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RB Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1031a

Product Information

Application	IHC, E
Primary Accession	P06400
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	7E4B8
Isotype	IgG1
Calculated MW	106159
Description	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. Pediatric cancer retinoblastoma and the formation of other human tumors can be attributed to mutations in the retinoblastoma tumor suppressor gene(Rb).
Immunogen	Purified recombinant fragment of human RB expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	5925
Other Names	Retinoblastoma-associated protein, p105-Rb, pRb, Rb, pp110, RB1
Dilution	IHC~~1/200 - 1/1000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RB Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RB1

Function	Tumor suppressor that is a key regulator of the G1/S transition of the cell cycle (PubMed:10499802). The hypophosphorylated form binds transcription regulators of the E2F family, preventing transcription of E2F-responsive genes (PubMed:10499802). Both physically blocks E2Fs transactivating domain and recruits chromatin- modifying enzymes that actively repress transcription (PubMed:10499802). Cyclin and CDK-dependent phosphorylation of RB1 induces its dissociation from E2Fs, thereby activating transcription of E2F responsive genes and triggering entry into S phase (PubMed:10499802). RB1 also promotes the G0-G1 transition upon phosphorylation and activation by CDK3/cyclin-C (PubMed:15084261). Directly involved in heterochromatin formation by maintaining overall chromatin structure and, in particular, that of constitutive heterochromatin by stabilizing histone methylation. Recruits and targets histone methyltransferases SUV39H1, KMT5B and KMT5C, leading to epigenetic transcriptional repression. Controls histone H4 'Lys-20' trimethylation. Inhibits the intrinsic kinase activity of TAF1. Mediates transcriptional repression by SMARCA4/BRG1 by recruiting a histone deacetylase (HDAC) complex to the c-FOS promoter. In resting neurons, transcription of the c-FOS promoter is inhibited by BRG1- dependent recruitment of a phospho-RB1-HDAC1 repressor complex. Upon calcium influx, RB1 is dephosphorylated by calcineurin, which leads to release of the repressor complex (By similarity).
Cellular Location	Nucleus. Cytoplasm {ECO:0000250|UniProtKB:P13405}. Note=During keratinocyte differentiation, acetylation by KAT2B/PCAF is required for nuclear localization (PubMed:20940255). Localizes to the cytoplasm when hyperphosphorylated (By similarity). {ECO:0000250|UniProtKB:P13405, ECO:0000269|PubMed:20940255}
Tissue Location	Expressed in the retina. Expressed in foreskin keratinocytes (at protein level) (PubMed:20940255)

References

1. Oncogene 19: 562-570. 2. Cell 81: 323-330.

Images

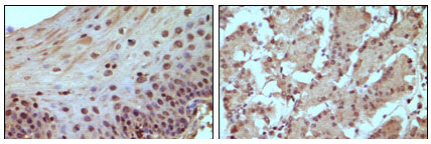

Figure 1: Immunohistochemical staining of paraffin-embedded human normal esophagus (A) and stomach (B) tissue, showing nucleus localization using Rb mouse mAb with DAB staining.