Revision 1

Store at -20C

#89146

Phospho-Raptor (Ser792) (E4V6C) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	150	Rabbit IgG	#Q8N122	57521

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

Phospho-Raptor (Ser792) (E4V6C) Rabbit mAb recognizes endogenous levels of raptor protein only when phosphorylated at Ser792.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser792 of human raptor protein.

Background

The regulatory associated protein of mTOR (Raptor) was identified as an mTOR binding partner that mediates mTOR signaling to downstream targets (1,2). 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 (3,4). Binding of the FKBP12-rapamycin complex to mTOR inhibits the mTOR-raptor interaction, suggesting a mechanism for rapamycin's specific inhibition of mTOR signaling (5). This mTOR-raptor interaction and its regulation by nutrients and/or rapamycin is dependent on a protein called GβL (6). GβL is also part of the rapamycin-insensitive complex between mTOR and rictor (rapamycin-insensitive companion of mTOR), and may mediate rictor-mTOR signaling to downstream targets including PKCα (7). Furthermore, the rictor-mTOR complex has been identified as the previously elusive PDK2 responsible for the phosphorylation of Akt/PKB on Ser473, facilitating phosphorylation of Akt/PKB on Thr308 by PDK1 and required for the full activation of Akt/PKB (8).

Recently raptor has been identified as a direct substrate of the AMP-activated protein kinase (AMPK) (9). AMPK phosphorylates raptor on Ser722/Ser792 (9). 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 (9). These findings suggest that raptor is a critical switch that correlates cell cycle progression with energy status.

Background References

1. Hara, K. et al. (2002) *Cell* 110, 177-89.
2. Kim, D. et al. (2002) *Cell* 110, 163-75.
3. Beugnet, A. et al. (2003) *J. Biol. Chem.* 278, 40717-22.
4. Nojima, H. et al. (2003) *J. Biol. Chem.* 278, 15461-64.
5. Oshiro, N. et al. (2004) *Genes Cells* 9, 359-66.
6. Kim, D. H. et al. (2003) *Mol. Cell* 11, 895-904.
7. Sarbassov, D. et al. (2004) *Curr. Biol.* 14, 1296-302.
8. Sarbassov, D.D. et al. (2005) *Science* 307, 1098-101.
9. Gwinn, D.M. et al. (2008) *Mol Cell* 30, 214-26.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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