SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc2 p34 siRNA (m): sc-29253

BACKGROUND

In vertebrates, as in yeast, multiple cyclins have been identified, including a total of eight such regulatory proteins in mammals. In contrast to the situation in yeast, the Cdc2 p34 kinase is not the only catalytic subunit identified in vertebrates that can interact with cyclins. While Cdc2 p34 is essential for the G_2 to M transition in vertebrate cells, a second Cdc2-related kinase has also been implicated in cell cycle control. This protein, designated cyclin-dependent kinase 2 (Cdk2) p33, also binds to cyclins and its kinase activity is temporally regulated during the cell cycle. Several additional Cdc2 p34-related cyclin dependent kinases have been identified. These include Cdk3-Cdk8, PCTAIRE-1–3 and KKIALRE.

REFERENCES

1. Riabowol, K., et al. 1989. The Cdc2 kinase is a nuclear protein that is essential for mitosis in mammalian cells. Cell 57: 393-401.
2. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
3. Pines, J., et al. 1989. Isolation of a human cyclin cDNA: evidence for cyclin mRNA and protein regulation in the cell cycle and for interaction with $p34^{Cdc2}$. Cell 58: 833-846.
4. Kobayashi, H., et al. 1991. Cyclins and their partners during *Xenopus* oocyte maturation. Cold Spring Harb. Symp. Quant. Biol. 56437-56447.
5. Xiong, Y., et al. 1991. Human D-type cyclin. Cell 65: 691-699.

CHROMOSOMAL LOCATION

Genetic locus: Cdk1 (mouse) mapping to 10 B5.3.

PRODUCT

Cdc2 p34 siRNA (m) is a pool of 4 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 Cdc2 p34 shRNA Plasmid (m): sc-29253-SH and Cdc2 p34 shRNA (m) Lentiviral Particles: sc-29253-V as alternate gene silencing products.

For independent verification of Cdc2 p34 (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-29253A, sc-29253B, sc-29253C and sc-29253D.

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

Cdc2 p34 siRNA (m) is recommended for the inhibition of Cdc2 p34 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

Cdc2 p34 (17): sc-54 is recommended as a control antibody for monitoring of Cdc2 p34 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 Cdc2 p34 gene expression knockdown using RT-PCR Primer: Cdc2 p34 (m)-PR: sc-29253-PR (20 µl, 489 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Schmetsdorf, S., et al. 2009. A putative role for cell cycle-related proteins in microtubule-based neuroplasticity. Eur. J. Neurosci. 29: 1096-1107.
2. Yoon, I.S., et al. 2011. Ribosomal protein S3 is phosphorylated by Cdk1/cdc2 during G_2/M phase. BMB Rep. 44: 529-534.
3. Vallejo, G., et al. 2014. CDC2 mediates progestin initiated endometrial stromal cell proliferation: a PR signaling to gene expression independently of its binding to chromatin. PLoS ONE 9: e97311.

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.