

mTOR Regulation Antibody Sampler Kit

Cat# AK0194

Upon receipt, store at -20°C. Avoid freeze/thaw cycles.

PRODUCT DESCRIPTION

The mammalian target of rapamycin (mTOR, FRAP, RAFT) is a Ser/Thr protein kinase that functions as an ATP and amino acid sensor to balance nutrient availability and cell growth. When sufficient nutrients are available, mTOR responds to a phosphatidic acid-mediated signal to transmit a positive signal to p70 S6 kinase and participate in the inactivation of the eIF4E inhibitor, 4E-BP1. These events result in the translation of specific mRNA subpopulations. mTOR is phosphorylated at Ser2448 via the PI3 kinase/Akt signaling pathway and autophosphorylated at Ser2481. mTOR plays a key role in cell growth and homeostasis and may be abnormally regulated in tumors. For these reasons, mTOR is currently under investigation as a potential target for anti-cancer therapy. The regulatory associated protein of mTOR (Raptor) was identified as an mTOR binding partner that mediates mTOR signaling to downstream targets. Raptor binds to mTOR substrates, including 4E-BP1 and p70 S6 kinase, through their TOR signaling (TOS) motifs and is required for mTOR-mediated phosphorylation of these substrates. PRAS40 interacts with raptor in insulin-deprived cells and inhibits the activation of the mTORC1 pathway. Phosphorylation of PRAS40 by Akt at Thr246 relieves PRAS40 inhibition of mTORC1. Recently raptor has been identified as a direct substrate of the AMP-activated protein kinase (AMPK). AMPK phosphorylates raptor on Ser722/Ser792. This phosphorylation is essential for inhibition of the raptor-containing mTOR complex 1 (mTORC1) and induces cell cycle arrest when cells are stressed for energy. These findings suggest that raptor is a critical switch that correlates cell cycle progression with energy status. The activity of mTORC1 kinase complex is modulated by energy levels, growth factors and amino acids. Recent studies found that RagA, RagB, RagC and RagD, the four related GTPases, interact with raptor in the mTORC1 complex. These interactions are both necessary and sufficient for mTORC1 activation in response to amino acid signals.

PRODUCT INCLUDES

Cat No.	Product name	Quantity	Applications	Reactivity	Host
A340598	MTOR Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit
A340257	Phospho-MTOR (Ser2448) Polyclonal Antibody	20µL	WB, IHC, IF, ELISA	Human, Mouse, Rat	Rabbit
A340650	AKT1S1 Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit

A340660	RRAGC Polyclonal Antibody	20μL	WB, ELISA	Human, Mouse, Rat	Rabbit
A1013s	Goat Anti-Rabbit IgG (H+L) (peroxidase/HRP conjugated)	120μL	WB, ELISA	Rabbit	Goat

PRODUCT USE LIMITATION

These products are intended for research use only.