SANTA CRUZ BIOTECHNOLOGY, INC.

p53 siRNA (h): sc-29435

BACKGROUND

p53, a DNA-binding, oligomerization domain- and transcription activation domain-containing tumor suppressor, upregulates growth arrest and apoptosis-related genes in response to stress signals, thereby influencing programmed cell death, cell differentiation, and cell cycle control mechanisms. p53 localizes to the nucleus, yet can be chaperoned to the cytoplasm by the negative regulator, MDM2. MDM2 is an E3 ubiquitin ligase that is upregulated in the presence of active p53, where it poly-ubiquitinates p53 for proteasome targeting. p53 fluctuates between latent and active DNA-binding conformations and is differentially activated through posttranslational modifications, including phosphorylation and acetylation. Mutations in the DNA-binding domain (DBD) of p53, amino acids 110-286, can compromise energetically-favorable association with *cis* elements and are implicated in several human cancers.

CHROMOSOMAL LOCATION

Genetic locus: TP53 (human) mapping to 17p13.1.

PRODUCT

p53 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 p53 shRNA Plasmid (h): sc-29435-SH and p53 shRNA (h) Lentiviral Particles: sc-29435-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

p53 siRNA (h) is recommended for the inhibition of p53 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.

RESEARCH USE

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

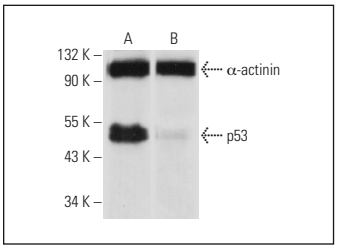
GENE EXPRESSION MONITORING

p53 (DO-1): sc-126 is recommended as a control antibody for monitoring of p53 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).

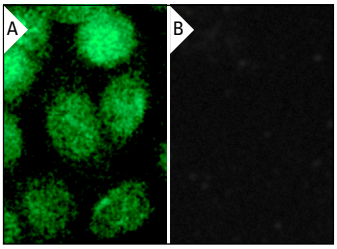
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor p53 gene expression knockdown using RT-PCR Primer: p53 (h)-PR: sc-29435-PR (20 µl, 588 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



p53 siRNA (h): sc-29435. Western blot analysis of p53 expression in control non-transfected (**A**) and p53 siRNA transfected (**B**) HeLa cells. Blot probed with p53 (DO-1): sc-126. α-actinin (H-2): sc-17829 used as specificity and loading control.



p53 siRNA (h): sc-29435. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and p53 siRNA silenced HeLa (**B**) cells showing diminished nuclear staining in the siRNA silenced cells. Cells probed with p53 (FL-393): sc-6243.

SELECT PRODUCT CITATIONS

1. Li, T., et al. 2006. Expression of SUMO-2/3 induced senescence through p53- and pRB-mediated pathways. J. Biol. Chem. 281: 36221-36227.
2. Guo, H., et al. 2014. Overexpressed ubiquitin ligase Cullin7 in breast cancer promotes cell proliferation and invasion via down-regulating p53. Biochem. Biophys. Res. Commun. 450: 1370-1376.
3. Men, X., et al. 2015. Cullin7 is required for lung cancer cell proliferation and is overexpressed in lung cancer. Oncol. Res. 22: 123-128.
4. Okagawa, Y., et al. 2016. Activated p53 with histone deacetylase inhibitor enhances L-fucose-mediated drug delivery through induction of fucosyltransferase 8 expression in hepatocellular carcinoma cells. PLoS ONE 11: e0168355.
5. Ogata, T., et al. 2017. Depletion of runt-related transcription factor 2 (RUNX2) enhances SAHA sensitivity of p53-mutated pancreatic cancer cells through the regulation of mutant p53 and TAp63. PLoS ONE 12: e0179884.
6. Madhav, A., et al. 2018. Antagonizing CD105 enhances radiation sensitivity in prostate cancer. Oncogene 37: 4385-4397.
7. Liu, G., et al. 2019. RNA-binding protein CELF6 is cell cycle regulated and controls cancer cell proliferation by stabilizing p21. Cell Death Dis. 10: 688.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.