SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B1 siRNA (h): sc-29284

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

In eukaryotic cells, mitosis is initiated following the activation of a protein kinase known variously as maturation-promoting factor, M-phase specific histone kinase or M-phase kinase. This protein kinase is composed of a catalytic subunit (Cdc2), a regulatory subunit (cyclin B) and a low molecular weight subunit (p13-Suc1). The Cdc/cyclin enzyme is subject to multiple levels of control, of which the regulation of the catalytic subunit by tyrosine phosphorylation is the best understood. Tyrosine phosphorylation inhibits the Cdc2/cyclin B enzyme and tyrosine dephosphorylation, occurring at the onset of mitosis, directly activates the pre-MPF complex. Evidence has established that B type cyclins not only act on M-phase regulatory subunits of the Cdc2 protein kinase, but also activate the Cdc25A and Cdc25B endogenous tyrosine phosphatase, of which Cdc2 is the physiological substrate. The specificity of this effect is shown by the inability of either cyclin A or cyclin D1 to display any such stimulation of Cdc25A or Cdc25B.

CHROMOSOMAL LOCATION

Genetic locus: CCNB1 (human) mapping to 5q13.2.

PRODUCT

cyclin B1 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 cyclin B1 shRNA Plasmid (h): sc-29284-SH and cyclin B1 shRNA (h) Lentiviral Particles: sc-29284-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

cyclin B1 siRNA (h) is recommended for the inhibition of cyclin B1 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.

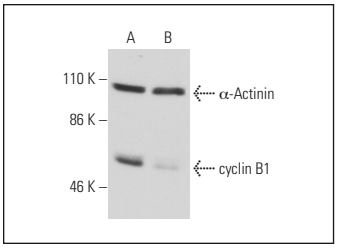
GENE EXPRESSION MONITORING

cyclin B1 (GNS1): sc-245 is recommended as a control antibody for monitoring of cyclin B1 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).

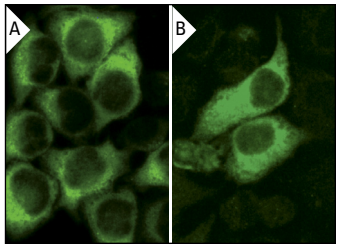
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor cyclin B1 gene expression knockdown using RT-PCR Primer: cyclin B1 (h)-PR: sc-29284-PR (20 µl, 447 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



cyclin B1 siRNA (h): sc-29284. Western blot analysis of cyclin B1 expression in non-transfected control (**A**) and cyclin B1 siRNA transfected (**B**) K-562 cells. Blot probed with cyclin B1 (GNSI): sc-245. α-Actinin (H-2): sc-17829 used as specificity and loading control.



cyclin B1 siRNA (h): sc-29284. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and cyclin B1 siRNA silenced HeLa (**B**) cells showing diminished cytoplasmic staining in the siRNA silenced cells. Cells probed with cyclin B1 (H-433): sc-752.

SELECT PRODUCT CITATIONS

1. Kim, H.H., et al. 2008. Nuclear HuR accumulation through phosphorylation by Cdk1. Genes Dev. 22: 1804-1815.
2. Izumi, H. and Kaneko, Y. 2014. Trim32 facilitates degradation of MYCN on spindle poles and induces asymmetric cell division in human neuroblastoma cells. Cancer Res. 74: 5620-5630.
3. Rajasekaran, D., et al. 2015. Small molecule inhibitors of late SV40 factor (LSF) abrogate hepatocellular carcinoma (HCC): evaluation using an endogenous HCC model. Oncotarget 6: 26266-26277.
4. 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.
5. Cheng, C.Y., et al. 2018. BI2536 induces mitotic catastrophe and radiosensitization in human oral cancer cells. Oncotarget 9: 21231-21243.
6. Choi, H.J. and Zhu, B.T. 2019. Upregulated cyclin B1/Cdk1 mediates apoptosis following 2-methoxyestradiol-induced mitotic catastrophe: role of Bcl-x_L phosphorylation. Steroids 150: 108381.
7. Chang, J.G., et al. 2021. Oxidative stress-induced unscheduled CDK1-cyclin B1 activity impairs ER-mitochondria-mediated bioenergetic metabolism. Cells 10: 1280.

RESEARCH USE

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