SANTA CRUZ BIOTECHNOLOGY, INC.

R1 (T-16): sc-11733

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ribonucleotide reductase is essential for the production and maintenance of the level of deoxyribonucleoside triphosphates (dNTP's) required for DNA synthesis. It is an enzymatic complex consisting of two nonidentical subunits, R1 and R2, which are inactive separately. R1, the larger subunit, contains allosteric regulatory sites. R2 is the limiting factor of the catalytic activity of the ribonucleotide reductase enzymatic complex. R2 expression is strictly correlated to the S-phase of the cell cycle, whereas R1 remains constant throughout all phases of the cell cycle. Ribonucleotide reductase appears to be specifically involved in nucleotide excision repair, since both the R1 and R2 subunits are induced in response to UV light in a dose-dependent manner.

CHROMOSOMAL LOCATION

Genetic locus: RRM1 (human) mapping to 11p15.4; Rrm1 (mouse) mapping to 7 E3.

SOURCE

R1 (T-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of R1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-11733 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

R1 (T-16) is recommended for detection of R1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

R1 (T-16) is also recommended for detection of R1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for R1 siRNA (h): sc-37640, R1 siRNA (m): sc-37641, R1 shRNA Plasmid (h): sc-37640-SH, R1 shRNA Plasmid (m): sc-37641-SH, R1 shRNA (h) Lentiviral Particles: sc-37640-V and R1 shRNA (m) Lentiviral Particles: sc-37641-V.

Molecular Weight of R1: 94 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Ramos cell lysate: sc-2216 or R1 (h3): 293T Lysate: sc-158910.

RESEARCH USE

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

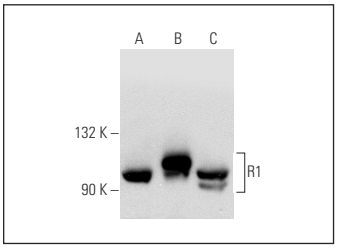
PROTOCOLS

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

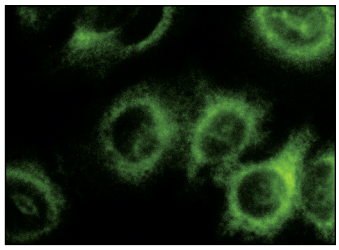
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



R1 (T-16): sc-11733. Western blot analysis of R1 expression in non-transfected 293T: sc-117752 (**A**), human R1 transfected 293T: sc-158910 (**B**) and HeLa (**C**) whole cell lysates.



R1 (T-16): sc-11733. Immunofluorescence staining of methanol-fixed A549 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Xue, L., et al. 2003. Wild-type p53 regulates human ribonucleotide reductase by protein-protein interaction with p53R2 as well as hRRM2 subunits. Cancer Res. 63: 980-986.
2. Zhou, B., et al. 2003. The human ribonucleotide reductase subunit hRRM2 complements p53R2 in response to UV-induced DNA repair in cells with mutant p53. Cancer Res. 63: 6583-9654.
3. Hrecka, K., et al. 2007. Lentiviral Vpr usurps Cul4-DDB1[VprBP] E3 ubiquitin ligase to modulate cell cycle. Proc. Natl. Acad. Sci. USA 104: 11778-11783.
4. Niida, H., et al. 2010. Essential role of Tip60-dependent recruitment of ribonucleotide reductase at DNA damage sites in DNA repair during G_1 phase. Genes Dev. 24: 333-338.
5. Zhou, J., et al. 2010. Modulation of the ribonucleotide reductase-antimetabolite drug interaction in cancer cell lines. J. Nucleic Acids 2010: 597098.
6. Saiko, P., et al. 2011. A novel N-hydroxy-N'-aminoguanidine derivative inhibits ribonucleotide reductase activity: effects in human HL-60 promyelocytic leukemia cells and synergism with arabinofuranosylcytosine (Ara-C). Biochem. Pharmacol. 81: 50-59.
7. Lei, W., et al. 2012. Progesterone and DNA damage encourage uterine cell proliferation and decidualization through up-regulating ribonucleotide reductase 2 expression during early pregnancy in mice. J. Biol. Chem. 287: 15174-15192.