Revision 1

Store at -20C

#9862

mTOR Substrates Antibody Sampler Kit

1 Kit (5 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
mTOR (7C10) Rabbit mAb	2983	20 µl	289 kDa	Rabbit IgG
Phospho-p70 S6 Kinase (Thr389) (108D2) Rabbit mAb	9234	20 µl	70, 85 kDa	Rabbit IgG
Phospho-p70 S6 Kinase (Ser371) Antibody	9208	20 µl	70, 85 kDa	Rabbit
Phospho-4E-BP1 (Thr37/46) (236B4) Rabbit mAb	2855	20 µl	15 to 20 kDa	Rabbit IgG
Phospho-mTOR (Ser2448) (D9C2) XP® Rabbit mAb	5536	20 µl	289 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

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

Description

The mTOR Substrates Antibody Sampler Kit provides an economical means to evaluate the signaling of mTOR to downstream substrates including p70 S6 Kinase and 4E-BP1. The kit contains enough primary and secondary antibodies to perform two Western blot experiments per primary antibody.

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 mammalian target of rapamycin (mTOR, FRAP, RAFT) is a Ser/Thr protein kinase (1-3) that functions as an ATP and amino acid sensor to balance nutrient availability and cell growth (4,5). 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 (6). 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 (7,8). 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 (9).
The regulatory associated protein of mTOR (Raptor) interacts with mTOR to mediate mTOR signaling to downstream targets (10,11). Raptor binds to mTOR substrates, such as 4E-BP1 and p70 S6 kinase, through their TOR signaling (TOS) motifs and is required for mTOR-mediated substrate phosphorylation (12,13). Binding of the FKBP12-rapamycin complex to mTOR inhibits mTOR-raptor interaction, which suggests a mechanism for the inhibition of mTOR signaling by rapamycin (14). This mTOR-raptor interaction and its regulation by nutrients and/or rapamycin are dependent on a protein called GβL (15). GβL is part of the rapamycin-insensitive complex between mTOR and rictor (rapamycin-insensitive companion of mTOR) and may mediate rictor-mTOR signaling to PKCα and other downstream targets (16). The rictor-mTOR complex has been identified as the previously elusive PDK2 responsible for the phosphorylation of Akt/PKB at Ser473, which is required for PDK1 phosphorylation of Akt/PKB at Thr308 and full activation of Akt/PKB (17).

Background References

1. Sabers, C.J. et al. (1995) *J Biol Chem* 270, 815-22.
2. Brown, E.J. et al. (1994) *Nature* 369, 756-8.
3. Sabatini, D.M. et al. (1994) *Cell* 78, 35-43.
4. Gingras, A.C. et al. (2001) *Genes Dev* 15, 807-26.
5. Dennis, P.B. et al. (2001) *Science* 294, 1102-5.
6. Fang, Y. et al. (2001) *Science* 294, 1942-5.
7. Navé, B.T. et al. (1999) *Biochem J* 344 Pt 2, 427-31.
8. Peterson, R.T. et al. (2000) *J Biol Chem* 275, 7416-23.
9. Huang, S. and Houghton, P.J. (2003) *Curr Opin Pharmacol* 3, 371-7.
10. Hara, K. et al. (2002) *Cell* 110, 177-89.
11. Kim, D.H. et al. (2002) *Cell* 110, 163-75.
12. Beugnet, A. et al. (2003) *J Biol Chem* 278, 40717-22.
13. Nojima, H. et al. (2003) *J Biol Chem* 278, 15461-4.
14. Oshiro, N. et al. (2004) *Genes Cells* 9, 359-66.
15. Kim, D.H. et al. (2003) *Mol Cell* 11, 895-904.
16. Sarbassov, D.D. et al. (2004) *Curr Biol* 14, 1296-302.
17. Sarbassov, D.D. et al. (2005) *Science* 307, 1098-101.

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