

p-Rb (E-10): sc-271930

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

1. Bremner, R., et al. 1995. Direct transcriptional repression by p-Rb and its reversal by specific cyclins. *Mol. Cell. Biol.* 15: 3256-3265.
2. Weinberg, R.A. 1995. The retinoblastoma protein and cell cycle control. *Cell* 81: 323-330.
3. 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 (E-10) is a mouse monoclonal antibody specific for an epitope containing Thr 821 and Thr 826 dually phosphorylated Rb of human origin.

PRODUCT

Each vial contains 200 µg IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-Rb (E-10) is available conjugated to agarose (sc-271930 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271930 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271930 PE), fluorescein (sc-271930 FITC), Alexa Fluor[®] 488 (sc-271930 AF488), Alexa Fluor[®] 546 (sc-271930 AF546), Alexa Fluor[®] 594 (sc-271930 AF594) or Alexa Fluor[®] 647 (sc-271930 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271930 AF680) or Alexa Fluor[®] 790 (sc-271930 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271930 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

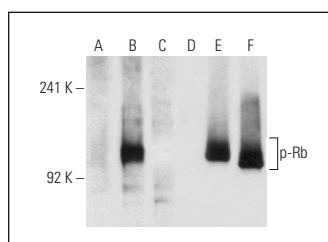
p-Rb (E-10) is recommended for detection of Thr 821 and Thr 826 dually phosphorylated Rb of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting 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.

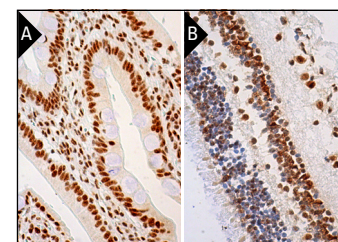
Molecular Weight (predicted) of p-Rb: 106 kDa.

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

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 (E-10): sc-271930 (A,B,C) and Rb (M-153): sc-7905 (D,E,F).



p-Rb (E-10): sc-271930. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing nuclear staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fetal eye tissue showing nuclear staining of photoreceptor cells, cells in inner nuclear layer and ganglion cells (B).

SELECT PRODUCT CITATIONS

1. Zheng, M., et al. 2010. Efficacy of MDM2 inhibitor MI-219 against lung cancer cells alone or in combination with MDM2 knockdown, a XIAP inhibitor or etoposide. *Anticancer Res.* 30: 3321-3331.
2. An, H.J., et al. 2019. miR-5191 functions as a tumor suppressor by targeting RPS6KB1 in colorectal cancer. *Int. J. Oncol.* E-published.
3. Koundouros, N., et al. 2020. Metabolic fingerprinting links oncogenic PIK3CA with enhanced arachidonic acid-derived eicosanoids. *Cell* 181: 1596-1611.e27.
4. Chen, C., et al. 2021. (20S) Ginsenoside Rh2 exerts its anti-tumor effect by disrupting the HSP90A-Cdc37 system in human liver cancer cells. *Int. J. Mol. Sci.* 22: 13170.
5. Boruah, N., et al. 2022. Securin overexpression correlates with the activated Rb/E2F1 pathway and Histone H3 epigenetic modifications in raw areca nut-induced carcinogenesis in mice. *Cancer Cell Int.* 22: 30.

RESEARCH USE

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