

**RSK1 Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1109a****Specification**

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**RSK1 Antibody - Product Information**

Application	<b>WB, IHC</b>
Primary Accession	<a href="#">O15418</a>
Reactivity	<b>Human</b>
Host	<b>Mouse</b>
Clonality	<b>Monoclonal</b>
Isotype	<b>IgG2b</b>

**Description**

Rsk1 is a member of a family of 90kDa ribosomal protein S6 kinases, which includes Rsk1, Rsk2 and Rsk3. These are broadly expressed serine / threonine protein kinases activated in response to mitogenic stimuli, including extracellular signal regulated protein kinases Erk1 and Erk2. Rsk1 is activated by MAPK in vitro and in vivo via phosphorylation. Active Rsk1 appear to play a major role in transcriptional regulation by translocating to the nucleus and phosphorylating c-Fos and CREB. RSK proteins possess two separate kinase domains, the C terminal kinase domain and the N terminal kinase domain, separated by a linker region containing a hydrophobic motif. RSK is activated by many stimuli including growth factors, phorbol esters, cAMP, heat shock, and irradiation.

**Immunogen**

Purified recombinant fragment of human RSK1 expressed in E. Coli.

**Formulation**

Ascitic fluid containing 0.03% sodium azide.

**RSK1 Antibody - Additional Information**

**Gene ID** 6195

**Other Names**

Ribosomal protein S6 kinase alpha-1, S6K-alpha-1, 2.7.11.1, 90 kDa ribosomal protein S6 kinase 1, p90-RSK 1, p90RSK1, p90S6K, MAP kinase-activated protein kinase 1a, MAPK-activated protein kinase 1a, MAPKAP kinase 1a, MAPKAPK-1a, Ribosomal S6 kinase 1, RSK-1, RPS6KA1, MAPKAPK1A, RSK1

**Dilution**

WB~~1/500 - 1/2000

IHC~~1/500 - 1/2000

**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**

RSK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## RSK1 Antibody - Protein Information

**Name** RPS6KA1

**Synonyms** MAPKAPK1A, RSK1

### Function

Serine/threonine-protein kinase that acts downstream of ERK (MAPK1/ERK2 and MAPK3/ERK1) signaling and mediates mitogenic and stress-induced activation of the transcription factors CREB1, ETV1/ER81 and NR4A1/NUR77, regulates translation through RPS6 and EIF4B phosphorylation, and mediates cellular proliferation, survival, and differentiation by modulating mTOR signaling and repressing pro- apoptotic function of BAD and DAPK1 (PubMed:<a href="http://www.uniprot.org/citations/10679322" target="\_blank">10679322</a>, PubMed:<a href="http://www.uniprot.org/citations/12213813" target="\_blank">12213813</a>, PubMed:<a href="http://www.uniprot.org/citations/15117958" target="\_blank">15117958</a>, PubMed:<a href="http://www.uniprot.org/citations/16223362" target="\_blank">16223362</a>, PubMed:<a href="http://www.uniprot.org/citations/17360704" target="\_blank">17360704</a>, PubMed:<a href="http://www.uniprot.org/citations/18722121" target="\_blank">18722121</a>, PubMed:<a href="http://www.uniprot.org/citations/26158630" target="\_blank">26158630</a>, PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">35772404</a>, PubMed:<a href="http://www.uniprot.org/citations/9430688" target="\_blank">9430688</a>). In fibroblast, is required for EGF-stimulated phosphorylation of CREB1, which results in the subsequent transcriptional activation of several immediate-early genes (PubMed:<a href="http://www.uniprot.org/citations/18508509" target="\_blank">18508509</a>, PubMed:<a href="http://www.uniprot.org/citations/18813292" target="\_blank">18813292</a>). In response to mitogenic stimulation (EGF and PMA), phosphorylates and activates NR4A1/NUR77 and ETV1/ER81 transcription factors and the cofactor CREBBP (PubMed:<a href="http://www.uniprot.org/citations/12213813" target="\_blank">12213813</a>, PubMed:<a href="http://www.uniprot.org/citations/16223362" target="\_blank">16223362</a>). Upon insulin-derived signal, acts indirectly on the transcription regulation of several genes by phosphorylating GSK3B at 'Ser-9' and inhibiting its activity (PubMed:<a href="http://www.uniprot.org/citations/18508509" target="\_blank">18508509</a>, PubMed:<a href="http://www.uniprot.org/citations/18813292" target="\_blank">18813292</a>). Phosphorylates RPS6 in response to serum or EGF via an mTOR-independent mechanism and promotes translation initiation by facilitating assembly of the pre-initiation complex (PubMed:<a href="http://www.uniprot.org/citations/17360704" target="\_blank">17360704</a>). In response to insulin, phosphorylates EIF4B, enhancing EIF4B affinity for the EIF3 complex and stimulating cap- dependent translation (PubMed:<a href="http://www.uniprot.org/citations/16763566" target="\_blank">16763566</a>). Is involved in the mTOR nutrient-sensing pathway by directly phosphorylating TSC2 at 'Ser- 1798', which potently inhibits TSC2 ability to suppress mTOR signaling, and mediates phosphorylation of RPTOR, which regulates mTORC1 activity and may promote rapamycin-sensitive signaling independently of the PI3K/AKT pathway (PubMed:<a href="http://www.uniprot.org/citations/15342917" target="\_blank">15342917</a>). Also involved in feedback regulation of mTORC1 and mTORC2 by phosphorylating DEPTOR (PubMed:<a href="http://www.uniprot.org/citations/22017876" target="\_blank">22017876</a>). Mediates cell survival by phosphorylating the pro- apoptotic proteins BAD and DAPK1 and suppressing their pro-apoptotic function (PubMed:<a href="http://www.uniprot.org/citations/10679322" target="\_blank">10679322</a>, PubMed:<a href="http://www.uniprot.org/citations/16213824" target="\_blank">16213824</a>). Promotes the survival of hepatic stellate cells by phosphorylating CEBPB in response to the hepatotoxin carbon tetrachloride (CCl4) (PubMed:<a href="http://www.uniprot.org/citations/11684016" target="\_blank">11684016</a>). Mediates induction of hepatocyte proliferation by TGFA through phosphorylation of CEBPB (PubMed:<a href="http://www.uniprot.org/citations/18508509" target="\_blank">18508509</a>, PubMed:<a href="http://www.uniprot.org/citations/18813292" target="\_blank">18813292</a>). Is involved in cell cycle regulation by phosphorylating the CDK inhibitor CDKN1B, which promotes CDKN1B

association with 14-3-3 proteins and prevents its translocation to the nucleus and inhibition of G1 progression (PubMed:<a href="http://www.uniprot.org/citations/18508509" target="\_blank">18508509</a>, PubMed:<a href="http://www.uniprot.org/citations/18813292" target="\_blank">18813292</a>). Phosphorylates EPHA2 at 'Ser-897', the RPS6KA-EPHA2 signaling pathway controls cell migration (PubMed:<a href="http://www.uniprot.org/citations/26158630" target="\_blank">26158630</a>). In response to mTORC1 activation, phosphorylates EIF4B at 'Ser-406' and 'Ser-422' which stimulates bicarbonate cotransporter SLC4A7 mRNA translation, increasing SLC4A7 protein abundance and function (PubMed:<a href="http://www.uniprot.org/citations/35772404" target="\_blank">35772404</a>).

#### Cellular Location

Nucleus. Cytoplasm.

#### RSK1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### RSK1 Antibody - Images

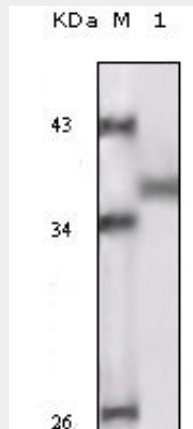


Figure 1: Western blot analysis using RSK1 mouse mAb against truncated RSK1 recombinant protein.

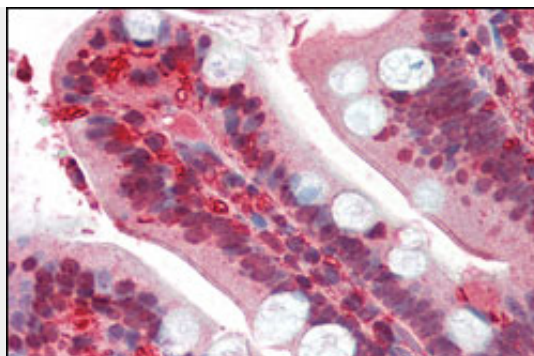


Figure 2: Immunohistochemical analysis of paraffin-embedded human small intestine tissues using RSK1 mouse mAb.

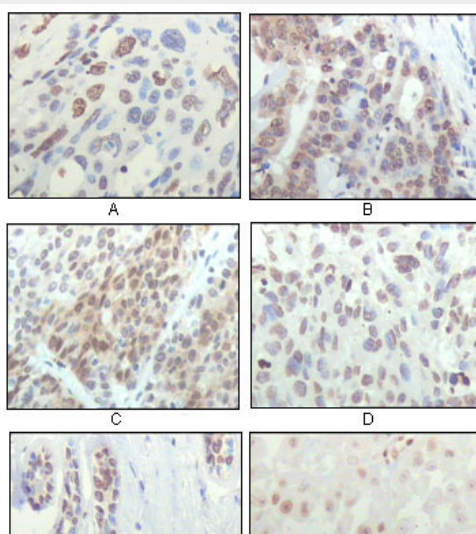


Figure 2: Immunohistochemical analysis of paraffin-embedded human esophageal squamous cell carcinoma (A), colon adenocarcinoma (B), liver carcinoma (C), skin carcinoma (D), breast ductal tumor (E) and brain tumor (F), showing nuclear localization using RSK1 mouse mAb with DAB staining.

#### **RSK1 Antibody - References**

1. Alcorta, D.A., et al. 1989. Mol. Cell. Biol. 9:3850-3859.
2. Sweet, L.J., et al. 1990. Mol. Cell. Biol. 10: 2413-2417.