

p-Rb (A-5): sc-377528



The Power to Question

BACKGROUND

Pediatric cancer retinoblastoma and the formation of other human tumors can be attributed to mutations in the retinoblastoma tumor suppressor gene (Rb). The Rb protein regulates differentiation, apoptosis and cell cycle control by coordinating the cell cycle at G₁-S with transcriptional machinery. During G₁, cyclin D-dependent kinase-mediated phosphorylation of Rb at Ser 795 marks the conversion of Rb from a transcriptionally repressive, hypophosphorylated state to an inactive, phosphorylated state, which may be sustained through mitosis by differential phosphorylation of up to 16 putative serine or threonine residues, including Ser 249/Thr 252, Thr 373, Thr 356, Ser 780, Ser 807/Ser 811, and Thr 821/Thr 826. Hypophosphorylated Rb represses the transcription of genes controlling the cell cycle through direct protein-protein interactions and through the recruitment of histone deacetylase.

REFERENCES

- Weinberg, R.A. 1995. The retinoblastoma protein and cell cycle control. *Cell* 81: 323-330.
- Bremner, R., et al. 1995. Direct transcriptional repression by p-Rb and its reversal by specific cyclins. *Mol. Cell. Biol.* 15: 3256-3265.
- Sherr, C.J. 1996. Cancer cell cycles. *Science* 274: 1672-1677.

CHROMOSOMAL LOCATION

Genetic locus: RB1 (human) mapping to 13q14.2; Rb1 (mouse) mapping to 14 D3.

SOURCE

p-Rb (A-5) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Ser 249 and Thr 252 dually phosphorylated Rb 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.

p-Rb (A-5) is available conjugated to agarose (sc-377528 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377528 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377528 PE), fluorescein (sc-377528 FITC), Alexa Fluor® 488 (sc-377528 AF488), Alexa Fluor® 546 (sc-377528 AF546), Alexa Fluor® 594 (sc-377528 AF594) or Alexa Fluor® 647 (sc-377528 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377528 AF680) or Alexa Fluor® 790 (sc-377528 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377528 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

p-Rb (A-5) is recommended for detection of Ser 249 and Thr 252 dually-phosphorylated Rb 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).

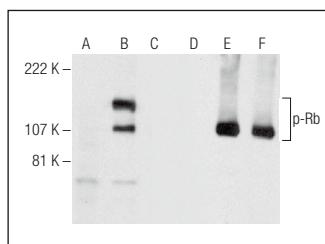
Suitable for use as control antibody for Rb siRNA (h): sc-29468, Rb siRNA (m): sc-29469, Rb shRNA Plasmid (h): sc-29468-SH, Rb shRNA Plasmid (m): sc-29469-SH, Rb shRNA (h) Lentiviral Particles: sc-29468-V and Rb shRNA (m) Lentiviral Particles: sc-29469-V.

Molecular Weight (predicted) of p-Rb: 106 kDa.

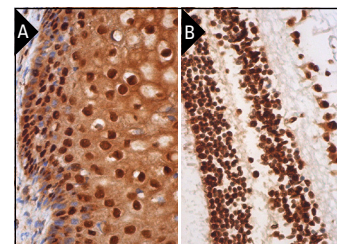
Molecular Weight (observed) of p-Rb: 107-140 kDa.

Positive Controls: SK-LMS-1 cell lysate: sc-3813, K-562 whole cell lysate: sc-2203 or MOLT-4 cell lysate: sc-2233.

DATA



Western blot analysis of Rb phosphorylation in non-transfected: sc-117752 (A,D), untreated human Rb transfected: sc-114014 (B,E) and lambda protein phosphatase (sc-200312A) treated human Rb transfected: sc-114014 (C,F) 293T whole cell lysates. Antibodies tested include p-Rb (A-5): sc-377528 (A,B,C) and Rb (M-153): sc-7905 (D,E,F).



p-Rb (A-5): sc-377528. Immunoperoxidase staining of formalin fixed, paraffin-embedded human vagina tissue showing nuclear and cytoplasmic staining of squamous epithelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fetal eye tissue showing nuclear staining of cells in retina (B).

SELECT PRODUCT CITATIONS

- Adomako, A., et al. 2015. Identification of markers that functionally define a quiescent multiple myeloma cell sub-population surviving bortezomib treatment. *BMC Cancer* 15: 444.
- Cemeli, T., et al. 2022. Antitumor effects of Ral-GTPases downregulation in glioblastoma. *Int. J. Mol. Sci.* 23: 8199.
- Doi, K., et al. 2023. PP2A-B55 and its adapter proteins IER2 and IER5 regulate the activity of RB family proteins and the expression of cell cycle-related genes. *FEBS J.* 290: 745-762.
- Lee, S.G., et al. 2024. Non-canonical deubiquitination of OTUB1 induces IFN γ -mediated cell cycle arrest via regulation of p27 stability. *Oncogene* 43: 1852-1860.

RESEARCH USE

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