SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin A siRNA (h): sc-29282

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The Power to Question

BACKGROUND

The critical role that the family of regulatory proteins known as cyclins play in eukaryotic cell cycle regulation is well established. The best-characterized cyclin complex is the mitotic cyclin B/Cdc2 p34 kinase, the active component of maturing promoting factor. Cyclin A accumulates prior to cyclin B in the cell cycle, appears to be involved in control of S phase and has been shown to associate with cyclin-dependent kinase-2 (Cdk2). In addition, cyclin A has been implicated in cell transformation and is found in complexes with E1A, transcription factors DRTF1 and E2F and retinoblastoma protein, p110. A second form of cyclin A, named cyclin A1 because of its high sequence homology to *Xenopus* cyclin A1, is most highly expressed in germ cells. It has been proposed that cyclin A1 can associate with Cdk2, p39 and Cdc2 p34.

REFERENCES

1. Draetta, G., et al. 1989. Cdc2 protein kinase is complexed with both cyclin A and B: evidence for proteolytic inactivation of MPF. Cell 56: 829-838.
2. Giordano, A., et al. 1989. A 60 kd Cdc2-associated polypeptide complexes with the E1A proteins in adenovirus-infected cells. Cell 58: 981-990.
3. Gautier, J., et al. 1990. Cyclin is a component of maturation-promoting factor from *Xenopus*. Cell 60: 487-494.
4. Wang, J., et al. 1990. Hepatitis B virus integration in a cyclin A gene in a hepatocellular carcinoma. Nature 343: 555-557.
5. Pines, J., et al. 1990. Human cyclin A is adenovirus E1A-associated protein p60 and behaves differently from cyclin B. Nature 346: 760-763.
6. Bandara, L.R., et al. 1991. Cyclin A and the retinoblastoma gene product complex with a common transcription factor. Nature 352: 249-251.
7. Williams, R.T., et al. 1992. Co-purification of $p34^{cdc2}$/p58 cyclin A proline-directed protein kinase and the retinoblastoma tumor susceptibility gene product: interaction of an oncogenic serine/threonine protein kinase with a tumor-suppressor protein. Oncogene 7: 423-432.
8. Lees, E., et al. 1992. Cyclin E/Cdk2 and cyclin A/Cdk2 kinases associate with p107 and E2F in a temporally distinct manner. Genes Dev. 6: 1874-1885.
9. Yang, R., et al. 1997. Characterization of a second human cyclin A that is highly expressed in testis and in several leukemic cell lines. Cancer Res. 57: 913-930.

CHROMOSOMAL LOCATION

Genetic locus: CCNA2 (human) mapping to 4q27.

PRODUCT

cyclin A 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 A shRNA Plasmid (h): sc-29282-SH and cyclin A shRNA (h) Lentiviral Particles: sc-29282-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 A siRNA (h) is recommended for the inhibition of cyclin A 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 A (BF683): sc-239 is recommended as a control antibody for monitoring of cyclin A 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 A gene expression knockdown using RT-PCR Primer: cyclin A (h)-PR: sc-29282-PR (20 µl, 548 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Xia, M., et al. 2010. Novel function and intracellular localization of methionine adenosyltransferase 2β splicing variants. J. Biol. Chem. 285: 20015-20021.
2. Shimizu, N., et al. 2013. Selective enhancing effect of early mitotic inhibitor 1 (Emi1) depletion on the sensitivity of doxorubicin or X-ray treatment in human cancer cells. J. Biol. Chem. 288: 17238-17252.
3. Hu, K. and Liang, M. 2017. Upregulated microRNA-224 promotes ovarian cancer cell proliferation by targeting KLLN. In Vitro Cell. Dev. Biol. Anim. 53: 149-156.

RESEARCH USE

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