Revision 1

Store at -20C

#5382

Raptor (24C12) Rabbit mAb (Sepharose® Bead Conjugate)

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Product Usage Information

Application	Dilution
Immunoprecipitation	1:20

Storage

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

Specificity/Sensitivity

Raptor (24C12) Rabbit mAb (Sepharose® Bead Conjugate) detects endogenous levels of total Raptor protein.

Source / Purification

Raptor (24C12) Rabbit mAb is produced by immunizing animals with a synthetic peptide corresponding to the sequence of human Raptor.

Description

This Cell Signaling Technology antibody is immobilized via covalent binding of primary amino groups to N-hydroxysuccinimide (NHS)-activated Sepharose® beads. Raptor (24C12) Rabbit mAb (Sepharose® Bead Conjugate) is useful for immunoprecipitation assays. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated Raptor (24C12) Rabbit mAb #2280.

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).

Applications Key

IP: Immunoprecipitation

Cross-Reactivity Key

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

Trademarks and Patents

Limited Uses

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