SANTA CRUZ BIOTECHNOLOGY, INC.

p53AIP1 siRNA (h): sc-37459

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.

REFERENCES

1. Bjorklund, S., et al. 1990. S-phase-specific expression of mammalian ribonucleotide reductase R1 and R2 subunit mRNAs. Biochemistry 29: 5452-5458.
2. el-Deiry, W.S., et al. 1992. Definition of a consensus binding site for p53. Nat. Genet. 1: 45-49.
3. Greenblatt, M.S., et al. 1994. Mutations in the p53 tumor suppressor gene: clues to cancer etiology and molecular pathogenesis. Cancer Res. 54: 4855-4878.
4. Levine, A.J. 1997. p53, the cellular gatekeeper for growth and division. Cell 88: 323-331.
5. Tanaka, H., et al. 2000. A ribonucleotide reductase gene involved in a p53-dependent cell-cycle checkpoint for DNA damage. Nature 404: 42-49.
6. Chabes, A., et al. 2000. Controlled protein degradation regulates ribonucleotide reductase activity in proliferating mammalian cells during the normal cell cycle and in response to DNA damage and replication blocks. J. Biol. Chem. 275: 17747-17753.

CHROMOSOMAL LOCATION

Genetic locus: TP53AIP1 (human) mapping to 11q24.3.

PRODUCT

p53AIP1 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 p53AIP1 shRNA Plasmid (h): sc-37459-SH and p53AIP1 shRNA (h) Lentiviral Particles: sc-37459-V as alternate gene silencing products.

For independent verification of p53AIP1 (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-37459A, sc-37459B and sc-37459C.

PROTOCOLS

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

p53AIP1 siRNA (h) is recommended for the inhibition of p53AIP1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor p53AIP1 gene expression knockdown using RT-PCR Primer: p53AIP1 (h)-PR: sc-37459-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Preet, R., et al. 2014. Synthesis and biological evaluation of andrographolide analogues as anti-cancer agents. Eur. J. Med. Chem. 85: 95-106.
2. Chaudhry, S.R., et al. 2021. Germline mutations in apoptosis pathway genes in ovarian cancer; the functional role of a TP53I3 (PIG3) variant in ROS production and DNA repair. Cell Death Discov. 7: 62.

RESEARCH USE

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