

Alexa Fluor® 647 anti-Rb Phospho (Ser795) Antibody

Catalog# / Size	640453 / 25 tests 640454 / 100 tests
Clone	A24001E
Regulatory Status	RUO
Other Names	RB1, Retinoblastoma-associated protein, p105-Rb, p110-RB1
Isotype	Mouse IgG1, κ
Description	The Retinoblastoma protein (Rb) is a tumor suppressor that regulates cell cycle progression from G1 phase into the S phase. This regulation is crucial for preventing uncontrolled cell proliferation, which can lead to cancer. Hence, mutations or dysfunctions in the RB1 gene are associated with several cancers including retinoblastoma, lung, bladder, and breast cancers. Phosphorylation at serine 795 of the Rb protein plays a crucial role in regulating its function. The serine 795 phosphorylation leads to Rb dissociation from E2F transcription factor and allowing E2F to induce the transcription of cell cycle genes. This regulatory mechanism is vital for normal cell function and its dysregulation can contribute to cancer development.

Product Details

Verified Reactivity	Human
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	Synthetic peptide of human Rb phosphorylated at serine 795
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and BSA (origin USA)
Preparation	The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 647 under optimal conditions.
Concentration	Lot-specific (to obtain lot-specific concentration and expiration, please enter the lot number in our Certificate of Analysis online tool.)
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
Application	ICFC - Quality tested
Recommended Usage	Each lot of this antibody is quality control tested by intracellular immunofluorescent staining with flow cytometric analysis . For flow cytometric staining, the suggested use of this reagent is 5 µL per million cells in 100 µL staining volume or 5 µL per 100 µL of whole blood. It is recommended that the reagent be titrated for optimal performance for each application. * Alexa Fluor® 647 has a maximum emission of 668 nm when it is excited at 633 nm / 635 nm. Alexa Fluor® and Pacific Blue™ are trademarks of Life Technologies Corporation. View full statement regarding label licenses
Excitation Laser	Red Laser (633 nm)
Additional Product Notes	For intracellular flow cytometry (ICFC) staining fixation and permeabilization we recommend use True-Phos™ Perm Buffer Set (Cat. No. 425401). Fixation/permeabilization using Cyto-Fast™ Fix/Perm buffer Set (Cat. No. 426803) or True-Nuclear™ Transcription Factor Buffer Set (Cat. No. 424401) showed reduced mean fluorescence intensity (MFI).
RRID	AB_3720506 (BioLegend Cat. No. 640453)

Antigen Details

Structure	The Rb protein is 928 amino acids in length and has a molecular weight of approximately 106 kDa.
Distribution	Nucleus, cytoplasmic during keratinocyte differentiation
Function	• Tumor Suppression: Rb acts as a tumor suppressor by inhibiting excessive cell growth and proliferation. • Cell Cycle Regulation: Rb controls progression from the G1 phase to the S phase of the cell cycle by binding to and inhibiting E2F transcription factors. • Transcription Regulation: Rb regulates the transcription of genes necessary for DNA synthesis and cell cycle progression. • Apoptosis: Rb can also induce apoptosis under certain conditions, contributing to its role in preventing cancer.
Interaction	• E2F Transcription Factors: Rb binds to E2F transcription factors, inhibiting their activity and preventing the transcription of genes required for cell cycle progression. • DP Proteins: Rb also interacts with DP proteins, which form heterodimers with E2F, enhancing the regulation of E2F activity. • Cyclin-Dependent Kinases (CDKs): CDKs phosphorylate Rb, leading to its inactivation and allowing the cell cycle to progress. • Histone Deacetylases (HDACs): Rb recruits HDACs to E2F target genes, leading to chromatin remodeling and transcriptional repression. • Chromatin Remodeling Enzymes: Rb interacts with various chromatin remodeling enzymes, such as methylases and acetylases, to regulate gene expression.
Biology Area	Apoptosis/Tumor Suppressors/Cell Death, Cancer Biomarkers, Cell Biology, Cell Cycle/DNA Replication, Cell Death, Cell Proliferation and Viability, DNA Repair/Replication, Signal Transduction, Transcription Factors
Molecular Family	Phospho-Proteins, Tumor Suppressors
Antigen References	1. Rezaeian A, <i>et al.</i> 2023. <i>Adv Protein Chem Struct Biol.</i> 135:179. 2. Janostiak R, <i>et al.</i> 2022. <i>Cancers (Basel).</i> 14:1265. 3. Indovina P, <i>et al.</i> 2015. <i>Oncotarget.</i> 6:17873. 4. Linn P, <i>et al.</i> 2021. <i>Cancers (Basel).</i> 13:3737.
Regulation	• Phosphorylation: Rb is regulated by phosphorylation, particularly by cyclin-dependent kinases (CDKs). Phosphorylation at specific sites, such as serine 795, inactivates Rb, allowing cell cycle progression. • Dephosphorylation: Dephosphorylation of Rb reactivates its tumor suppressor functions, inhibiting cell cycle progression. • Gene Mutations: Mutations in the RB1 gene can lead to loss of Rb function, contributing to the development of cancers such as retinoblastoma, lung, bladder, and breast cancers.
Gene ID	5925

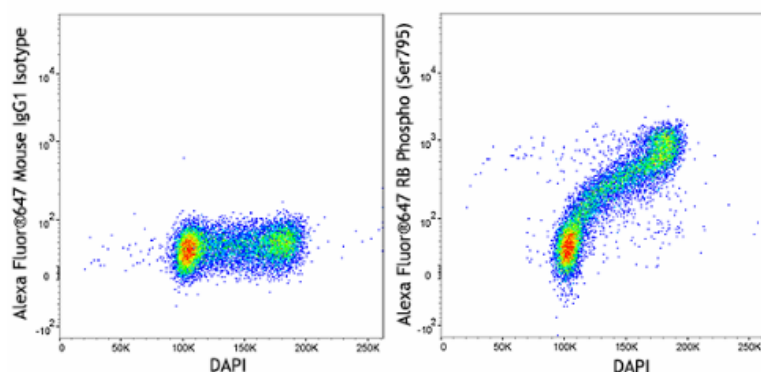
Related Protocols

- [Intracellular Flow Cytometry Staining Protocol](#)

Other Formats

Purified anti-Rb Phospho (Ser795), Alexa Fluor® 647 anti-Rb Phospho (Ser795), PE anti-Rb Phospho (Ser795)

Product Data



HeLa cells treated with Nocodazole to arrest cell cycle at G2/M and induce phosphorylated, were fixed and permeabilized using the True-Phos™ Perm Buffer Set (Cat. No. 425401) and intracellularly stained with Alexa Fluor® 647 anti-RB Phospho (Ser795) (clone A24001E) (right panel) or Alexa Fluor® 647 Mouse IgG1, κ isotype control Isotype Control (Cat. No. 400155) (left panel). Cell cycle analysis was performed by DAPI staining (Cat. No. 422801).

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