SANTA CRUZ BIOTECHNOLOGY, INC.

R2 (P-20): sc-21877

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ribonucleotide reductase is essential for the production and maintenance of the level of deoxyribonucleoside triphosphates (dNTPs) required for DNA synthesis. It is an enzymatic complex consisting of two nonidentical subunits, R1 and R2, which are inactive separately. R2, the smaller subunit, is localized to the cytoplasm. 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. While R2 seems to be involved solely in the maintenance of dNTPs for DNA replication, a similar protein, p53R2, has been shown to be responsible for the production of dNTPs in response to DNA damage.

REFERENCES

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2. Pavloff, N., et al. 1992. Sequence analysis of the large and small subunits of human ribonucleotide reductase. DNA Seq. 2: 227-234.
3. Filatov, D., et al. 1996. Induction of the mouse ribonucleotide reductase R1 and R2 genes in response to DNA damage by UV light. J. Biol. Chem. 271: 23698-236704.
4. Johansson, E., et al. 1998. Two YY-1-binding proximal elements regulate the promoter strength of the TATA-less mouse ribonucleotide reductase R1 gene. J. Biol. Chem. 273: 29816-29821.
5. 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.
6. Tanaka, H., et al. 2000. A ribonucleotide reductase gene involved in a p53-dependent cell-cycle checkpoint for DNA damage. Nature 404: 42-49.
7. Narvaez, A.J., et al. 2006. The involvement of Arg265 of mouse ribonucleotide reductase R2 protein in proton transfer and catalysis. J. Biol. Chem. 281: 26022-26028.
8. Lin, Z.P., et al. 2007. Excess ribonucleotide reductase R2 subunits coordinate the S phase checkpoint to facilitate DNA damage repair and recovery from replication stress. Biochem. Pharmacol. 73: 760-772.

CHROMOSOMAL LOCATION

Genetic locus: RRM2 (human) mapping to 2p25.1; Rrm2 (mouse) mapping to 12 A1.3.

SOURCE

R2 (P-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of R2 of human origin.

STORAGE

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

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-21877 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

R2 (P-20) is recommended for detection of R2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); may cross-react with p53R2.

R2 (P-20) is also recommended for detection of R2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for R2 siRNA (h): sc-36338, R2 siRNA (m): sc-36339, R2 shRNA Plasmid (h): sc-36338-SH, R2 shRNA Plasmid (m): sc-36339-SH, R2 shRNA (h) Lentiviral Particles: sc-36338-V and R2 shRNA (m) Lentiviral Particles: sc-36339-V.

Molecular Weight of R2: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or HeLa nuclear extract: sc-2120.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

MONOS Satisfaction Guaranteed

Try **R2/p53R2 (F-9): sc-376973** or **R2 (A-5): sc-398294**, our highly recommended monoclonal aternatives to R2 (P-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **R2/p53R2 (F-9): sc-376973**.