

R2 (N-18): sc-10844

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

1. Bjorklund, S., et al. 1990. S-phase-specific expression of mammalian ribonucleotide reductase R1 and R2 subunit mRNAs. *Biochemistry* 29: 5452-5458.
2. Pavloff, N., et al. 1992. Sequence analysis of the large and small subunits of human ribonucleotide reductase. *DNA Seq.* 2: 227-234.

CHROMOSOMAL LOCATION

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

SOURCE

R2 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of R2 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-10844 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

R2 (N-18) 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), 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).

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.

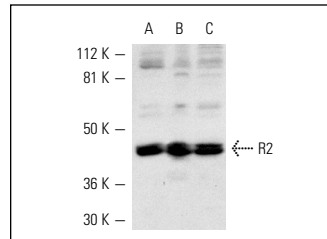
Molecular Weight of R2: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or K-562 whole cell lysate: sc-2203.

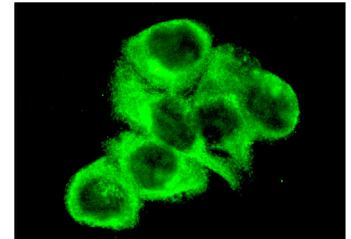
STORAGE

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

DATA



R2 (N-18): sc-10844. Western blot analysis of R2 expression in HeLa (A), A-431 (B) and K-562 (C) whole cell lysates.



R2 (N-18): sc-10844. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic cell lysates.

SELECT PRODUCT CITATIONS

1. Zhou, B., et al. 2001. Human ribonucleotide reductase M2 subunit gene amplification and transcriptional regulation in a homogeneous staining chromosome region responsible for the mechanism of drug resistance. *Cytogenet. Cell Genet.* 95: 34-42.
2. 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.
3. Naruyama, H., et al. 2008. Essential role of Chk1 in S phase progression through regulation of RNR2 expression. *Biochem. Biophys. Res. Commun.* 374: 79-83.
4. Niida, H., et al. 2010. Essential role of Tip60-dependent recruitment of ribonucleotide reductase at DNA damage sites in DNA repair during G₁ phase. *Genes Dev.* 24: 333-338.
5. Cohen, D., et al. 2010. Hepatitis B virus activates deoxynucleotide synthesis in nondividing hepatocytes by targeting the R2 gene. *Hepatology* 51: 1538-1546.
6. Chen, Y.L., et al. 2010. Regulation and functional contribution of thymidine kinase 1 in repair of DNA damage. *J. Biol. Chem.* 285: 27327-27335.
7. Pontarin, G., et al. 2011. Deoxyribonucleotide metabolism in cycling and resting human fibroblasts with a missense mutation in p53R2, a subunit of ribonucleotide reductase. *J. Biol. Chem.* 286: 11132-11140.

RESEARCH USE

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



Try **R2/p53R2 (F-9): sc-376973** or **R2 (A-5): sc-398294**, our highly recommended monoclonal alternatives to R2 (N-18). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **R2/p53R2 (F-9): sc-376973**.