abcam

ab32114

Anti-RSK1 p90 antibody [E4]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	E4
Purification technique	Affinity purification Protein A
Concentration	1.551 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/70
Notes	**For unpurified format use at 1/10 dilution.**

Expected

Species	Mouse
Dilution info	1/70
Notes	**For unpurified format use at 1/10 dilution.**

Species	Rat
Dilution info	1/70
Notes	**For unpurified format use at 1/10 dilution.**

Predicted

Species	Pig
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Predicted

Species	Pig
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/150 - 1/200
Notes	-

Expected

Species	Rat
Dilution info	1/150 - 1/200
Notes	-

Species	Mouse
Dilution info	1/150 - 1/200
Notes	-

Predicted

Species	Pig
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	1/100 - 1/1000

Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	1/100 - 1/1000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Pig
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Not recommended

Species	Mouse, Rat, Pig
Dilution info	-
Notes	-

Target data

See full target information RPS6KA1

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:10679322, PubMed:12213813, PubMed:15117958, PubMed:16223362, PubMed:17360704, PubMed:18722121, PubMed:26158630, PubMed:35772404, PubMed:9430688). In

fibroblast, is required for EGF-stimulated phosphorylation of CREB1, which results in the subsequent transcriptional activation of several immediate-early genes (PubMed:18508509, PubMed:18813292). In response to mitogenic stimulation (EGF and PMA), phosphorylates and activates NR4A1/NUR77 and ETV1/ER81 transcription factors and the cofactor CREBBP (PubMed:12213813, PubMed:16223362). Upon insulin-derived signal, acts indirectly on the transcription regulation of several genes by phosphorylating GSK3B at 'Ser-9' and inhibiting its activity (PubMed:18508509, PubMed:18813292). 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:17360704). In response to insulin, phosphorylates EIF4B, enhancing EIF4B affinity for the EIF3 complex and stimulating cap-dependent translation (PubMed:16763566). 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:15342917). Also involved in feedback regulation of mTORC1 and mTORC2 by phosphorylating DEPTOR (PubMed:22017876). Mediates cell survival by phosphorylating the pro-apoptotic proteins BAD and DAPK1 and suppressing their pro-apoptotic function (PubMed:10679322, PubMed:16213824). Promotes the survival of hepatic stellate cells by phosphorylating CEBPB in response to the hepatotoxin carbon tetrachloride (CCl4) (PubMed:11684016). Mediates induction of hepatocyte prolifration by TGFA through phosphorylation of CEBPB (PubMed:18508509, PubMed:18813292). 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:18508509, PubMed:18813292). Phosphorylates EPHA2 at 'Ser-897', the RPS6KA-EPHA2 signaling pathway controls cell migration (PubMed:26158630). 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:35772404). (Microbial infection) Promotes the late transcription and translation of viral lytic genes during Kaposi's sarcoma-associated herpesvirus/HHV-8 infection, when constitutively activated.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	RSK1 also known as p90 ribosomal S6 kinase 1 or p90RSK is a serine/threonine kinase with an approximate mass of 90 kDa. It belongs to the family of proteins that integrate signals from various extracellular stimuli. This kinase is expressed in diverse tissues including brain lung liver and skeletal muscle. At the molecular level RSK1 phosphorylates various target proteins that are involved in regulating cellular growth and survival. Its activity is regulated by phosphorylation events that occur at specific sites such as Serine 238 (E238 in some literature) which are critical for its function.
Biological function summary	RSK1 plays a fundamental role in cell proliferation and differentiation in the context of the p90 protein weight. It is an important component of the mitogen-activated protein kinase (MAPK) signaling pathway and forms part of multi-protein complexes that facilitate its activation and function. RSK1 influences various biological processes by phosphorylating transcription factors histone proteins and other kinases thereby regulating gene expression and protein synthesis. These actions highlight its influence in maintaining cellular homeostasis.
Pathways	RSK1 p90 interacts significantly with the MAPK/ERK and PI3K/AKT pathways. It acts downstream of ERK where it receives activating signals that enable it to phosphorylate substrates within the cell. This role supports its interaction with proteins like Akt and mTOR which are critical mediators of cell growth signals. The interplay between these pathways enables cells to respond to growth factors and stress contributing to the regulation of development and metabolism.
Associated diseases and disorders	RSK1 is implicated in the progression of cancer and neurological disorders. In cancer abnormal RSK1 signaling can lead to unchecked cell growth and survival where it often interfaces with proteins such as C-RAF and BCL-2 to promote oncogenic pathways. In neurological disorders RSK1 influences pathways that regulate neuron survival and plasticity connecting it to proteins like CREB. Understanding RSK1's role in these conditions can provide insight into targeted therapies that may mitigate these diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

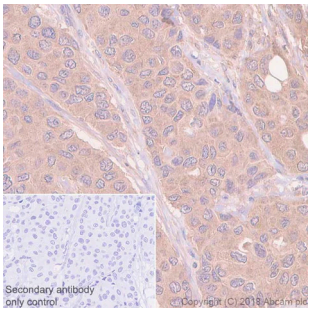
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

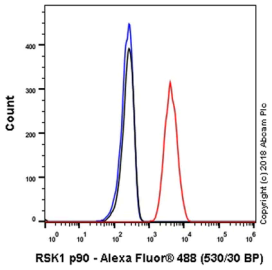
Full details and terms and conditions can be found here:
Terms & Conditions.

9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RSK1 p90 antibody [E4] (ab32114)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human breast cancer tissue sections labeling RSK1 p90 with purified ab32114 at 1/100 dilution (15.4 µg/ml). Heat mediated antigen retrieval was performed using heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

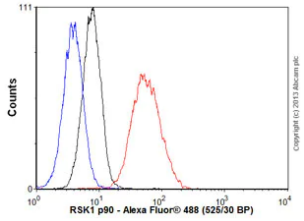


Flow Cytometry (Intracellular) - Anti-RSK1 p90 antibody [E4] (ab32114)

RSK1 p90 Flow Cytometry (Intracellular) staining using rabbit Anti-RSK1 p90 antibody

Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling RSK1 p90 with purified ab32114 at 1/150 dilution (10µg/ml) (red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG

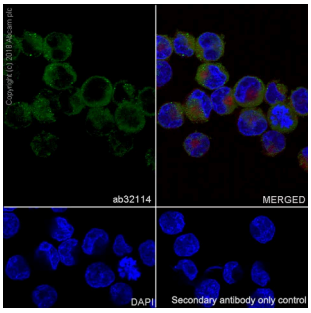
(Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Flow Cytometry (Intracellular) - Anti-RSK1 p90 antibody [E4] (ab32114)

RSK1 p90 Flow Cytometry (Intracellular) staining using rabbit Anti-RSK1 p90 antibody

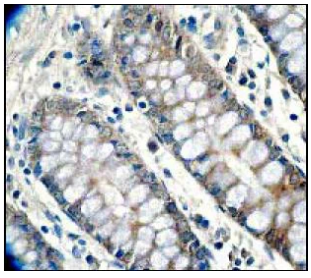
Overlay histogram showing HeLa cells stained with (unpurified)ab32114 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab32114, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-RSK1 p90 antibody [E4] (ab32114)

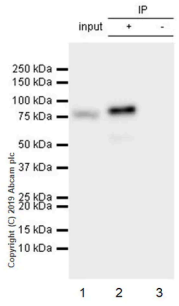
RSK1 p90 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RSK1 p90 antibody

Immunocytochemistry/ Immunofluorescence analysis of K-562 (Human chronic myelogenous leukemia lymphoblast) cells labeling RSK1 p90 with purified ab32114 at 1/150 dilution (10 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RSK1 p90 antibody [E4] (ab32114)

ab32114 (unpurified), at a 1/100 dilution, staining RSK1 p90 in paraffin embedded human colon tissue by immunohistochemistry.

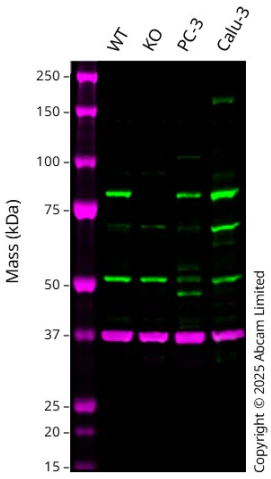


Immunoprecipitation - Anti-RSK1 p90 antibody [E4] (ab32114)

ab32114 (purified) at 1/70 dilution (2ug) immunoprecipitating RSK1 p90 in K-562 whole cell lysate.
K-562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysate 10ug
Lane 2 (+): ab32114 & K-562 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab32114 in K-562 whole cell lysate
For western blotting, VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:

Immunoprecipitation - Anti-RSK1 p90 antibody [E4] (ab32114)

Predicted band size: 82 kDa



Western blot - Anti-RSK1 p90 antibody [E4] (ab32114)

RSK1 p90 Western blot staining using rabbit Anti-RSK1 p90 antibody

Western blot: Anti-RSK1 p90 antibody [E4] ab32114 staining at 1/500 dilution, shown in green; Mouse anti GAPDH (ab8245) loading control staining at 1/20,000 dilution, shown in magenta. A band was observed at 83 kDa in Wild-type MCF7 cell lysates with no signal observed at this size in RPS6KA1 knockout MCF7 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-RSK1 p90 antibody [E4] (ab32114) at 1/500 dilution

Lane 1:
Wild-type MCF7 at 20 µg

Lane 2:
Western blot - Human RPS6KA1 knockout MCF7 cell line (ab289311) at 20 µg

Lane 3:
PC-3 at 20 µg

Lane 4:
Calu-3 at 20 µg

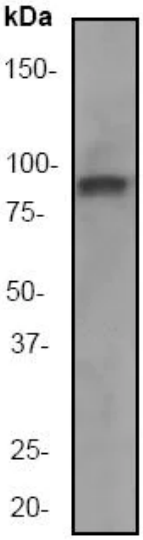
Secondary

Lanes 1 - 4:
Goat anti-Rabbit 800CW at 1/20000 dilution

Lanes 1 - 4:
Goat anti-Mouse 680RD at 1/20000 dilution

Predicted band size: 83 kDa

Observed band size: 83 kDa, 37 kDa



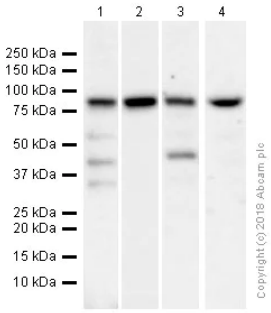
Western blot - Anti-RSK1 p90 antibody [E4] (ab32114)

All lanes:
Western blot - Anti-RSK1 p90 antibody [E4] (ab32114) at 1/1000 dilution

All lanes:
MCF7 cell lysate at 10 µg

Predicted band size: 82 kDa

Observed band size: 90 kDa



Western blot - Anti-RSK1 p90 antibody [E4] (ab32114)

All lanes:
Western blot - Anti-RSK1 p90 antibody [E4] (ab32114) at 1/1000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
K-562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

Lane 3:
Mouse lung lysates at 20 µg

Lane 4:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysates at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 82 kDa

Observed band size: 83 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.