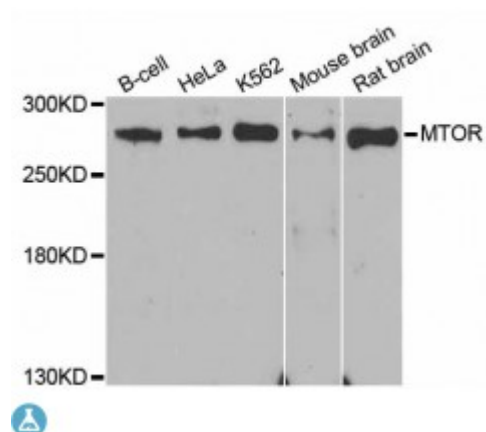


Anti-mTOR Antibody



Description

The protein encoded by this gene belongs to a family of phosphatidylinositol kinase-related kinases. These kinases mediate cellular responses to stresses such as DNA damage and nutrient deprivation. This protein acts as the target for the cell-cycle arrest and immunosuppressive effects of the FKBP12-rapamycin complex. The ANGPTL7 gene is located in an intron of this gene.

Model	STJ113771
Host	Rabbit
Reactivity	Human, Mouse, Rat
Applications	IHC, WB
Immunogen	A synthetic peptide corresponding to a sequence within amino acids 2400-2500 of human MTOR (NP_004949.1).
Gene ID	2475
Gene Symbol	MTOR
Dilution range	WB 1:200 - 1:500 IHC 1:100 - 1:200
Tissue Specificity	Expressed in numerous tissues, with highest levels in testis
Purification	Affinity purification
Note	For Research Use Only (RUO).
Protein Name	Serine/threonine-protein kinase mTOR
Molecular Weight	288.892 kDa

Clonality	Polyclonal
Conjugation	Unconjugated
Isotype	IgG
Formulation	PBS with 0.02% sodium azide, 50% glycerol, pH7.3.
Storage Instruction	Store at -20C. Avoid freeze / thaw cycles.
Database Links	HGNC:3942OMIM:601231Reactome:R-HSA-1257604
Alternative Names	Serine/threonine-protein kinase mTOR
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' ,
Cellular Localization	Endoplasmic reticulum membrane,
Post-translational	Autophosphorylates when part of mTORC1 or mTORC2, Phosphorylation at

Modifications

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,

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