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anti-MTOR antibody (pSer2481)

Images



Publication



Overview

Quantity:	100 μL
Target:	MTOR (mTOR)
Binding Specificity:	pSer2481
Reactivity:	Human, Mouse, Rat
Host:	Rabbit
Clonality:	Polyclonal
Conjugate:	This MTOR antibody is un-conjugated
Application:	Western Blotting (WB), Immunohistochemistry (IHC), ELISA, Immunofluorescence (IF), Immunocytochemistry (ICC)

Product Details

Immunogen:	A synthesized peptide derived from human mTOR around the phosphorylation site of Ser2481.
Isotype:	IgG
Specificity:	Phospho-mTOR (Ser2481) Antibody detects endogenous levels of mTOR only when phosphorylated at Serine 2481.
Predicted Reactivity:	Pig,Bovine,Horse,Sheep,Rabbit,Dog,Chicken
Purification:	The antibody is from purified rabbit serum by affinity purification via sequential chromatography on phospho- and non-phospho-peptide affinity columns.

Target Details

Target: MTOR (mTOR) Alternative Name:

MTOR (mTOR Products)

Background:

Description: 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 5phosphoribosyl-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,

Target Details

	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).
	Gene: MTOR
Molecular Weight:	288kDa
Gene ID:	2475
UniProt:	P42345
Pathways:	PI3K-Akt Signaling, RTK Signaling, AMPK Signaling, Interferon-gamma Pathway, Fc-epsilon
	Receptor Signaling Pathway, EGFR Signaling Pathway, Neurotrophin Signaling Pathway,
	Regulation of Actin Filament Polymerization, Regulation of Muscle Cell Differentiation,
	Regulation of Cell Size, Skeletal Muscle Fiber Development, Regulation of Carbohydrate
	Metabolic Process, Autophagy, CXCR4-mediated Signaling Events, BCR Signaling, Warburg
	Effect

Application Details

Application Notes:	WB 1:500-1:2000, IHC 1:50-1:200, IF/ICC 1:100-1:500, ELISA(peptide) 1:20000-1:40000
Restrictions:	For Research Use only
Handling	
Format:	Liquid
Concentration:	1 mg/mL
Buffer:	Rabbit IgG in phosphate buffered saline , pH 7.4, 150 mM NaCl, 0.02 % sodium azide and 50 % glycerol.
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	-20 °C
Storage Comment:	Store at -20 °C. Stable for 12 months from date of receipt.
Expiry Date:	12 months

Product cited in:

Deng, Cheng, Wu, Wang, Zhou, Huang: "Oxabicycloheptene Sulfonate Protects Against β-Amyloid-induced Toxicity by Activation of PI3K/Akt and ERK Signaling Pathways Via GPER1 in C6 Cells." in: **Neurochemical research**, Vol. 42, Issue 8, pp. 2246-2256, (2018) (PubMed).

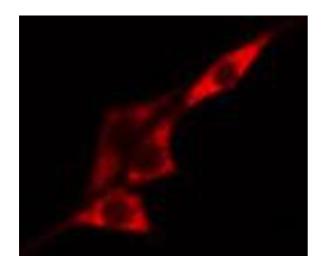
Li, Xiong, Xu, Duan, Yang, Zhou, Tu: "miR-29a regulated ER-positive breast cancer cell growth and invasion and is involved in the insulin signaling pathway." in: **Oncotarget**, Vol. 8, Issue 20, pp. 32566-32575, (2018) (PubMed).

Xie, Cao, Yang, Xu, Wei, Wang: "Relaxin Attenuates Contrast-Induced Human Proximal Tubular Epithelial Cell Apoptosis by Activation of the PI3K/Akt Signaling Pathway In Vitro." in: **BioMed research international**, Vol. 2017, pp. 2869405, (2018) (PubMed).

Peng, Wu, Deng, Zhou, Song, Yang, Zhang, Xu, Xia, Cai, Liu, Peng: "MiR-377 promotes white adipose tissue inflammation and decreases insulin sensitivity in obesity via suppression of sirtuin-1 (SIRT1)." in: **Oncotarget**, Vol. 8, Issue 41, pp. 70550-70563, (2018) (PubMed).

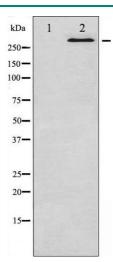
Li, Zhang, Jin, Zou, Wang, Hao, Fu, Jiao, Zhang, Lin, Matsuzaki, Zhao: "Dysifragilone A inhibits LPS-induced RAW264.7 macrophage activation by blocking the p38 MAPK signaling pathway." in: **Molecular medicine reports**, Vol. 17, Issue 1, pp. 674-682, (2018) (PubMed).

Images



Immunofluorescence (fixed cells)

Image 1. ABIN6267518 staining HeLa cells by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100,then blocked in 10% serum for 45 minutes at 25°C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37°C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) antibody(Cat.# S0006), diluted at 1/600, was used as secondary antibody.



Western Blotting

Image 2. Western blot analysis of mTOR phosphorylation expression in HeLa whole cell lysates,The lane on the left is treated with the antigen-specific peptide.