SANTA CRUZ BIOTECHNOLOGY, INC.

Cdc14a phosphatase siRNA (h): sc-37551

BACKGROUND

In budding yeast, the Cdc14a phosphatase activates mitotic exit by dephosphorylation of specific cyclin-dependent kinase (Cdk) substrates and seems to be regulated by sequestration in the nucleolus until its release during mitosis. Human Cdc14a phosphatase is highly similar to *Saccharomyces cerevisiae* Cdc14 and is a member of the dual specificity protein Tyrosine phosphatase family. It interacts with and dephosphorylates tumor suppressor protein p53 and may regulate the function of p53. In addition, Cdc14a dephosphorylates hCdh1 and activates APCCdh1. Cdc14a phosphatase plays a role in the regulation of the centrosome cycle, mitosis and cytokinesis, thereby influencing chromosome partitioning and genomic stability in human cells. Deregulated human Cdc14a phosphatase disrupts centrosome separation and chromosome segregation.

REFERENCES

1. Li, L., et al. 1997. A family of putative tumor suppressors is structurally and functionally conserved in humans and yeast. J. Biol. Chem. 272: 29403-29406.
2. Wong, A.K., et al. 1999. Genomic structure, chromosomal location, and mutation analysis of the human Cdc14a gene. Genomics 59: 248-251.
3. Li, L., et al. 2000. The human Cdc14 phosphatases interact with and dephosphorylate the tumor suppressor protein p53. J. Biol. Chem. 275: 2410-2414.
4. Bembenek, J., et al. 2001. Regulation of the anaphase-promoting complex by the dual specificity phosphatase human Cdc14a. J. Biol. Chem. 276: 48237-48242.
5. Kaiser, B.K., et al. 2002. Disruption of centrosome structure, chromosome segregation, and cytokinesis by misexpression of human Cdc14a phosphatase. Mol. Biol. Cell 13: 2289-2300.
6. Mailand, N., et al. 2002. Deregulated human Cdc14a phosphatase disrupts centrosome separation and chromosome segregation. Nat. Cell Biol. 4: 317-322.

CHROMOSOMAL LOCATION

Genetic locus: CDC14A (human) mapping to 1p21.2.

PRODUCT

Cdc14a phosphatase 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 Cdc14a phosphatase shRNA Plasmid (h): sc-37551-SH and Cdc14a shRNA (h) Lentiviral Particles: sc-37551-V as alternate gene silencing products.

For independent verification of Cdc14a phosphatase (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3 nmol of lyophilized siRNA. These include: sc-37551A, sc-37551B and sc-37551C.

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

Cdc14a phosphatase siRNA (h) is recommended for the inhibition of Cdc14a phosphatase 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

Cdc14a phosphatase (DCS-291): sc-56260 is recommended as a control antibody for monitoring of Cdc14a phosphatase 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 Cdc14a phosphatase gene expression knockdown using RT-PCR Primer: Cdc14a phosphatase (h)-PR: sc-37551-PR (20 µl). 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.