

R2 (A-5): sc-398294

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.

CHROMOSOMAL LOCATION

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

SOURCE

R2 (A-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 30-56 near the N-terminus of R2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

R2 (A-5) is available conjugated to agarose (sc-398294 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398294 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398294 PE), fluorescein (sc-398294 FITC), Alexa Fluor® 488 (sc-398294 AF488), Alexa Fluor® 546 (sc-398294 AF546), Alexa Fluor® 594 (sc-398294 AF594) or Alexa Fluor® 647 (sc-398294 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398294 AF680) or Alexa Fluor® 790 (sc-398294 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-398294 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

R2 (A-5) is recommended for detection of R2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

R2 (A-5) is also recommended for detection of R2 in additional species, including canine.

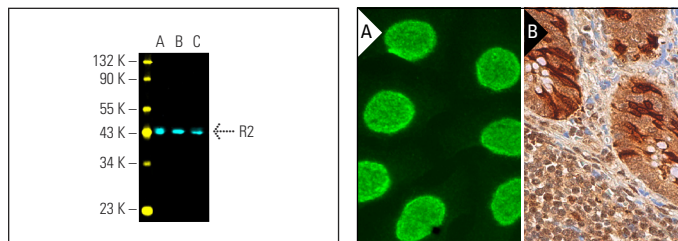
Suitable for use as control antibody for R2 siRNA (h): sc-36338, R2 siRNA (m): sc-36339, R2 shRNA Plasmid (h): sc-36338-SH, R2 shRNA Plasmid (m): sc-36339-SH, R2 shRNA (h) Lentiviral Particles: sc-36338-V and R2 shRNA (m) Lentiviral Particles: sc-36339-V.

Molecular Weight of R2: 45 kDa.

STORAGE

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

DATA



R2 (A-5) Alexa Fluor® 647: sc-398294 AF647. Direct fluorescent western blot analysis of R2 expression in HEL 92.1.7 (A), Jurkat (B) and CCRF-CEM (C) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.

R2 (A-5): sc-398294. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear and cytoplasmic staining of glandular cells and lymphoid cells (B).

SELECT PRODUCT CITATIONS

- Dai, L., et al. 2017. Ribonucleotide reductase represents a novel therapeutic target in primary effusion lymphoma. *Oncogene* 36: 5068-5074.
- Saxena, S., et al. 2018. XRCC2 regulates replication fork progression during dNTP alterations. *Cell Rep.* 25: 3273-3282.e6.
- Buj, R., et al. 2019. Suppression of p16 induces mTORC1-mediated nucleotide metabolic reprogramming. *Cell Rep.* 28: 1971-1980.e8.
- Wang, S., et al. 2020. Single cell transcriptomics of human epidermis identifies basal stem cell transition states. *Nat. Commun.* 11: 4239.
- Gu, X., et al. 2021. Decitabine- and 5-azacytidine resistance emerges from adaptive responses of the pyrimidine metabolism network. *Leukemia* 35: 1023-1036.
- Tsao, W.C., et al. 2021. Overexpression of oncogenic H-Ras in hTERT-immortalized and SV40-transformed human cells targets replicative and specialized DNA polymerases for depletion. *PLoS ONE* 16: e0251188.
- Tian, L., et al. 2021. mTORC2 regulates ribonucleotide reductase to promote DNA replication and gemcitabine resistance in non-small cell lung cancer. *Neoplasia* 23: 643-652.
- Goss, K.L., et al. 2021. The translational repressor 4E-BP1 regulates RRM2 levels and functions as a tumor suppressor in Ewing sarcoma tumors. *Oncogene* 40: 564-577.
- Tatekawa, S., et al. 2022. N⁶-methyladenosine methylation-regulated polo-like kinase 1 cell cycle homeostasis as a potential target of radiotherapy in pancreatic adenocarcinoma. *Sci. Rep.* 12: 11074.

RESEARCH USE

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

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