SANTA CRUZ BIOTECHNOLOGY, INC.

Cdk5 siRNA (m): sc-35047

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The Power to Question

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, PITALRE and PITSLRE. Cdk5 is thought to be involved in the G_1-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 (mouse) mapping to 5 A3.

PRODUCT

Cdk5 siRNA (m) 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 Cdk5 shRNA Plasmid (m): sc-35047-SH and Cdk5 shRNA (m) Lentiviral Particles: sc-35047-V as alternate gene silencing products.

For independent verification of Cdk5 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35047A, sc-35047B and sc-35047C.

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

Cdk5 siRNA (m) is recommended for the inhibition of Cdk5 expression in mouse 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

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).

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 Cdk5 gene expression knockdown using RT-PCR Primer: Cdk5 (m)-PR: sc-35047-PR (20 µl, 443 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. 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.
2. Ma, Y., et al. 2013. Activated cyclin-dependent kinase 5 promotes microglial phagocytosis of fibrillar β-Amyloid by up-regulating lipoprotein lipase expression. Mol. Cell. Proteomics 12: 2833-2844.
3. Na, Y.R., et al. 2015. The early synthesis of p35 and activation of Cdk5 in LPS-stimulated macrophages suppresses interleukin-10 production. Sci. Signal. 8: ra121.
4. Cherubini, M., et al. 2015. Cdk5-mediated mitochondrial fission: A key player in dopaminergic toxicity in Huntington's disease. Biochim. Biophys. Acta. 1852: 2145-60. PMID: 26143143
5. Arif, A., et al. 2019. Multisite phosphorylation of S6K1 directs a kinase phospho-code that determines substrate selection. Mol. Cell 73: 446-457.e6.
6. Kim, A., et al. 2024. Cdk5 inhibition in the SOD1^{G93A} transgenic mouse model of amyotrophic lateral sclerosis suppresses neurodegeneration and extends survival. J. Neurochem. 168: 2908-2925.

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.