SANTA CRUZ BIOTECHNOLOGY, INC.

R2/p53R2 (F-9): sc-376973

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.

CHROMOSOMAL LOCATION

Genetic locus: RRM2 (human) mapping to 2p25.1, RRM2B (human) mapping to 8q22.3; Rrm2 (mouse) mapping to 12 A1.3, Rrm2b (mouse) mapping to 15 B3.1.

SOURCE

R2/p53R2 (F-9) is a mouse monoclonal antibody raised against amino acids 90-389 mapping at the C-terminus of R2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

R2/p53R2 (F-9) is available conjugated to agarose (sc-376973 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376973 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376973 PE), fluorescein (sc-376973 FITC), Alexa Fluor® 488 (sc-376973 AF488), Alexa Fluor® 546 (sc-376973 AF546), Alexa Fluor® 594 (sc-376973 AF594) or Alexa Fluor® 647 (sc-376973 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376973 AF680) or Alexa Fluor® 790 (sc-376973 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

R2/p53R2 (F-9) is recommended for detection of R2 and p53 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/p53R2 (F-9) is also recommended for detection of R2 and p53 R2 in additional species, including canine.

Molecular Weight of R2/p53R2: 45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or MCF7 whole cell lysate: sc-2206.

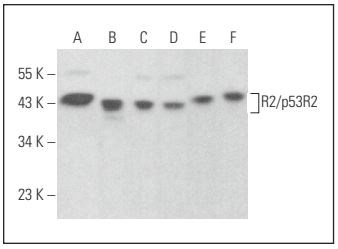
STORAGE

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

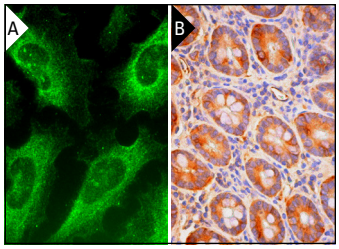
RESEARCH USE

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

DATA



R2R2/p53R2 (F-9): sc-376973. Western blot analysis of R2/p53R2 expression in K-562 (**A**), Jurkat (**B**), HeLa (**C**), MCF7 (**D**), PC-12 (**E**) and F9 (**F**) whole cell lysates.



R2/p53R2 (F-9): sc-376973. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic staining of glandular cells and endothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Wang, Q., et al. 2017. Methamphetamine induces hepatotoxicity via inhibiting cell division, arresting cell cycle and activating apoptosis: *in vivo* and *in vitro* studies. Food Chem. Toxicol. 105: 61-72.
2. Alhajala, H.S., et al. 2018. Irradiation of pediatric glioblastoma cells promotes radioresistance and enhances glioma malignancy via genome-wide transcriptome changes. Oncotarget 9: 34122-34131.
3. Zurlo, G., et al. 2019. Prolyl hydroxylase substrate adenylosuccinate lyase is an oncogenic driver in triple negative breast cancer. Nat. Commun. 10: 5177.
4. Wang, S., et al. 2020. Single cell transcriptomics of human epidermis identifies basal stem cell transition states. Nat. Commun. 11: 4239.
5. Key, J., et al. 2020. Systematic surveys of iron homeostasis mechanisms reveal ferritin superfamily and nucleotide surveillance regulation to be modified by PINK1 absence. Cells 9: 2229.
6. Barua, D., et al. 2023. RRM2 and CDC6 are novel effectors of XBP1-mediated endocrine resistance and predictive markers of tamoxifen sensitivity. BMC Cancer 23: 288.
7. Huang, Y. and Yuan, X. 2024. Novel ferroptosis gene biomarkers and immune infiltration profiles in diabetic kidney disease via bioinformatics. FASEB J. 38: e23421.

PROTOCOLS

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