

Anti-mTOR pS2448 (RABBIT) Antibody
mTOR phospho S2448 Antibody
Catalog # ASR5219**Specification**

Anti-mTOR pS2448 (RABBIT) Antibody - Product Information

Host	Rabbit
Conjugate	Unconjugated
Target Species	Human
Reactivity	Human
Clonality	Polyclonal
Application	WB, IHC, E, I, LCI
Application Note	This affinity purified antibody has been tested for use in immunohistochemistry, ELISA and western blotting. Western blotting shows reactivity specific for phospho mTOR detecting a band at approximately 250 kDa. Reactivity in other immunoassays is unknown.
Physical State	Liquid (sterile filtered)
Buffer	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Immunogen	Anti-mTOR pS2448 antibody was prepared from whole rabbit serum produced by repeated immunizations with a phosphorylated synthetic peptide corresponding a c-terminal region near Serine 2448 of human mTOR.
Preservative	0.01% (w/v) Sodium Azide

Anti-mTOR pS2448 (RABBIT) Antibody - Additional Information**Gene ID** 2475**Other Names**
2475**Purity**

This is an affinity purified antibody produced by immunoaffinity chromatography using the immunizing peptide after immobilization to a solid phase. Reactivity occurs with phosphorylated mTOR from human derived tissues and cells. Reactivity against mTOR from other species has not been determined, however, reactivity with mouse and rat is suggested based on protein sequence homologies.

Storage Condition

Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note

This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-mTOR pS2448 (RABBIT) Antibody - Protein Information

Name MTOR ([HGNC:3942](#))

Function

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 (PubMed:[12087098](http://www.uniprot.org/citations/12087098)), PubMed:[12150925](http://www.uniprot.org/citations/12150925)), PubMed:[12150926](http://www.uniprot.org/citations/12150926)), PubMed:[12231510](http://www.uniprot.org/citations/12231510)), PubMed:[12718876](http://www.uniprot.org/citations/12718876)), PubMed:[14651849](http://www.uniprot.org/citations/14651849)), PubMed:[15268862](http://www.uniprot.org/citations/15268862)), PubMed:[15467718](http://www.uniprot.org/citations/15467718)), PubMed:[15545625](http://www.uniprot.org/citations/15545625)), PubMed:[15718470](http://www.uniprot.org/citations/15718470)), PubMed:[18497260](http://www.uniprot.org/citations/18497260)), PubMed:[18762023](http://www.uniprot.org/citations/18762023)), PubMed:[18925875](http://www.uniprot.org/citations/18925875)), PubMed:[20516213](http://www.uniprot.org/citations/20516213)), PubMed:[20537536](http://www.uniprot.org/citations/20537536)), PubMed:[21659604](http://www.uniprot.org/citations/21659604)), PubMed:[23429703](http://www.uniprot.org/citations/23429703)), PubMed:[23429704](http://www.uniprot.org/citations/23429704)), PubMed:[25799227](http://www.uniprot.org/citations/25799227)), PubMed:[26018084](http://www.uniprot.org/citations/26018084)), PubMed:[29150432](http://www.uniprot.org/citations/29150432)), PubMed:[29236692](http://www.uniprot.org/citations/29236692)), PubMed:[31112131](http://www.uniprot.org/citations/31112131)), PubMed:[31601708](http://www.uniprot.org/citations/31601708)), PubMed:[32561715](http://www.uniprot.org/citations/32561715)), PubMed:[34519269](http://www.uniprot.org/citations/34519269)), PubMed:[37751742](http://www.uniprot.org/citations/37751742)). MTOR directly or indirectly regulates the phosphorylation of at least 800 proteins (PubMed:[15268862](http://www.uniprot.org/citations/15268862)), PubMed:[15467718](http://www.uniprot.org/citations/15467718)), PubMed:[17517883](http://www.uniprot.org/citations/17517883)), PubMed:[18372248](http://www.uniprot.org/citations/18372248)), PubMed:[18497260](http://www.uniprot.org/citations/18497260)), PubMed:[18925875](http://www.uniprot.org/citations/18925875)), PubMed:[20516213](http://www.uniprot.org/citations/20516213)), PubMed:[21576368](http://www.uniprot.org/citations/21576368)), PubMed:[21659604](http://www.uniprot.org/citations/21659604)), PubMed:[23429704](http://www.uniprot.org/citations/23429704)), PubMed:[29236692](http://www.uniprot.org/citations/29236692)), PubMed:[37751742](http://www.uniprot.org/citations/37751742)). Functions as part of 2 structurally and functionally distinct signaling complexes mTORC1 and mTORC2 (mTOR complex 1 and 2) (PubMed:[15268862](http://www.uniprot.org/citations/15268862)), PubMed:[15467718](http://www.uniprot.org/citations/15467718)), PubMed:[18497260](http://www.uniprot.org/citations/18497260)), PubMed:[18925875](http://www.uniprot.org/citations/18925875)).

target="_blank">18925875, PubMed:20516213, PubMed:21576368, PubMed:21659604, PubMed:23429704). In response to nutrients, growth factors or amino acids, mTORC1 is recruited to the lysosome membrane and promotes protein, lipid and nucleotide synthesis by phosphorylating key regulators of mRNA translation and ribosome synthesis (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, PubMed:29150432, PubMed:29236692, PubMed:31112131, PubMed:34519269). This includes phosphorylation of EIF4EBP1 and release of its inhibition toward the elongation initiation factor 4E (eIF4E) (PubMed:24403073, PubMed:29236692). 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 (PubMed:12087098, PubMed:12150925, PubMed:18925875, PubMed:29150432, PubMed:29236692). 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 (PubMed:23429703, PubMed:23429704). Regulates ribosome synthesis by activating RNA polymerase III-dependent transcription through phosphorylation and inhibition of MAF1 an RNA polymerase III-repressor (PubMed:20516213). Activates dormant ribosomes by mediating phosphorylation of SERBP1, leading to SERBP1 inactivation and reactivation of translation (PubMed:36691768). In parallel to protein synthesis, also regulates lipid synthesis through SREBF1/SREBP1 and LPIN1 (PubMed:23426360). To maintain energy homeostasis mTORC1 may also regulate

mitochondrial biogenesis through regulation of PPARGC1A (By similarity). In the same time, mTORC1 inhibits catabolic pathways: negatively regulates autophagy through phosphorylation of ULK1 (PubMed:32561715). Under nutrient sufficiency, phosphorylates ULK1 at 'Ser-758', disrupting the interaction with AMPK and preventing activation of ULK1 (PubMed:32561715). Also prevents autophagy through phosphorylation of the autophagy inhibitor DAP (PubMed:20537536). Also prevents autophagy by phosphorylating RUBCNL/Pacer under nutrient-rich conditions (PubMed:30704899). Prevents autophagy by mediating phosphorylation of AMBRA1, thereby inhibiting AMBRA1 ability to mediate ubiquitination of ULK1 and interaction between AMBRA1 and PPP2CA (PubMed:23524951, PubMed:25438055). mTORC1 exerts a feedback control on upstream growth factor signaling that includes phosphorylation and activation of GRB10 a INSR-dependent signaling suppressor (PubMed:21659604). Among other potential targets mTORC1 may phosphorylate CLIP1 and regulate microtubules (PubMed:12231510). The mTORC1 complex is inhibited in response to starvation and amino acid depletion (PubMed:12150925, PubMed:12150926, PubMed:24403073, PubMed:31695197). The non-canonical mTORC1 complex, which acts independently of RHEB, specifically mediates phosphorylation of MIT/TFE factors MITF, TFEB and TFE3 in the presence of nutrients, promoting their cytosolic retention and inactivation (PubMed:22343943, PubMed:22576015, PubMed:22692423, PubMed:24448649, PubMed:32612235, PubMed:36608670, PubMed:36697823). Upon starvation or lysosomal stress, inhibition of mTORC1 induces dephosphorylation and nuclear translocation of TFEB and TFE3, promoting their transcription factor activity (PubMed:22343943, PubMed:22576015, PubMed:22692423, PubMed:24448649, PubMed:32612235, PubMed:36608670). The mTORC1 complex regulates pyroptosis in macrophages by promoting GSDMD oligomerization (PubMed:34289345). MTOR phosphorylates RPTOR which in turn inhibits mTORC1 (By similarity). As part of the mTORC2 complex MTOR may regulate other cellular processes including survival and organization of the cytoskeleton (PubMed:15268862, PubMed:15467718). mTORC2 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 (PubMed:15718470). mTORC2 may regulate the actin cytoskeleton, through phosphorylation of PRKCA, PXN and activation of the Rho-type guanine nucleotide exchange factors RHOA and RAC1A or RAC1B (PubMed:15268862). mTORC2 also regulates the phosphorylation of SGK1 at 'Ser-422' (PubMed:18925875). Regulates osteoclastogenesis by adjusting the expression of CEBPB isoforms (By similarity). Plays an

important regulatory role in the circadian clock function; regulates period length and rhythm amplitude of the suprachiasmatic nucleus (SCN) and liver clocks (By similarity).

Cellular Location

Lysosome membrane; Peripheral membrane protein; Cytoplasmic side. Endoplasmic reticulum membrane; Peripheral membrane protein; Cytoplasmic side. Golgi apparatus membrane; Peripheral membrane protein; Cytoplasmic side. Mitochondrion outer membrane; Peripheral membrane protein; Cytoplasmic side. Cytoplasm. Nucleus {ECO:0000250|UniProtKB:Q9JLN9}. Nucleus, PML body {ECO:0000250|UniProtKB:Q9JLN9}. Microsome membrane. Cytoplasmic vesicle, phagosome. Note=Shuttles between cytoplasm and nucleus. Accumulates in the nucleus in response to hypoxia (By similarity). Targeting to lysosomes depends on amino acid availability and RRAGA and RRAGB (PubMed:18497260, PubMed:20381137). Lysosome targeting also depends on interaction with MEAK7. Translocates to the lysosome membrane in the presence of TM4SF5 (PubMed:30956113) {ECO:0000250|UniProtKB:Q9JLN9, ECO:0000269|PubMed:18497260, ECO:0000269|PubMed:20381137, ECO:0000269|PubMed:29750193, ECO:0000269|PubMed:30956113}

Tissue Location

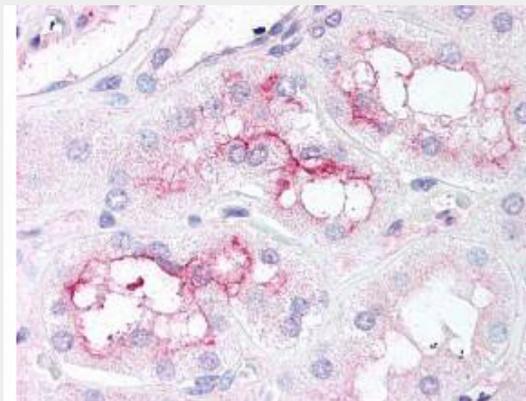
Expressed in numerous tissues, with highest levels in testis.

Anti-mTOR pS2448 (RABBIT) 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](#)

Anti-mTOR pS2448 (RABBIT) Antibody - Images



Rockland's affinity purified anti-mTOR pS 2448 antibody was used at 5 µg/ml to detect signal in a variety of tissues including multi-human, multi-brain and multi-cancer slides. This image shows moderate staining of proximal convoluted tubules of the kidney (40X). Tissue was formalin-fixed and paraffin embedded. The image shows localization of the antibody as the precipitated red signal, with a hematoxylin purple nuclear counterstain. Personal Communication, Tina Roush, LifeSpanBiosciences, Seattle, WA.

Anti-mTOR pS2448 (RABBIT) Antibody - Background

Mammalian target of rapamycin (mTOR) is a serine and threonine protein kinase that regulates numerous cellular functions, in particular, the initiation of protein translation. Rapamycin is a natural product macrolide that induces G1 growth arrest in yeast, *Drosophila*, and mammalian cells. mTOR has a long list of synonyms including FK506 binding protein12 - rapamycin associated protein 1, FK506 binding protein12 - rapamycin associated protein 2, FRAP1, FRAP2, RAFT1, RAPT1 and/or FKBP12-rapamycin associated protein (FRAP). mTOR is one of a family of proteins involved in cell cycle progression, DNA recombination, and DNA damage detection. In rat, mTOR is a 245-kD protein referred to as RAFT1 with significant homology to the *Saccharomyces cerevisiae* protein TOR1 and has been shown to associate with the immunophilin FKBP12 in a rapamycin-dependent fashion. The FKBP12-rapamycin complex is known to inhibit progression through the G1 cell cycle stage by interfering with mitogenic signaling pathways involved in G1 progression in several cell types, as well as in yeast. The binding of mTOR to FKBP12-rapamycin correlates with the ability of these ligands to inhibit cell cycle progression.