



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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## ULK1 Antibody Sampler Kit

1 Kit (7 x 20 microliters)

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

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
Phospho-AMPKα (Thr172) (40H9) Rabbit mAb	2535	20 µl	62 kDa	Rabbit IgG
AMPKα (D63G4) Rabbit mAb	5832	20 µl	62 kDa	Rabbit IgG
Phospho-Raptor (Ser792) Antibody	2083	20 µl	150 kDa	Rabbit
Raptor (24C12) Rabbit mAb	2280	20 µl	150 kDa	Rabbit
Phospho-ULK1 (Ser555) (D1H4) Rabbit mAb	5869	20 µl	140-150 kDa	Rabbit IgG
Phospho-ULK1 (Ser757) Antibody	6888	20 µl	140-150 kDa	Rabbit
ULK1 (D8H5) Rabbit mAb	8054	20 µl	150 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit [cellsignal.com](http://cellsignal.com) for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

### Description

The ULK1 Antibody Sampler Kit provides an economical way to investigate ULK1 signaling. The kit contains enough primary antibody to perform two western blots with each 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

Two related serine/threonine kinases, UNC-51-like kinase 1 and 2 (ULK1, ULK2), were discovered as mammalian homologs of the *C. elegans* gene *unc-51* in which mutants exhibited abnormal axonal extension and growth (1-4). Both proteins are widely expressed and contain an amino-terminal kinase domain followed by a central proline/serine rich domain and a highly conserved carboxy-terminal domain. The roles of ULK1 and ULK2 in axon growth have been linked to studies showing that the kinases are localized to neuronal growth cones and are involved in endocytosis of critical growth factors, such as NGF (5). Yeast two-hybrid studies found ULK1/2 associated with modulators of the endocytic pathway, SynGAP, and syntenin (6). Structural similarity of ULK1/2 has also been recognized with the yeast autophagy protein Atg1/Apg1 (7). Knockdown experiments using siRNA demonstrated that ULK1 is essential for autophagy (8), a catabolic process for the degradation of bulk cytoplasmic contents (9,10). It appears that Atg1/ULK1 can act as a convergence point for multiple signals that control autophagy (11), and can bind to several autophagy-related (Atg) proteins, regulating phosphorylation states and protein trafficking (12-16).

Raptor mediates the binding of mTORC1 to ULK1, which phosphorylates and inhibits ULK1 under nutrient rich conditions. AMPK also associates directly with ULK1 and, upon nutrient deprivation, can readily reverse the inhibitory effect of mTORC1 by phosphorylating raptor and initiating autophagy (17,18).

### Background References

- Ogura, K. et al. (1994) *Genes Dev* 8, 2389-400.
- Kuroyanagi, H. et al. (1998) *Genomics* 51, 76-85.
- Yan, J. et al. (1998) *Biochem Biophys Res Commun* 246, 222-7.
- Yan, J. et al. (1999) *Oncogene* 18, 5850-9.
- Zhou, X. et al. (2007) *Proc Natl Acad Sci USA* 104, 5842-7.
- Tomoda, T. et al. (2004) *Genes Dev* 18, 541-58.
- Matsuura, A. et al. (1997) *Gene* 192, 245-50.
- Chan, E.Y. et al. (2007) *J Biol Chem* 282, 25464-74.
- Reggiori, F. and Klionsky, D.J. (2002) *Eukaryot Cell* 1, 11-21.
- Codogno, P. and Meijer, A.J. (2005) *Cell Death Differ* 12 Suppl 2, 1509-18.
- Stephan, J.S. and Herman, P.K. (2006) *Autophagy* 2, 146-8.
- Okazaki, N. et al. (2000) *Brain Res Mol Brain Res* 85, 1-12.
- Young, A.R. et al. (2006) *J Cell Sci* 119, 3888-900.
- Kamada, Y. et al. (2000) *J Cell Biol* 150, 1507-13.
- Lee, S.B. et al. (2007) *EMBO Rep* 8, 360-5.
- Hara, T. et al. (2008) *J Cell Biol* 181, 497-510.

17. Shang, L. et al. (2011) *Proc Natl Acad Sci U S A* 108, 4788-93.  
18. Lee, J.W. et al. (2010) *PLoS One* 5, e15394.
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