

Product datasheet

Recombinant Human Rb protein ab169894

Overview

Product name	Recombinant Human Rb protein
Protein length	Protein fragment

Description

Nature	Recombinant
Source	Escherichia coli

Amino Acid Sequence

Accession [P06400](#)

Species Human

Sequence

MASMTGGQQMGRGHHHHHHGNLYFQGGEHTPVRTV
 MNTIQLMMILNSAS
 DQPSNLISYFNNCTVNPKESILKRVKDIGYFKEKFAKA
 VGQGCVEIGS
 QRYKLGVRLYRVMESMLKSEEEERLSIQNFSKLLNDNI
 FHMSLLACALEV
 VMATYSRSTSQNLDSGTDLSPWILNVLNLKAFDFYKV
 IESFIKAEGNLT
 REMIKHLERCEHRIMESLAWLSDSPLFDLIKQSKDREG
 PTDHLESACPLN
 LPLQNNHTAADMYLSPVRSPKKKGSTTRVNSTANAET
 QATSAFQTQKPLK
 STLSLFLYKKVYRLAYLRLNTLCERLLSEHPELEHIWTL
 FQHTLQNEYE
 LMRDRHLDQIMMCSMYGICKVKNIDLKFKIIVTAYKDLP
 HAVQETFKRVL
 IKEEYDSIIFYNSVFMQRLKTNILQYASTRPPTLSPIPHI
 PR

Molecular weight	51 kDa including tags
Amino acids	372 to 787
Tags	His-T7 tag N-Terminus

Specifications

Our [Abpromise guarantee](#) covers the use of **ab169894** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	SDS-PAGE
Purity	>90% by SDS-PAGE. ab169894 was expressed in E.coli as inclusion bodies. The final product was refolded and chromatographically purified.
Form	Liquid

Preparation and Storage

Stability and Storage	Shipped at 4°C. Upon delivery aliquot and store at -80°C. Avoid freeze / thaw cycles. pH: 8.00 Constituent: 0.32% Tris HCl Note: Contains NaCl, KCl, EDTA, arginine, DTT and glycerol.
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General Info

Function	Key regulator of entry into cell division that acts as a tumor suppressor. Promotes G0-G1 transition when phosphorylated by CDK3/cyclin-C. Acts as a transcription repressor of E2F1 target genes. The underphosphorylated, active form of RB1 interacts with E2F1 and represses its transcription activity, leading to cell cycle arrest. 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). In case of viral infections, interactions with SV40 large T antigen, HPV E7 protein or adenovirus E1A protein induce the disassembly of RB1-E2F1 complex thereby disrupting RB1's activity.
Tissue specificity	Expressed in the retina.
Involvement in disease	Childhood cancer retinoblastoma Bladder cancer Osteogenic sarcoma
Sequence similarities	Belongs to the retinoblastoma protein (RB) family.
Domain	The Pocket domain binds to the threonine-phosphorylated domain C, thereby preventing interaction with heterodimeric E2F/DP transcription factor complexes.
Post-translational modifications	Phosphorylated by CDK6 and CDK4, and subsequently by CDK2 at Ser-567 in G1, thereby releasing E2F1 which is then able to activate cell growth. Dephosphorylated at the late M phase. SV40 large T antigen, HPV E7 and adenovirus E1A bind to the underphosphorylated, active form of pRb. Phosphorylation at Thr-821 and Thr-826 promotes interaction between the C-terminal domain C and the Pocket domain, and thereby inhibits interactions with heterodimeric E2F/DP transcription factor complexes. Dephosphorylated at Ser-795 by calcineurin upon calcium stimulation. CDK3/cyclin-C-mediated phosphorylation at Ser-807 and Ser-811 is required for G0-G1 transition. Phosphorylated by CDK1 and CDK2 upon TGFB1-mediated apoptosis. N-terminus is methylated by METTL11A/NTM1 (By similarity). Monomethylation at Lys-810 by SMYD2 enhances phosphorylation at Ser-807 and Ser-811, and promotes cell cycle progression.

Monomethylation at Lys-860 by SMYD2 promotes interaction with L3MBTL1.

Acetylation at Lys-873 and Lys-874 regulates subcellular localization, at least during keratinocytes differentiation.

Cellular localization

Nucleus.

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