SANTA CRUZ BIOTECHNOLOGY, INC.

Rb (Rb1): sc-73598

SANTA CRUZ BIOTECHNOLOGY

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. The retinoblastoma tumor suppressor gene product, known as Rb or pRb, regulates differentiation, apoptosis and cell cycle control by coordinating the cell cycle at G_1/S with transcriptional machinery that includes the heterodimeric E2F family. During G_1, 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

1. Weinberg, R.A. 1995. The retinoblastoma protein and cell cycle control. Cell 81: 323-330.
2. Bremner, R., et al. 1995. Direct transcriptional repression by pRB and its reversal by specific cyclins. Mol. Cell. Biol. 15: 3256-3265.

CHROMOSOMAL LOCATION

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

SOURCE

Rb (Rb1) is a mouse monoclonal antibody raised against retinoblastoma gene product β galactosidase fusion protein.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rb (Rb1) is available conjugated to agarose (sc-73598 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-73598 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-73598 PE), fluorescein (sc-73598 FITC) or Alexa Fluor® 488 (sc-73598 AF488) or Alexa Fluor® 647 (sc-73598 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

In addition, Rb (Rb1) is available conjugated to either TRITC (sc-73598 TRITC, 200 µg/ml) or Alexa Fluor® 405 (sc-73598 AF405, 200 µg/ml), for IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

Rb (Rb1) 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 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 flow cytometry (1 µg per 1 x 10^6 cells).

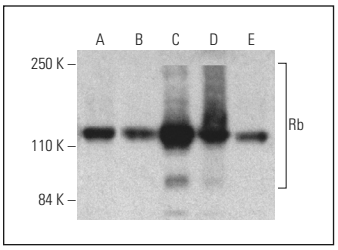
Suitable for use as control antibody for Rb siRNA (h): sc-29468, Rb siRNA (m): sc-29469, Rb shRNA Plasmid (h): sc-29468-SH, Rb shRNA Plasmid (m): sc-29469-SH, Rb shRNA (h) Lentiviral Particles: sc-29468-V and Rb shRNA (m) Lentiviral Particles: sc-29469-V.

Molecular Weight (predicted) of Rb: 106 kDa.

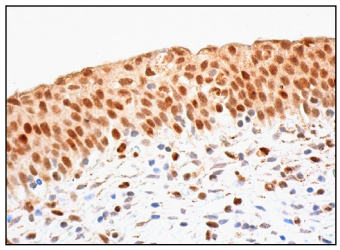
Molecular Weight (observed) of Rb: 107-140 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270, MOLT-4 cell lysate: sc-2233 or Jurkat whole cell lysate: sc-2204.

DATA



Rb (Rb1) HRP: sc-73598 HRP. Direct western blot analysis of Rb expression in HEL 92.1.7 (**A**), SK-MEL-28 (**B**), Jurkat (**C**), MOLT-4 (**D**) and Ramos (**E**) whole cell lysates.



Rb (Rb1): sc-73598. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of urothelial cells.

SELECT PRODUCT CITATIONS

1. Cheok, C.F., et al. 2010. Combination of nutlin-3 and VX-680 selectively targets p53 mutant cells with reversible effects on cells expressing wild-type p53. Cell Death Differ. 17: 1486-1500.
2. Tretina, K., et al. 2020. Theileria parasites subvert E2F signaling to stimulate leukocyte proliferation. Sci. Rep. 10: 3982.
3. Colapietro, A., et al. 2021. Multiple antitumor molecular mechanisms are activated by a fully synthetic and stabilized pharmaceutical product delivering the active compound sulforaphane (SFX-01) in preclinical model of human glioblastoma. Pharmaceuticals 14: 1082.
4. Li, Y., et al. 2022. Verteporfin inhibits the progression of spontaneous osteosarcoma caused by Trp53 and Rb1 deficiency in Ctsk-expressing cells via impeding Hippo pathway. Cells 11: 1361.

RESEARCH USE

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