

**ULK1 (D8H5) Rabbit mAb**

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S, IP	H M R Mk	Endogenous	150	Rabbit IgG	#O75385	8408

**Product Usage Information****Application**

Western Blotting  
Simple Western™  
Immunoprecipitation

**Dilution**

1:1000  
1:50 - 1:250  
1:100

**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**

ULK1 (D8H5) Rabbit mAb recognizes endogenous levels of total ULK1 protein.

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Arg600 of human ULK1 protein.

**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). AMPK, activated during low nutrient conditions, directly phosphorylates ULK1 at multiple sites including Ser317, Ser555, and Ser777 (17,18). Conversely, mTOR, which is a regulator of cell growth and an inhibitor of autophagy, phosphorylates ULK1 at Ser757 and disrupts the interaction between ULK1 and AMPK (17).

**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.
- Kim, J. et al. (2011) *Nat Cell Biol* 13, 132-41.
- Egan, D.F. et al. (2011) *Science* 331, 456-61.

**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 **W-S:** Simple Western™ **IP:** Immunoprecipitation

**Cross-Reactivity Key**

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

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