Datasheet for ABIN6256211

# anti-MTOR antibody (pSer2481)

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## Overview

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| 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

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| 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

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|---|---|
| Target: | MTOR (mTOR) |

## Target Details

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| 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 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, |

## Target Details

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| | 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).<br>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

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| 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

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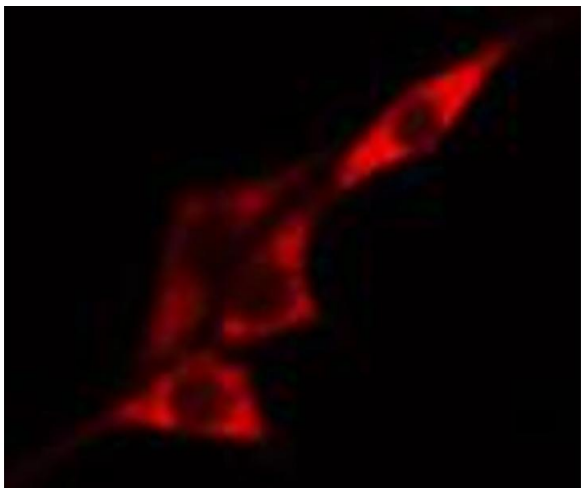
| Format: | Liquid |
| Concentration: | 1 mg/mL |
| Buffer: | Rabbit IgG in phosphate buffered saline , pH 7.4, 150 mM NaCl, 0.02 % sodium azide and 50 % glycerol. |
| Preservative: | Sodium azide |
| Precaution of Use: | This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should 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 |

## Publications

Product cited in:

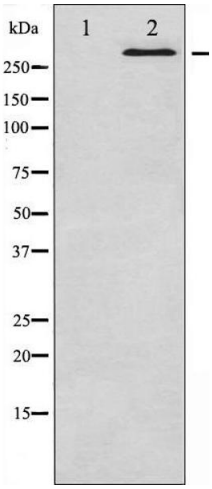
Zhao, Deng, Xu, Zhang, Mi, Meng, Gou, Xu: "PirB Overexpression Exacerbates Neuronal Apoptosis by Inhibiting TrkB and mTOR Phosphorylation After Oxygen and Glucose Deprivation Injury." in: **Cellular and molecular neurobiology**, Vol. 37, Issue 4, pp. 707-715, (2017) (PubMed ).

## 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.