

Rb (H-2): sc-74570

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.

CHROMOSOMAL LOCATION

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

SOURCE

Rb (H-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.

APPLICATIONS

Rb (H-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: EOC 20 whole cell lysate: sc-364187, NIH/3T3 whole cell lysate: sc-2210 or NIH/3T3 nuclear extract: sc-2138.

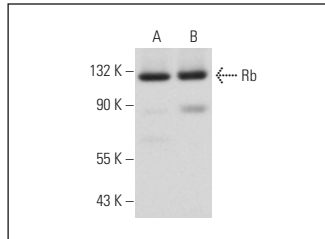
STORAGE

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

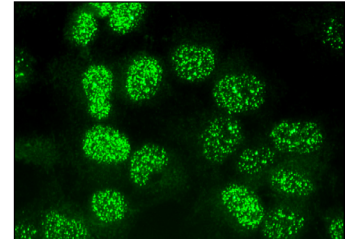
RESEARCH USE

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

DATA



Rb (H-2): sc-74570. Western blot analysis of Rb expression in EOC 20 (A) and NIH/3T3 (B) whole cell lysates.



Rb (H-2): sc-74570. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

- Cheng, Y.H., et al. 2015. Signaling pathways involved in megakaryocyte-mediated proliferation of osteoblast lineage cells. *J. Cell. Physiol.* 230: 578-586.
- Rajanahalli, P., et al. 2015. The effects of silver nanoparticles on mouse embryonic stem cell self-renewal and proliferation. *Toxicol. Rep.* 2: 758-764.
- Geisinger, J.M., et al. 2020. CRISPR/Cas9 treatment causes extended TP53-dependent cell cycle arrest in human cells. *Nucleic Acids Res.* 48: 9067-9081.
- Wei, T., et al. 2021. The *Mus musculus* papillomavirus type 1 E7 protein binds to the retinoblastoma tumor suppressor: implications for viral pathogenesis. *mBio* 12: e0227721.
- Spurgeon, M.E., et al. 2022. Merkel cell polyomavirus large T antigen binding to pRb promotes skin hyperplasia and tumor development. *PLoS Pathog.* 18: e1010551.
- Zhang, S., et al. 2022. The cell cycle inhibitor RB is diluted in G₁ and contributes to controlling cell size in the mouse liver. *Front. Cell Dev. Biol.* 10: 965595.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **Rb (IF8): sc-102** for Rb antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.