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[Marker Primary Antibody]

Rabbit Anti-Phospho-mTOR (Thr2446) /HRP Conjugated antibody

Catalog Number: SL5331R-HRP

FOR RESEARCH USE ONLY

[DATASHEET]

Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Target:	Anti-Phospho-mTOR (Thr2446) /HRP
Immunogen:	KLH conjugated Synthesised phosphopeptide derived from human mTOR around the phosphorylation site of Thr2446
Purification:	affinity purified by Protein A
Concentration:	1mg/ml
Storage:	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and for greater than a year when kept at -20°C. When reconstituted in sterile pH 7.4 1M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.
Applications:	IHC-P=1:100-500 IHC-F=1:100-500 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Reactivity:	Human,Mouse(predicted:Rat,Dog,Cow,Horse,Rabbit,Sheep)
Background:	background: mTOR is one of a family of proteins involved in cell cycle progression, DNA recombination, and DNA damage detection. In rat, it is a 289-kDa protein (symbolized 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 FRAP to FKBP12-rapamycin correlated with the ability of these ligands to inhibit cell cycle progression. **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. Functions as part of 2 structurally

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	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. Regulates ribosome synthesis by activating RNA polymerase III-dependent transcription through phosphorylation and inhibition of MAF1 a 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'. **Subunit:** Part of the mammalian target of rapamycin complex 1 (mTORC1) which contains MTOR, MLST8, RPTOR, AKT1S1/PRAS40 and DEPTOR. Part of the mammalian target of rapamycin complex 2 (mTORC2) which contains MTOR, MLST8, PRR5, RICTOR, MAPKAP1 and DEPTOR. Interacts with PPAPDC3 and PML. Interacts with PRR5 and RICTOR; the interaction is direct within the mTORC2 complex. Interacts with UBQLN1. Interacts with TTI1 and TELO2. Interacts with CLIP1; phosphorylates and regulates CLIP1. **Subcellular Location:** Endoplasmic reticulum membrane; Peripheral membrane protein; Cytoplasmic side. Golgi apparatus membrane; Peripheral

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	membrane protein; Cytoplasmic side. Mitochondrion outer membrane; Peripheral membrane protein; Cytoplasmic side. Lysosome. Cytoplasm (By similarity). Nucleus, PML body (By similarity). Note=Shuttles between cytoplasm and nucleus. Accumulates in the nucleus in response to hypoxia. Targeting to lysosomes depends on amino acid availability and RRAGA and RRAGB. **Tissue Specificity:** Expressed in numerous tissues, with highest levels in testis. **Post-translational modifications:** Phosphorylated. Autophosphorylates when part of mTORC1 or mTORC2. Phosphorylation at Ser-1261 promotes autophosphorylation. **Similarity:** Belongs to the PI3/PI4-kinase family. Contains 1 FAT domain. Contains 1 FATC domain. Contains 7 HEAT repeats. Contains 1 PI3K/PI4K domain. **Database links:** **Entrez Gene:** 2475 Human **Entrez Gene:** 56717 Mouse **Entrez Gene:** 56718 Rat Omim: 601231 Human **SwissProt:** P42345 Human **SwissProt:** Q9JLN9 Mouse **SwissProt:** P42346 Rat **Unigene:** 338207 Human **Unigene:** 21158 Mouse **Unigene:** 11008 Rat Important **Note:** This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications. mTOR protein is a serine/threonine protein kinase (Ser/Thr) and an important Signal transduction molecule regulating cell growth and proliferation, playing a key role in cell growth, differentiation, proliferation, migration, and survival. Because the mTOR signaling pathway plays an important role in cell cycle progression, and abnormal regulation of cell cycle progression is associated with the occurrence and development of many diseases, especially cancer, dysregulation of the mTOR signaling pathway can cause the occurrence of various Tumours.