SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B2 siRNA (h): sc-37074

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-Suc 1). 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 two B-type cyclins, cyclin B1 and cyclin B2, have been shown to have distinct tissue distributions.

REFERENCES

1. Murray, A.W., et al. 1989. Dominoes and clocks: the union of two views of the cell cycle. Science 246: 614-621.
2. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
3. Jessus, C., et al. 1990. Direct activation of cdc2 with phosphatase: identification of p13suc1-sensitive and insensitive steps. FEBS Lett. 266: 4-8.
4. Doree, M. 1990. Control of M-phase by maturation promoting factor. Curr. Opin. Cell Biol. 2: 269-273.
5. Gautier, J., et al. 1990. Cyclin is a component of maturation-promoting factor from *Xenopus*. Cell 60: 487-494.
6. Gautier, J., et al. 1991. Cyclin B in *Xenopus* oocytes: Implications for the mechanism of pre-MPF activation. EMBO J. 10: 177-182.
7. Chapman, D.L., et al. 1993. Isolation of the murine cyclin B2 cDNA and characterization of the lineage and temporal specificity of expression of the B1 and B2 cyclins during oogenesis, spermatogenesis and early embryogenesis. Development 118: 229-240.

CHROMOSOMAL LOCATION

Genetic locus: CCNB2 (human) mapping to 15q22.2.

PRODUCT

cyclin B2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see cyclin B2 shRNA Plasmid (h): sc-37074-SH and cyclin B2 shRNA (h) Lentiviral Particles: sc-37074-V as alternate gene silencing products.

For independent verification of cyclin B2 (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-37074A, sc-37074B and sc-37074C.

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 B2 siRNA (h) is recommended for the inhibition of cyclin B2 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 B2 (A-2): sc-28303 is recommended as a control antibody for monitoring of cyclin B2 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 cyclin gene expression knockdown using RT-PCR Primer: cyclin B2 (h)-PR: sc-37074-PR (20 µl, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Peng, R., et al. 2020. Identification of core genes involved in the metastasis of clear cell renal cell carcinoma. Cancer Manag. Res. 12: 13437-13449.

RESEARCH USE

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