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cyclin YL1 siRNA (m): sc-142659

BACKGROUND

Cell proliferation is controlled at specific stages of the cell cycle by distinct protein kinase complexes. These complexes consist of a catalytic subunit associating with a specific regulatory subunit to form the active kinase. The cyclins, which include cyclin A, B, C, D, E, F, G, H, I, K, L, T, Y and their related proteins, including Dbf4, comprise the regulatory subunits of these kinase complexes. The controlled activation of the kinase complexes at various intervals of the cell cycle is regulated by the availability of the cyclins to the catalytic subunit. Unlike the catalytic subunit, which is expressed continually, the expression and stability of the regulatory subunit fluctuates depending on the stage of the cell cycle, thereby regulating kinase activity. Cyclin YL1 (cyclin Y-like 1), also known as CCNYL1 359 amino acid protein that contains one cyclin N-terminal domain and belongs to the cyclin Y subfamily of the cyclin family. Cyclin YL1 exists as three alternatively spliced isoforms and is encoded by a gene located on human chromosome 2.

REFERENCES

1. Gallant, P., et al. 1994. Identification of a novel vertebrate cyclin: cyclin B3 shares properties with both A- and B-type cyclins. *EMBO J.* 13: 595-605.
2. Mikulits, W., et al. 1997. Dynamics of cell cycle regulators: artifact-free analysis by recultivation of cells synchronized by centrifugal elutriation. *DNA Cell Biol.* 16: 849-859.
3. Kolonin, M.G., et al. 2000. A role for cyclin J in the rapid nuclear division cycles of early *Drosophila* embryogenesis. *Dev. Biol.* 227: 661-672.
4. Kong, M., et al. 2000. Cyclin F regulates the nuclear localization of cyclin B1 through a cyclin-cyclin interaction. *EMBO J.* 19: 1378-1388.
5. Malara, N.M., et al. 2006. Ageing, hormonal behaviour and cyclin D1 in ductal breast carcinomas. *Breast* 15: 81-89.
6. Wikman, H., et al. 2006. Regulation of the G₁/S phase of the cell cycle and alterations in the RB pathway in human lung cancer. *Expert Rev. Anticancer Ther.* 6: 515-530.
7. Liu, D., et al. 2010. Cyclin Y is a novel conserved cyclin essential for development in *Drosophila*. *Genetics* 184: 1025-1035.

CHROMOSOMAL LOCATION

Genetic locus: Ccnyl1 (mouse) mapping to 1 C2.

PRODUCT

cyclin YL1 siRNA (m) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see cyclin YL1 shRNA Plasmid (m): sc-142659-SH and cyclin YL1 shRNA (m) Lentiviral Particles: sc-142659-V as alternate gene silencing products.

For independent verification of cyclin YL1 (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-142659A and sc-142659B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

cyclin YL1 siRNA (m) is recommended for the inhibition of cyclin YL1 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 μ M in 66 μ l. 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 YL1 (D-4): sc-514637 is recommended as a control antibody for monitoring of cyclin YL1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 YL1 gene expression knockdown using RT-PCR Primer: cyclin YL1 (m)-PR: sc-142659-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.