SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin D1 siRNA (r): sc-156083

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The Power to Question

BACKGROUND

The proliferation of eukaryotic cells is controlled at specific points in the cell cycle, particularly at the G_1 to S and the G_2 to M transitions. It is well established that the Cdc2 p34-cyclin B protein kinase plays a critical role in the G_2 to M transition, while cyclin A associates with Cdk2 p33 and functions in S phase. Considerable effort directed towards the identification of G_1 cyclins has led to the isolation of cyclin D, cyclin C and cyclin E. Of these, cyclin D corresponds to a putative human oncogene, designated PRAD1, which maps at the site of the Bcl-1 rearrangement in certain lymphomas and leukemias. Two additional human type D cyclins, as well as their mouse homologs, have been identified. Evidence has established that members of the cyclin D family function to regulate phosphorylation of the retinoblastoma gene product, thereby activating E2F transcription factors.

REFERENCES

1. Draetta, G. 1990. Cell cycle control in eukaryotes: molecular mechanisms of Cdc2 activation. Trends Biol. Sci. 15: 378-383.
2. Xiong, Y., et al. 1991. Human D-type cyclin. Cell 65: 691-699.
3. Kiyokawa, H., et al. 1992. Cloning of a D-type cyclin from murine erythroleukemia cells. Proc. Natl. Acad. Sci. USA 89: 2444-2447.
4. Won, K., et al. 1992. Growth-regulated expression of D-type cyclin genes in human diploid fibroblasts. Proc. Natl. Acad. Sci. USA 89: 9910-9914.

CHROMOSOMAL LOCATION

Genetic locus: Ccnd1 (rat) mapping to 1q42.

PRODUCT

cyclin D1 siRNA (r) 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 cyclin D1 shRNA Plasmid (r): sc-156083-SH and cyclin D1 shRNA (r) Lentiviral Particles: sc-156083-V as alternate gene silencing products.

For independent verification of cyclin D1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-156083A, sc-156083B and sc-156083C.

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

cyclin D1 siRNA (r) is recommended for the inhibition of cyclin D1 expression in rat 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

cyclin D1 (A-12): sc-8396 is recommended as a control antibody for monitoring of cyclin D1 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 cyclin D1 gene expression knockdown using RT-PCR Primer: cyclin D1 (r)-PR: sc-156083-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. Fombonne, J., et al. 2007. Leptin-mediated decrease of cyclin A2 and increase of cyclin D1 expression: relevance for the control of prepubertal rat leydig cell division and differentiation. Endocrinology 148: 2126-2137.
2. Soriano, S.G., et al. 2010. Ketamine activates cell cycle signaling and apoptosis in the neonatal rat brain. Anesthesiology 112: 1155-1163.
3. Wang, H., et al. 2011. Isomer-specific effects of conjugated linoleic acid on proliferative activity of cultured neural progenitor cells. Mol. Cell. Biochem. 358: 13-20.
4. Kumar, R., et al. 2013. Ochratoxin A-induced cell proliferation and tumor promotion in mouse skin by activating the expression of cyclin-D1 and cyclooxygenase-2 through nuclear factor-κB and activator protein-1. Carcinogenesis 34: 647-657.
5. Li, E., et al. 2015. Macrophages promote benzopyrene-induced tumor transformation of human bronchial epithelial cells by activation of NFκB and STAT3 signaling in a bionic airway chip culture and in animal models. Oncotarget 6: 8900-8913.
6. Chen, Z.D., et al. 2016. NFκB-dependent transcriptional upregulation of cyclin D1 exerts cytoprotection against hypoxic injury upon EGFR activation. Exp. Cell Res. 347: 52-59.
7. Rus, A., et al. 2017. Extra virgin olive oil improves oxidative stress, functional capacity, and health-related psychological status in patients with fibromyalgia: a preliminary study. Biol. Res. Nurs. 19: 106-115.

RESEARCH USE

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