SANTA CRUZ BIOTECHNOLOGY, INC.

p53R2 siRNA (h): sc-36158

BACKGROUND

The p53 gene is a highly characterized tumor suppressor that is often inactivated in various human cancers. p53 is a transcription factor that mediates cell cycle arrest and apoptosis by binding to DNA and activating the transcription of specific genes. p53 is also thought to be involved in DNA repair by the transcriptional activation of a ribonucleotide reductase gene, p53R2, after exposure to genotoxic stresses. p53R2 displays a significant similarity to ribonucleotide reductase small subunit (R2), and the expression of R2 is elevated at the onset of the S-phase of the cell cycle. However, only p53R2 expression is induced in response to ultraviolet and γ-irradiation and adriamycin treatment. p53R2 translocates to the nucleus upon DNA damage, and subsequently, supplies an immediate pool of dNTPs necessary for DNA repair.

CHROMOSOMAL LOCATION

Genetic locus: RRM2B (human) mapping to 8q22.3.

PRODUCT

p53R2 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 p53R2 shRNA Plasmid (h): sc-36158-SH and p53R2 shRNA (h) Lentiviral Particles: sc-36158-V as alternate gene silencing products.

For independent verification of p53R2 (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-36158A, sc-36158B and sc-36158C.

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

p53R2 siRNA (h) is recommended for the inhibition of p53R2 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.

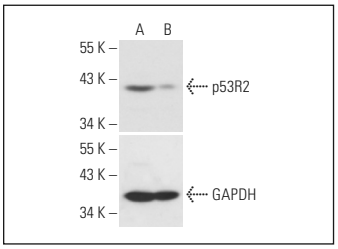
GENE EXPRESSION MONITORING

p53R2 (H-3): sc-137173 is recommended as a control antibody for monitoring of p53R2 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 p53R2 gene expression knockdown using RT-PCR Primer: p53R2 (h)-PR: sc-36158-PR (20 µl, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



p53R2 siRNA (h): sc-36158. Western blot analysis of p53R2 expression in non-transfected control (**A**) and p53R2 siRNA transfected (**B**) HeLa cells. Blot probed with p53R2 (N-16): sc-10840. GAPDH (FL-335): sc-25778 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Liu, X., et al. 2006. Metastasis-suppressing potential of ribonucleotide reductase small subunit p53R2 in human cancer cells. Clin. Cancer Res. 12: 6337-6344.
2. Liu, X., et al. 2011. Ribonucleotide reductase small subunit M2B prognoses better survival in colorectal cancer. Cancer Res. 71: 3202-3213.
3. Kawakita, K., et al. 2012. Akt phosphorylation in human chondrocytes is regulated by p53R2 in response to mechanical stress. Osteoarthritis Cartilage 20: 1603-1609.
4. Fang, Z., et al. 2016. CREB1 directly activates the transcription of ribonucleotide reductase small subunit M2 and promotes the aggressiveness of human colorectal cancer. Oncotarget 7: 78055-78068.
5. Azimi, A., et al. 2018. Suppression of p53R2 gene expression with specific siRNA sensitizes Hep G2 cells to doxorubicin. Gene 642: 249-255.
6. Chow, Z., et al. 2024. Inhibition of ribonucleotide reductase subunit M2 enhances the radiosensitivity of metastatic pancreatic neuroendocrine tumor. Cancer Lett. 596: 216993.

RESEARCH USE

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