

Rb (IF8): sc-102

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 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 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.

CHROMOMAL LOCATION

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

SOURCE

Rb (IF8) is a mouse monoclonal antibody raised against retinoblastoma gene product β galactosidase fusion protein.

PRODUCT

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

Rb (IF8) is available conjugated to agarose (sc-102 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-102 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-102 PE), fluorescein (sc-102 FITC), Alexa Fluor[®] 488 (sc-102 AF488), Alexa Fluor[®] 546 (sc-102 AF546), Alexa Fluor[®] 594 (sc-102 AF594) or Alexa Fluor[®] 647 (sc-102 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-102 AF680) or Alexa Fluor[®] 790 (sc-102 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, Rb (IF8) is available conjugated to either TRITC (sc-102 TRITC, 200 μ g/ml) or Alexa Fluor[®] 405 (sc-102 AF405, 200 μ g/ml), for IF, IHC(P) 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 (IF8) is recommended for detection of Rb p110 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 flow cytometry (1 μ g per 1 x 10⁶ cells).

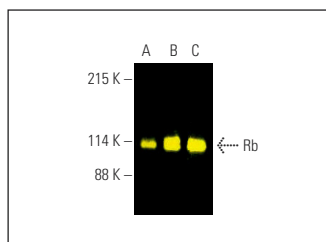
Suitable for use as control antibody for Rb siRNA (h): sc-29468, Rb siRNA (m): sc-29469, Rb shRNA Plasmid (h): sc-29468-SH, Rb shRNA Plasmid (m): sc-29469-SH, Rb shRNA (h) Lentiviral Particles: sc-29468-V and Rb shRNA (m) Lentiviral Particles: sc-29469-V.

Molecular Weight (predicted) of Rb: 106 kDa.

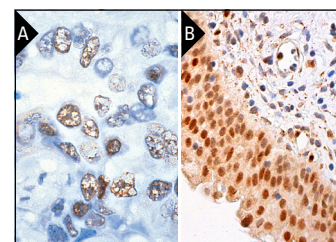
Molecular Weight (observed) of Rb: 107-140 kDa.

Positive Controls: Ramos cell lysate: sc-2216, MDA-MB-231 cell lysate: sc-2232 or MOLT-4 cell lysate: sc-2233.

DATA



Rb (IF8) Alexa Fluor[®] 488: sc-102 AF488. Direct fluorescent western blot analysis of Rb expression in Ramos (A), MDA-MB-231 (B) and MOLT-4 (C) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214.



Rb (IF8): sc-102. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon carcinoma tissue showing nuclear staining (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of urothelial cells (B).

SELECT PRODUCT CITATIONS

- Arany, I., et al. 1993. Alterations in cytokine/antioncogene expression in skin lesions caused by "low-risk" types of human papillomaviruses. *Viral Immunol.* 6: 255-265.
- Rooney, R.J. 2020. Multiple domains in the 50 kDa form of E4F1 regulate promoter-specific repression and E1A *trans*-activation. *Gene* 754: 144882.
- Zhao, S., et al. 2021. Effects of the p16/cyclin D1/CDK4/Rb/E2F1 pathway on aberrant lung fibroblast proliferation in neonatal rats exposed to hyperoxia. *Exp. Ther. Med.* 22: 1057.
- Martinez-Monleon, A., et al. 2022. Amplification of CDK4 and MDM2: a detailed study of a high-risk neuroblastoma subgroup. *Sci. Rep.* 12: 12420.
- Pan, W., et al. 2023. KNTC1, regulated by HPV E7, inhibits cervical carcinogenesis partially through Smad2. *Exp. Cell Res.* 423: 113458.

RESEARCH USE

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