SANTA CRUZ BIOTECHNOLOGY, INC.

# C23 siRNA (h): sc-29230

## BACKGROUND

C23 (nucleolin, NCL) is a eukaryotic nucleolar phosphoprotein that influences synthesis and maturation of ribosomes. C23 localizes to dense fibrillar regions of the nucleolus. It contains four RNA binding domains that interact with pre-rRNA during synthesis. C23 can influence RNA processing, ribosomal gene transcription and nucleolar targeting of ribosomal components. It is known to associate with a variety of proteins, including the nucleolar protein B23. Phosphorylation by Cdc2 and casein kinase II causes translocation of C23 from the nucleolus to the cytoplasm. Mitotic phosphorylated forms of Bcl-2 are present in nuclear structures in prophase HeLa cells together with C23 and Ki-67. Retinoic acid-induced apoptosis leads to C23 down-regulation and Bcl-2 mRNA instability. C23 binds the human telomerase reverse transcriptase subunit (hTERT) through interactions with its RNA binding domain 4 and carboxyl-terminal RGG domain, and this interaction is critical for the nucleolar localization of human TERT.

## REFERENCES


1. Lischwe, M.A., et al. 1981. Localization of phosphoprotein C23 to nucleolar structures and to the nucleolus organizer regions. Exp. Cell Res. 136: 101-109.
2. Lapeyre, B., et al. 1986. Protein and cDNA sequence of a glycine-rich, dimethylarginine-containing region located near the carboxyl-terminal end of nucleolin (C23 and 100 kDa). J. Biol. Chem. 261: 9167-9173.
3. Egyhazi, E., et al. 1988. Effects of anti-C23 (nucleolin) antibody on transcription of ribosomal DNA in *Chironomus* salivary gland cells. Exp. Cell Res. 178: 264-272.


## CHROMOSOMAL LOCATION

Genetic locus: NCL (human) mapping to 2q37.1.

## PRODUCT

C23 siRNA (h) 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 C23 shRNA Plasmid (h): sc-29230-SH and C23 shRNA (h) Lentiviral Particles: sc-29230-V as alternate gene silencing products.

For independent verification of C23 (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-29230A, sc-29230B, sc-29230C and sc-29230D.

## 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

C23 siRNA (h) is recommended for the inhibition of C23 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

C23 (MS-3): sc-8031 is recommended as a control antibody for monitoring of C23 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 C23 gene expression knockdown using RT-PCR Primer: C23 (h)-PR: sc-29230-PR (20 µl, 400 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Pichiorri, F., et al. 2013. *In vivo* NCL targeting affects breast cancer aggressiveness through miRNA regulation. J. Exp. Med. 210: 951-968.
2. Oh, H.J., et al. 2015. CPNE7, a preameloblast-derived factor, regulates odontoblastic differentiation of mesenchymal stem cells. Biomaterials 37: 208-217.
3. Qi, J., et al. 2015. The implications and mechanisms of the extra-nuclear nucleolin in the esophageal squamous cell carcinomas. Med. Oncol. 32: 45.
4. Palmieri, D., et al. 2015. Human anti-nucleolin recombinant immunoagent for cancer therapy. Proc. Natl. Acad. Sci. USA 112: 9418-9423.
5. Satake, Y., et al. 2018. Nucleolin facilitates nuclear retention of an ultra-conserved region containing TRA2β4 and accelerates colon cancer cell growth. Oncotarget 9: 26817-26833.
6. Huang, F., et al. 2019. Phosphorylation of nucleolin is indispensable to its involvement in the proliferation and migration of non-small cell lung cancer cells. Oncol. Rep. 41: 590-598.
7. Tang, H., et al. 2023. Enhancement of cell adhesion by *Anaplasma phagocytophilum* nucleolin-interacting protein AFAP. J. Pers. Med. 13: 302.


## RESEARCH USE

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