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Phospho-Rb(S788) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3238a

Product Information

Application	DB, IHC-P, E
Primary Accession	P06400
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB7670
Calculated MW	106159

Additional Information

Gene ID	5925
Other Names	Retinoblastoma-associated protein, p105-Rb, pRb, Rb, pp110, RB1
Target/Specificity	This Rb Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S788 of human Rb.
Dilution	DB~~1:500 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Phospho-Rb(S788) 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)

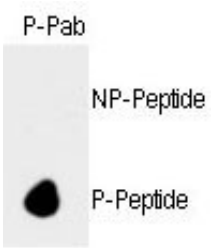
Background

RB1 likely acts as a regulator of other genes. It forms a complex with adenovirus E1A and with SV40 large T antigen, acts as a tumor suppressor, and may bind and modulate functionally certain cellular proteins with which T and E1A compete for pocket binding. RB1 is a potent inhibitor of E2F-mediated trans-activation, and also recruits and targets histone methyltransferase SUV39H1 leading to epigenetic transcriptional repression. This protein inhibits the intrinsic kinase activity of TAF1. Defects in RB1 are the cause of childhood cancer retinoblastoma (RB), a congenital malignant tumor that arises from the nuclear layers of the retina. Defects in RB1 are also a cause of bladder cancer and osteogenic sarcoma.

References

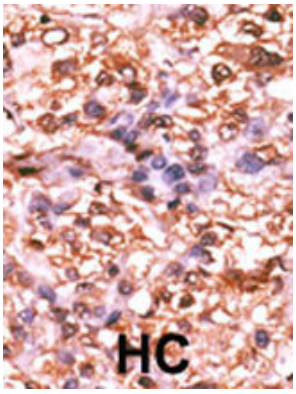
Wagner, S., et al., Biochem. Pharmacol. 69(7):1059-1067 (2005).
Roesch, A., et al., Mod. Pathol. 18(4):565-572 (2005).
Lieman, J.H., et al., J. Biol. Chem. 280(11):10484-10490 (2005).
Budde, A., et al., Oncogene 24(10):1802-1808 (2005).
Zapata, E., et al., FEBS J. 272(6):1343-1353 (2005).

Images



Dot blot analysis of anti-hRb-S788 Phospho-specific Pab (Cat. #AP3238a) on nitrocellulose membrane. 50ng of nonphospho-peptide or phospho-peptide were adsorbed on their respective dots. Antibody working concentration was 0.5ug per ml.

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was



peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- Molecular Determinants for the Inactivation of the Retinoblastoma Tumor Suppressor by the Viral Cyclin-dependent Kinase UL97.