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SANTA CRUZ BIOTECHNOLOGY, INC.

CDKN3 siRNA (h): sc-43877

BACKGROUND

Cyclin-dependent kinase inhibitor 3 (CDKN3), also designated Cdk2-associated dual specificity phosphatase, cyclin-dependent kinase interactor 1 (CDI1), CIP2, KAP or KAP1, belongs to the protein-tyrosine phosphatase family. CDKN3, a cyclin-dependent kinase inhibitor, interacts and dephosphorylates Cdk2 kinase, which prevents Cdk2 kinase activation. CDKN3 is important in cell cycle regulation. It is a dual specificity phosphatase that is active toward substrates which contain phosphotyrosine or phosphoserine residues. CDKN3 does not interact with Cdk4, but can interact with other cyclin-dependent kinases such as Cdc2, Cdk2 and Cdk3. The gene encoding for the CDKN3 protein maps to chromosome 14q22.2. This gene has been noted to be mutated, overexpressed or deleted in many cancers. Defects in the CDKN3 gene may may be implicated in hepatocellular carcinoma (HCC).

REFERENCES

1. Gyuris, J., et al. 1993. Cdi1, a human G_1 and S phase protein phosphatase that associates with Cdk2. Cell 75: 791-803.
2. Hannon, G.J., et al. 1994. KAP: a dual specificity phosphatase that interacts with cyclin-dependent kinases. Proc. Natl. Acad. Sci. USA 91: 1731-1735.
3. Demetrick, D.J., et al. 1995. Chromosomal mapping of the genes for the human cell cycle proteins cyclin C (CCNC), cyclin E (CCNE), p21 (CDKN1) and KAP (CDKN3). Cytogenet. Cell Genet. 69: 190-192.
4. Yeh, C.T., et al. 2000. Aberrant transcripts of the cyclin-dependent kinase-associated protein phosphatase in hepatocellular carcinoma. Cancer Res. 60: 4697-4700.
5. Maak, S., et al. 2002. Rapid communication: nucleotide sequence and physical mapping of the porcine cyclin-dependent kinase inhibitor 3 (CDKN3) gene. J. Anim. Sci. 80: 1698-1699.
6. Maak, S., et al. 2003. Characterization of the porcine CDKN3 gene as a potential candidate for congenital splay leg in piglets. Genet. Sel. Evol. 35: S157-S165.
7. Niculescu, M.D., et al. 2004. Choline availability modulates human neuroblastoma cell proliferation and alters the methylation of the promoter region of the cyclin-dependent kinase inhibitor 3 gene. J. Neurochem. 89: 1252-1259.

CHROMOSOMAL LOCATION

Genetic locus: CDKN3 (human) mapping to 14q22.2.

PRODUCT

CDKN3 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 CDKN3 shRNA Plasmid (h): sc-43877-SH and CDKN3 shRNA (h) Lentiviral Particles: sc-43877-V as alternate gene silencing products.

For independent verification of CDKN3 (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-43877A, sc-43877B and sc-43877C.

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

CDKN3 siRNA (h) is recommended for the inhibition of CDKN3 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

CDKN3 (39): sc-135864 is recommended as a control antibody for monitoring of CDKN3 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 CDKN3 gene expression knockdown using RT-PCR Primer: CDKN3 (h)-PR: sc-43877-PR (20 µl, 514 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Barrón, E.V., et al. 2015. CDKN3 mRNA as a biomarker for survival and therapeutic target in cervical cancer. PLoS ONE 10: e0137397.

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.