

Rb (C-2): sc-74562

BACKGROUND

Pediatric cancer retinoblastoma and the formation of other human tumors can be attributed to mutations in the retinoblastoma tumor suppressor gene. The retinoblastoma tumor suppressor gene product, known as Rb or pRb, regulates differentiation, apoptosis and cell cycle control by coordinating the cell cycle at G₁/S with transcriptional machinery that includes the heterodimeric E2F family. During G₁, cyclin D (D1, D2, D3)-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 Thr 373, Thr 356, Ser 780, Ser 807/Ser 811, Ser 249/Thr 252 and Thr 821/Thr 826. Hypophosphorylated Rb represses the transcription of genes controlling cell cycle through direct protein-protein interactions, by binding and inactivating the promoters of transcription factors, and through recruitment of histone deacetylase, which deacetylates promoter regions and enhances nucleosome formation, thereby masking transcription enhancing *cis* elements.

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 pRb 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

Rb (C-2) is a mouse monoclonal antibody raised against amino acids 769-921 mapping at the C-terminus of Rb of mouse origin.

PRODUCT

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

Rb (C-2) is available conjugated to agarose (sc-74562 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74562 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74562 PE), fluorescein (sc-74562 FITC), Alexa Fluor® 488 (sc-74562 AF488), Alexa Fluor® 546 (sc-74562 AF546), Alexa Fluor® 594 (sc-74562 AF594) or Alexa Fluor® 647 (sc-74562 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74562 AF680) or Alexa Fluor® 790 (sc-74562 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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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

Rb (C-2) is recommended for detection of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

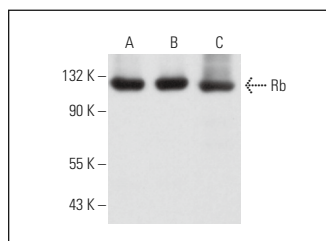
Suitable for use as control antibody for Rb siRNA (h): sc-29468, Rb siRNA (m): sc-29469, Rb shRNA Plasmid (h): sc-29468-SH, Rb shRNA Plasmid (m): sc-29469-SH, Rb shRNA (h) Lentiviral Particles: sc-29468-V and Rb shRNA (m) Lentiviral Particles: sc-29469-V.

Molecular Weight (predicted) of Rb: 106 kDa.

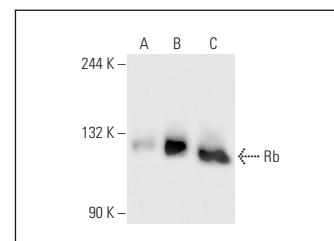
Molecular Weight (observed) of Rb: 107-140 kDa.

Positive Controls: Rb (h2): 293T Lysate: sc-159907, A-431 whole cell lysate: sc-2201 or Y79 cell lysate: sc-2240.

DATA



Rb (C-2): sc-74562. Western blot analysis of Rb expression in A-431 (A), Y79 (B) and RAW 264.7 (C) whole cell lysates.



Rb (C-2): sc-74562. Western blot analysis of Rb expression in non-transfected 293T: sc-117752 (A), human Rb transfected 293T: sc-159907 (B) and K-562 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Marley, S.B., et al. 2004. Phosphatidylinositol-3 kinase inhibitors reproduce the selective antiproliferative effects of imatinib on chronic myeloid leukaemia progenitor cells. *Br. J. Haematol.* 125: 500-511.
- Petrov, P.D., et al. 2016. Retinoblastoma protein knockdown favors oxidative metabolism and glucose and fatty acid disposal in muscle cells. *J. Cell. Physiol.* 231: 708-718.
- Perumal, D., et al. 2016. Dual targeting of CDK4 and ARK5 using a novel kinase inhibitor ON123300 exerts potent anticancer activity against multiple myeloma. *Cancer Res.* 76: 1225-1236.
- Denechaud, P.D., et al. 2016. E2F1 mediates sustained lipogenesis and contributes to hepatic steatosis. *J. Clin. Invest.* 126: 137-150.
- Wang, Y., et al. 2016. Dysfunctional telomeres induce p53-dependent and independent apoptosis to compromise cellular proliferation and inhibit tumor formation. *Aging Cell* 15: 646-660.

RESEARCH USE

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