



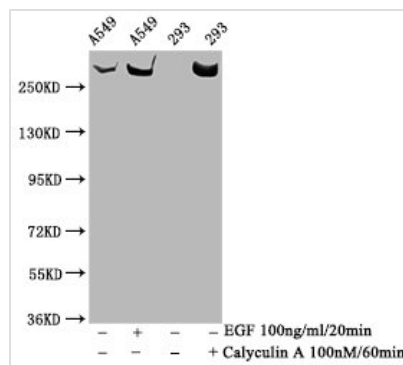
# Phospho-MTOR (S2481) Antibody

<b>Product Code</b>	CSB-RA008968A2481pHU
<b>Abbreviation</b>	Serine/threonine-protein kinase mTOR
<b>Storage</b>	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
<b>Uniprot No.</b>	P42345
<b>Immunogen</b>	A synthesized peptide derived from Human Phospho-MTOR (S2481)
<b>Species Reactivity</b>	Human
<b>Tested Applications</b>	ELISA, WB, IF; Recommended dilution: WB:1:500-1:5000, IF:1:20-1:200
<b>Relevance</b>	<p>Serine/threonine protein kinase which is a central regulator of cellular metabolism, growth and survival in response to hormones, growth factors, nutrients, energy and stress signals. mTOR directly or indirectly regulates the phosphorylation of at least 800 proteins. Functions as part of 2 structurally and functionally distinct signaling complexes mTORC1 and mTORC2 (mTOR complex 1 and 2). Activated mTORC1 up-regulates protein synthesis by phosphorylating key regulators of mRNA translation and ribosome synthesis. This includes phosphorylation of EIF4EBP1 and release of its inhibition toward the elongation initiation factor 4E (eIF4E). Moreover, phosphorylates and activates RPS6KB1 and RPS6KB2 that promote protein synthesis by modulating the activity of their downstream targets including ribosomal protein S6, eukaryotic translation initiation factor EIF4B, and the inhibitor of translation initiation PDCD4. Stimulates the pyrimidine biosynthesis pathway, both by acute regulation through RPS6KB1-mediated phosphorylation of the biosynthetic enzyme CAD, and delayed regulation, through transcriptional enhancement of the pentose phosphate pathway which produces 5-phosphoribosyl-1-pyrophosphate (PRPP), an allosteric activator of CAD at a later step in synthesis, this function is dependent on the mTORC1 complex. Regulates ribosome synthesis by activating RNA polymerase III-dependent transcription through phosphorylation and inhibition of MAF1 an RNA polymerase III-repressor. In parallel to protein synthesis, also regulates lipid synthesis through SREBF1/SREBP1 and LPIN1. To maintain energy homeostasis mTORC1 may also regulate mitochondrial biogenesis through regulation of PPARGC1A. mTORC1 also negatively regulates autophagy through phosphorylation of ULK1. Under nutrient sufficiency, phosphorylates ULK1 at 'Ser-758', disrupting the interaction with AMPK and preventing activation of ULK1. Also prevents autophagy through phosphorylation of the autophagy inhibitor DAP. mTORC1 exerts a feedback control on upstream growth factor signaling that includes phosphorylation and activation of GRB10 a INSR-dependent signaling suppressor. Among other potential targets mTORC1 may phosphorylate CLIP1 and regulate microtubules. As part of the mTORC2 complex mTOR may regulate other cellular processes including survival and organization of the cytoskeleton. Plays a critical role in the phosphorylation at 'Ser-473' of AKT1, a pro-survival effector of phosphoinositide 3-kinase, facilitating its activation by PDK1. mTORC2 may regulate the actin cytoskeleton, through phosphorylation of PRKCA, PXN and activation of the Rho-type guanine nucleotide exchange</p>



factors RHOA and RAC1A or RAC1B. mTORC2 also regulates the phosphorylation of SGK1 at 'Ser-422' (PubMed:12087098, PubMed:12150925, PubMed:12150926, PubMed:12231510, PubMed:12718876, PubMed:14651849, PubMed:15268862, PubMed:15467718, PubMed:15545625, PubMed:15718470, PubMed:18497260, PubMed:18762023, PubMed:18925875, PubMed:20516213, PubMed:20537536, PubMed:21659604, PubMed:23429703, PubMed:23429704, PubMed:25799227, PubMed:26018084). Regulates osteoclastogenesis by adjusting the expression of CEBPB isoforms (By similarity).

<b>Form</b>	Liquid
<b>Conjugate</b>	Non-conjugated
<b>Storage Buffer</b>	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
<b>Purification Method</b>	Affinity-chromatography
<b>Isotype</b>	Rabbit IgG
<b>Clonality</b>	Monoclonal
<b>Alias</b>	Serine/threonine-protein kinase mTOR, FK506-binding protein 12-rapamycin complex-associated protein 1, FKBP12-rapamycin complex-associated protein, Mammalian target of rapamycin, mTOR, Mechanistic target of rapamycin, Rapamycin and FKBP12 target 1, Rapamycin target protein 1, MTOR, FRAP, FRAP1, FRAP2, RAFT1, RAPT1
<b>Immunogen Species</b>	Homo sapiens (Human)
<b>Research Area</b>	Cell Biology
<b>Gene Names</b>	MTOR
<b>Accession NO.</b>	3H11

**Image**

**Western Blot**

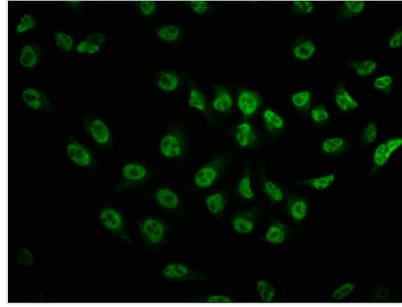
Positive WB detected in A549 whole cell lysate, 293 whole cell lysate (treated with Calyculin A or EGF)

All lanes Phospho-MTOR antibody at 1.33µg/ml  
Secondary

Goat polyclonal to rabbit IgG at 1/50000 dilution

Predicted band size: 289 KDa

Observed band size: 289 KDa



Immunofluorescence staining of HeLa cells with CSB-RA008968A2481pH1U at 1:100, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. The secondary antibody was Alexa Fluor 488-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).

## Description

The vectors expressing anti-MTOR antibody were constructed as follows: immunizing an animal with a synthesized peptide derived from human Phospho-MTOR (S2481), isolating the positive splenocyte and extracting RNA, obtaining DNA by reverse transcription, sequencing and screening MTOR antibody gene, and amplifying heavy and light chain sequence by PCR and cloning them into plasma vectors. After that, the vector clones were transfected into the mammalian cells for production. The product is the recombinant MTOR antibody. Recombinant MTOR antibody in the culture medium was purified using affinity-chromatography. It can react with MTOR protein from Human and is used in the ELISA, WB, IF.

The protein encoded by mTOR belongs to the phosphatidylinositol kinase-related kinase family. These kinases mediate cellular responses to stress, such as DNA damage and nutrient starvation. According to some studies, MTOR may have the following features.

mTOR has come a long way from its humble beginnings as a kinase of unknown function. As part of the mTORC1 and mTORC2 complexes, mTOR plays a pivotal role in several pathways involved in human cancer, sparking interest in mTOR inhibitors and placing them in the focus of the pharmaceutical industry. mTOR, a large protein kinase, is also the target of rapamycin, an immunosuppressant that also blocks vascular restenosis and has potential anticancer effects. mTOR interacts with Raptor and GβL proteins 1, 2, and 3 to form a complex that is the target of rapamycin.