

p53R2 (h): 293T Lysate: sc-111702

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.
7. Wei, P.P., et al. 2006. Circular dichroism and magnetic circular dichroism studies of the active site of p53R2 from human and mouse: iron binding and nature of the biferrous site relative to other ribonucleotide reductases. *Biochemistry* 45: 14043-14051.
8. Liu, X., et al. 2007. Ribonucleotide reductase subunits M2 and p53R2 are potential biomarkers for metastasis of colon cancer. *Clin. Colorectal Cancer* 6: 374-381.
9. Xue, L., et al. 2007. Ribonucleotide reductase small subunit p53R2 facilitates p21 induction of G₁ arrest under UV irradiation. *Cancer Res.* 67: 16-21.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

CHROMOSOMAL LOCATION

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

PRODUCT

p53R2 (h): 293T Lysate represents a lysate of human p53R2 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

p53R2 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive p53R2 antibodies. Recommended use: 10-20 μ l per lane.

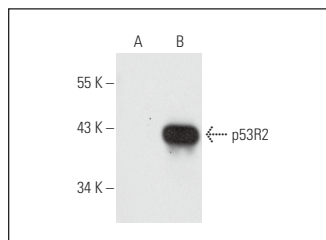
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

p53R2 (B-10): sc-137175 is recommended as a positive control antibody for Western Blot analysis of enhanced human p53R2 expression in p53R2 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



p53R2 (B-10): sc-137175. Western blot analysis of p53R2 expression in non-transfected: sc-117752 (A) and human p53R2 transfected: sc-111702 (B) 293T whole cell lysates.

RESEARCH USE

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