mammary epithelial cells. *Biochem. Biophys. Res. Commun.* 472: 502-507.
- Lampropoulou, E., et al. 2018. Cyclin-dependent kinase 5 mediates pleiotrophin-induced endothelial cell migration. *Sci. Rep.* 8: 5893.
- Chapman, D.E., et al. 2019. Regulation of *in vivo* Dynein force production by Cdk5 and 14-3-3 ϵ and KIAA0528. *Nat. Commun.* 10: 228.
- Yu, H., et al. 2022. TRPC6 mediates high glucose-induced mitochondrial fission through activation of CDK5 in cultured human podocytes. *Front. Physiol.* 13: 984760.

RESEARCH USE

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