Revision 1

Store at -20C

#32307

PhosphoPlus® Raptor (Ser792) Antibody Duet

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

UniProt ID:	Entrez-Gene Id:
#Q8N122	57521

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
Raptor (E6O3A) Rabbit mAb	48648	100 µl	150 kDa	Rabbit IgG
Phospho-Raptor (Ser792) (E4V6C) Rabbit mAb	89146	100 µl	150 kDa	Rabbit IgG

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

PhosphoPlus® Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

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.*

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.

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Limited Uses

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