**Phospho-ULK1 (Ser757) (D706U) Rabbit mAb**

For Research Use Only. Not For Use In Diagnostic Procedures.

- **Applications**: Western, IF-IC, Endogenous
- **Species Cross-Reactivity**: Mouse, Human, Rat
- **Molecular Wt.**: 140-150 kDa
- **Isotype**: Rabbit IgG

**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 is an inhibitor of autophagy, phosphorylates ULK1 at Ser757 and disrupts the interaction between ULK1 and AMPK (17).

**Specificity/Sensitivity**: Phospho-ULK1 (Ser757) (D706U) Rabbit mAb recognizes endogenous levels of ULK1 protein only when phosphorylated at Ser757 of mouse ULK1 (equivalent to Ser758 of human ULK1).

**Source/Purification**: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser757 of mouse ULK1 protein (equivalent to Ser758 of human ULK1).


**Fixative**: 4% Formaldehyde.

**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.

**Anti-rabbit secondary antibodies must be used to detect this antibody.**

**For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.**

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**Western blot analysis of extracts from various cell lines using Phospho-ULK1 (Ser757) (D706U) Rabbit mAb.**

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**IMPORTANT**: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween for 20 min at 4°C with gentle shaking, overnight.
Confocal immunofluorescent analysis of MCF7 cells, untreated (left), untreated and post-processed with λ-phosphatase (center) or treated with Torin 1 #14379 (250 nM, 5 hr; right), using Phospho-ULK1 (Ser757) (D7O6U) Rabbit mAb. Blue = Hoechst 33342 #4082 (fluorescent DNA dye).

Background References: