

Alexa Fluor® 647 anti-RSK1 Phospho (Ser380) Antibody

Catalog# / Size	692153 / 25 tests 692154 / 100 tests
Clone	A23014F
Regulatory Status	RUO
Other Names	MAPKAPK1, P90Rsk, MAP Kinase-Activated Protein Kinase 1a, 90 KDa Ribosomal Protein S6 Kinase 1, Ribosomal Protein S6 Kinase Alpha-1, MAPKAP Kinase 1a
Isotype	Mouse IgG2b, κ
Description	RSK1 (ribosomal S6 kinase 1) is a serine/threonine kinase that plays a pivotal role in various cellular processes, including cell growth, survival, and proliferation. It is activated by the ERK/MAPK signaling pathway and subsequently phosphorylates a range of substrates involved in transcription, translation, and cell cycle regulation. RSK1 is particularly important in cancer biology, where its aberrant activation is linked to the progression of several malignancies, including breast, prostate, and lung cancers. Additionally, RSK1 is implicated in cardiovascular diseases and inflammatory responses. Phosphorylation at serine 380 is crucial for RSK1 full activation. This modification creates a docking site for PDK1, which further phosphorylates RSK1, leading to its complete activation and enabling it to phosphorylate downstream targets. Dysregulation of this phosphorylation event can disrupt normal cellular functions and contribute to disease pathogenesis.

Product Details

Verified Reactivity	Human
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	Synthetic peptide of human RSK1 phosphorylated at Ser380
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 flow cytometry using our Cyto-Fast™ Fix/Perm Buffer Set. For flow cytometric staining, the suggested use of this reagent is 5 µL per 10⁶ cells in 100 µL volume. It is highly 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) we recommend CytoFast™ Fix/Perm Buffer Set (Cat. No. 426803) or True-Phos™ Perm Buffer (Cat. No. 425401) for fixation and permeabilization.

Antigen Details

Structure	The RSK1 protein consists of 735 amino acids with a molecular weight of approximately 83 kDa.
Distribution	RSK1 is primarily located in the cytoplasm and nucleus of the cell. Upon activation translocates from the cytoplasm to the nucleus.
Function	• Cell Growth and Proliferation: By phosphorylating and activating transcription factors such as c-Fos and serum response factor (SRF), RSK1 promotes cell growth and proliferation. • Cell Survival: RSK1 enhances cell survival by phosphorylating and inhibiting proapoptotic proteins like BAD, thereby preventing apoptosis. • Protein Synthesis: It also phosphorylates ribosomal protein S6, which is involved in the initiation of protein synthesis.
Interaction	• ERK1/2: RSK1 is activated by ERK1/2 through phosphorylation, which is a critical step in the ERK/MAPK signaling pathway. • PDK1: Phosphorylation by PDK1 at serine 380 is essential for the full activation of RSK1. • CREB-binding protein (CBP): RSK1 interacts with CBP, a transcriptional coactivator, to regulate gene expression. • Fibronectin1: RSK1 modulates the expression of Fibronectin1, affecting cell adhesion. • CDK2: RSK1 influences the expression of CDK2, impacting cell cycle progression and DNA replication. • mTORC1 components: RSK1 phosphorylates and regulates components of the mTORC1 complex, such as Raptor, promoting cell growth and metabolism
Biology Area	Cancer Biomarkers, Cell Adhesion, Cell Biology, Cell Cycle/DNA Replication, Cell Motility/Cytoskeleton/Structure, Neuroscience
Molecular Family	Phospho-Proteins, Protein Kinases/Phosphatase

Antigen References

1. Wu W, *et al.* 2024. *Breast Cancer Research*. 26:146.
2. Lara R, *et al.* 2013. *Cancer Res*. 73:5301-8.
3. Mao S, *et al.* 2022. *PLoS Biology*. 3001653.
4. Anjum R, *et al.* 2008. *Nature Reviews Molecular Cell Biology*. 9:747-58.

Regulation

- **Phosphorylation:** Activation of RSK1 involves a series of phosphorylation events. ERK phosphorylates RSK1, leading to its activation. A critical phosphorylation site is serine 380, which creates a docking site for PDK1, further phosphorylating and fully activating RSK1.
- **Subcellular Localization:** RSK1 shuttles between the cytoplasm and the nucleus, allowing it to phosphorylate different substrates depending on its location.
- **Feedback Mechanisms:** RSK1 activity is also regulated by feedback loops within the ERK/MAPK pathway, ensuring balanced cellular responses.
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Gene ID

[6195](#)

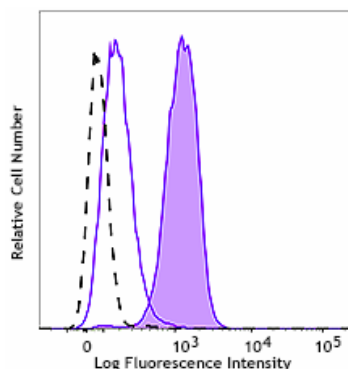
Related Protocols

- [Intracellular Flow Cytometry Staining Protocol](#)

Other Formats

Purified anti-RSK1 Phospho (Ser380), Alexa Fluor® 647 anti-RSK1 Phospho (Ser380)

Product Data



Serum-starved Jurkat cells untreated (negative cell line, open histogram) or treated with PMA (positive cell line, filled histogram) were fixed and permeabilized using Cyto-Fast™ Fix/Perm Buffer Set (Cat. No. 426803) and intracellularly stained with Alexa Fluor® 647 anti-RSK1 Phospho Ser 380 (clone A23014F) or Alexa Fluor® 647 Mouse IgG2b, κ Isotype Control Antibody (open histogram, dashed line. Representative for both treated and untreated) (Cat No. 400330).

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