

ARG54675
anti-mTOR antibodyPackage: 50 µg
Store at: -20°C

Summary

Product Description	Rabbit Polyclonal antibody recognizes mTOR
Tested Reactivity	Hu, Ms
Tested Application	ELISA, ICC/IF, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	mTOR
Immunogen	Synthetic peptide (15 aa) within aa. 210-260 of Human mTOR protein.
Conjugation	Un-conjugated
Alternate Names	Mammalian target of rapamycin; RAFT1; Mechanistic target of rapamycin; Rapamycin target protein 1; FRAP1; FRAP2; Rapamycin and FKBP12 target 1; FK506-binding protein 12-rapamycin complex-associated protein 1; mTOR; RAPT1; FKBP12-rapamycin complex-associated protein; FRAP; Serine/threonine-protein kinase mTOR; EC 2.7.11.1

Application Instructions

Application table	Application	Dilution
	ELISA	Assay-dependent
	ICC/IF	2 µg/mL
	WB	1 - 2 µg/mL
Application Note	* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.	
Positive Control	L1210 Cell Lysate	

Properties

Form	Liquid
Purification	Affinity purification with immunogen.
Buffer	PBS and 0.02% Sodium azide
Preservative	0.02% Sodium azide
Concentration	1 mg/ml
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C or below. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.

Note

For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

Database links

[GeneID: 2475 Human](#)

[GeneID: 56717 Mouse](#)

[Swiss-port # P42345 Human](#)

[Swiss-port # Q9JLN9 Mouse](#)

Gene Symbol

MTOR

Gene Full Name

mechanistic target of rapamycin (serine/threonine kinase)

Background

TOR Antibody: The mammalian Target of Rapamycin (TOR, also known as mTOR) is an evolutionarily conserved serine/threonine kinase that regulates cell growth and cell cycle through its ability to integrate signals from nutrient levels and growth factors. It was initially discovered as a kinase whose ability to stimulate T cell proliferation in response to IL-2 could be inhibited by the immunosuppressive drug rapamycin. Rapamycin inhibits TOR in other cell types resulting in reduced cell growth and reduced rates of cell cycle and cell proliferation. TOR is normally associated with the regulatory proteins RAPTOR and GbetaL. Its downstream targets are thought to be the ribosomal protein S6 kinases and the eukaryotic initiation factor 4E binding proteins (4EBPs). Regulation of these protein families allows TOR to control protein biosynthesis.

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. 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 factors RHOA and RAC1A or RAC1B. mTORC2 also regulates the phosphorylation of SGK1 at 'Ser-422'. Regulates osteoclastogenesis by adjusting the expression of CEBPB isoforms (By similarity). [UniProt]

Highlight

Related Antibody Duos and Panels:

[ARG30052 Phospho mTOR Antibody Duo \(Total, pS2448\)](#)

Related products:

[mTOR antibodies; mTOR Duos / Panels; Anti-Rabbit IgG secondary antibodies;](#)

Research Area

Cancer antibody; Cell Biology and Cellular Response antibody; Gene Regulation antibody; Metabolism antibody

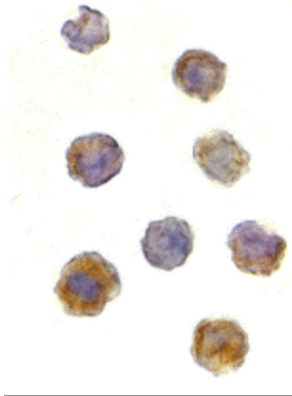
Calculated Mw

289 kDa

PTM

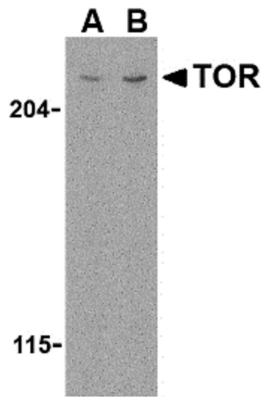
Autophosphorylates when part of mTORC1 or mTORC2. Phosphorylation at Ser-1261, Ser-2159 and Thr-2164 promotes autophosphorylation. Phosphorylation in the kinase domain modulates the interactions of MTOR with RPTOR and PRAS40 and leads to increased intrinsic mTORC1 kinase activity. Phosphorylation at Thr-2173 in the ATP-binding region by AKT1 strongly reduces kinase activity.

Images



ARG54675 anti-mTOR antibody ICC/IF image

Immunocytochemistry: L1210 cells stained with ARG54675 anti-mTOR antibody at 2 µg/ml.



ARG54675 anti-mTOR antibody WB image

Western blot: L1210 cell lysate stained with ARG54675 anti-mTOR antibody at (A) 1 and (B) 2 µg/ml.