

Rabbit mTOR Polyclonal Antibody | anti-mTOR antibody

Phospho-mTOR (Thr2446) Antibody

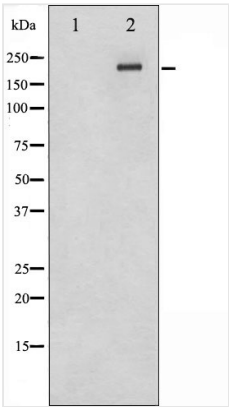
CATALOG # AAA321622	HOST Rabbit	REACTIVITY Human, Mouse, Rat	APPLICATIONS ELISA, Western Blot
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PRODUCT SYNONYMS

mTOR; Polyclonal Antibody; Phospho-mTOR (Thr2446) Antibody; dJ576K7.1 (FK506 binding protein 12 rapamycin associated protein 1); FK506 binding protein 12 rapamycin associated protein 1; FK506 binding protein 12 rapamycin associated protein 2; FK506 binding protein 12 rapamycin complex associated protein 1; FK506-binding protein 12-rapamycin complex-associated protein 1; FKBP rapamycin associated protein; FKBP12 rapamycin complex associated protein; FKBP12-rapamycin complex-associated protein 1; FKBP12-rapamycin complex-associated protein; FLJ44809; FRAP; FRAP1; FRAP2; Mammalian target of rapamycin; Mechanistic target of rapamycin; MTOR_HUMAN; OTTHUMP0000001983; RAFT1; Rapamycin and FKBP12 target 1; Rapamycin associated protein FRAP2; Rapamycin target protein 1; Rapamycin target protein; RAPT1; Serine/threonine-protein kinase mTOR; anti-mTOR antibody

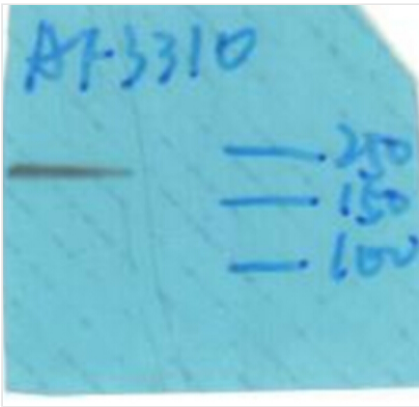
PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-mTOR (Thr2446) antibody detects endogenous levels of mTOR only when phosphorylated at Threonine 2446
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho-and non-phospho-peptide affinity columns.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	2549
Applicable Applications for anti-mTOR antibody	ELISA, WB (Western Blot)
Immunogen	A synthesized peptide derived from human mTOR around the phosphorylation site of Threonine 2446
Subcellular Location	Endoplasmic Reticulum Membrane. Golgi Apparatus Membrane. Mitochondrion Outer Membrane. Lysosome. Cytoplasm. Nucleus > PML Body. 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.
Tissue Specificity	Expressed in numerous tissues, with highest levels in testis.
Conjugation	Unconjugated
Epitope	Phospho Thr2446
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



WB (Western Blot)

Western blot analysis of mTOR phosphorylation expression in Insulin treated NIH-3T3 whole cell lysates, The lane on the left is treated with the antigen-specific peptide.



WB (Western Blot)

Western blot analysis of Phospho-mTOR (Thr2446) Antibody expression in Insulin treated NIH-3T3 cells lysates. The lane on the right is treated with the antigen-specific peptide.

Related Product Information for anti-mTOR antibody	Description: An atypical kinase belonging to the PIKK family of kinases. Controls cell growth through protein synthesis regulation. Downstream of PI3K/Akt pathway and required for cell survival. Acts as the target for the cell-cycle arrest and immunosuppressive effects of the FKBP12-rapamycin complex. 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' (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). Subunit Structure: Part of the mammalian target of rapamycin complex 1 (mTORC1) which contains MTOR, MLST8, RPTOR, AKT1S1/PRAS40 and DEPTOR. The mTORC1 complex is a 1 Md obligate dimer of two stoichiometric heterotetramers with overall dimensions of 290 A x 210 A x 135 A. It has a rhomboid shape and a central cavity, the dimeric interfaces are formed by interlocking interactions between the two MTOR and the two RPTOR subunits. The MLST8 subunit forms distal foot-like protuberances, and contacts only one MTOR within the complex, while the small PRAS40 localizes to the midsection of the central core, in close proximity to RPTOR. Part of the mammalian target of rapamycin complex 2 (mTORC2) which contains MTOR, MLST8, PRR5, RICTOR, MAPKAP1 and DEPTOR. Interacts with PLPP7 and PML. Interacts with PRR5 and RICTOR; the interaction is direct within the mTORC2 complex. Interacts with WAC; WAC positively regulates MTOR activity by promoting the assembly of the TTT complex composed of TELO2, TTI1 and TTI2 and the RUVBL complex composed of RUVBL1 and RUVBL2 into the TTT-RUVBL complex which leads to the dimerization of the mTORC1 complex and its subsequent activation (PubMed:26812014). Interacts with UBQLN1. Interacts with TTI1 and TELO2. Interacts with CLIP1; phosphorylates and regulates CLIP1. Interacts with NBN. Interacts with HTR6 (PubMed:23027611). Interacts with BRAT1. Post-translational Modifications: 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. Similarity: The kinase domain (PI3K/PI4K) is intrinsically active but has a highly restricted catalytic center. The FAT domain forms three discontinuous subdomains of alpha-helical TPR repeats plus a single subdomain of HEAT repeats. The four domains pack sequentially to form a C-shaped a-solenoid that clamps onto the kinase domain (PubMed:23636326). Belongs to the PI3/PI4-kinase family.
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References	He Y, Cao X, Guo P, Li X, Shang H, Liu J, Xie M, Xu Y, Liu X; Journal: Free Radic Biol Med. Quercetin induces autophagy via FOXO1-dependent pathways and autophagy suppression enhances quercetin-induced apoptosis in PSMCs in hypoxia. Chai L, Bai L, Li L, Chen F, Zhang J; Journal: Exp Ther Med. Biological functions of lung cancer cells are suppressed in co-culture with mesenchymal stem cells isolated from umbilical cord. Wang W, Li L, Chen F, Yang Y; Journal: Oncol Rep. Umbilical cord-derived mesenchymal stem cells can inhibit the biological functions of melanoma A375 cells.
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NCBI AND UNIPROT INFORMATION

NCBI GI #	4826730
NCBI GeneID	2475
NCBI Accession #	NP_004949.1
NCBI GenBank Nucleotide #	NM_004958.3
UniProt Accession #	P42345; Q4LE76; Q5TER1; Q6LE87; Q96QG3; Q9Y4I3
Molecular Weight	Observed: 220 kDa Predicted: 289 kDa
NCBI Official Full Name	serine/threonine-protein kinase mTOR
NCBI Official Synonym Full Names	mechanistic target of rapamycin kinase
NCBI Official Symbol	MTOR
NCBI Official Synonym Symbols	SKS; FRAP; FRAP1; FRAP2; RAFT1; RAPT1
NCBI Protein Information	serine/threonine-protein kinase mTOR
UniProt Protein Name	Serine/threonine-protein kinase mTOR
UniProt Gene Name	MTOR
UniProt Synonym Gene Names	FRAP; FRAP1; FRAP2; RAFT1; RAPT1; mTOR

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