

**ULK1 Antibody**  
Catalog # ASC11653**Specification****ULK1 Antibody - Product Information**

Application	WB, IHC, IF
Primary Accession	<a href="#">O75385</a>
Other Accession	<a href="#">NP_003556</a> , <a href="#">4507831</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	Predicted: 116 kDa
Application Notes	Observed: 105 kDa KDa ULK1 Antibody can be used for detection of ULK1 by Western blot at 1 µg/mL.

**ULK1 Antibody - Additional Information**

Gene ID 8408

**Target/Specificity**

ULK1; Two alternatively spliced transcript variants encoding different isoforms have been identified. ULK1 antibody is predicted to not cross-react with ULK2.

**Reconstitution & Storage**

ULK1 antibody can be stored at 4°C for three months and -20°C, stable for up to one year.

**Precautions**

ULK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**ULK1 Antibody - Protein Information**

**Name** ULK1 {ECO:0000303|PubMed:9693035, ECO:0000312|HGNC:HGNC:12558}

**Function**

Serine/threonine-protein kinase involved in autophagy in response to starvation (PubMed: <a href="http://www.uniprot.org/citations/18936157" target="\_blank">18936157</a>, PubMed: <a href="http://www.uniprot.org/citations/21460634" target="\_blank">21460634</a>, PubMed: <a href="http://www.uniprot.org/citations/21795849" target="\_blank">21795849</a>, PubMed: <a href="http://www.uniprot.org/citations/23524951" target="\_blank">23524951</a>, PubMed: <a href="http://www.uniprot.org/citations/25040165" target="\_blank">25040165</a>, PubMed: <a href="http://www.uniprot.org/citations/29487085" target="\_blank">29487085</a>, PubMed: <a href="http://www.uniprot.org/citations/31123703" target="\_blank">31123703</a>). Acts upstream of phosphatidylinositol 3-kinase PIK3C3 to regulate the formation of autophagophores, the precursors of autophagosomes (PubMed: <a href="http://www.uniprot.org/citations/18936157" target="\_blank">18936157</a>, PubMed: <a href="http://www.uniprot.org/citations/21460634" target="\_blank">21460634</a>, PubMed: <a href="http://www.uniprot.org/citations/21795849" target="\_blank">21795849</a>).

target="\_blank">21795849</a>, PubMed:<a href="http://www.uniprot.org/citations/25040165" target="\_blank">25040165</a>). Part of regulatory feedback loops in autophagy: acts both as a downstream effector and negative regulator of mammalian target of rapamycin complex 1 (mTORC1) via interaction with RPTOR (PubMed:<a href="http://www.uniprot.org/citations/21795849" target="\_blank">21795849</a>). Activated via phosphorylation by AMPK and also acts as a regulator of AMPK by mediating phosphorylation of AMPK subunits PRKAA1, PRKAB2 and PRKAG1, leading to negatively regulate AMPK activity (PubMed:<a href="http://www.uniprot.org/citations/21460634" target="\_blank">21460634</a>). May phosphorylate ATG13/KIAA0652 and RPTOR; however such data need additional evidences (PubMed:<a href="http://www.uniprot.org/citations/18936157" target="\_blank">18936157</a>). Plays a role early in neuronal differentiation and is required for granule cell axon formation (PubMed:<a href="http://www.uniprot.org/citations/11146101" target="\_blank">11146101</a>). Also phosphorylates SESN2 and SQSTM1 to regulate autophagy (PubMed:<a href="http://www.uniprot.org/citations/25040165" target="\_blank">25040165</a>, PubMed:<a href="http://www.uniprot.org/citations/37306101" target="\_blank">37306101</a>). Phosphorylates FLCN, promoting autophagy (PubMed:<a href="http://www.uniprot.org/citations/25126726" target="\_blank">25126726</a>). Phosphorylates AMBRA1 in response to autophagy induction, releasing AMBRA1 from the cytoskeletal docking site to induce autophagosome nucleation (PubMed:<a href="http://www.uniprot.org/citations/20921139" target="\_blank">20921139</a>). Phosphorylates ATG4B, leading to inhibit autophagy by decreasing both proteolytic activation and delipidation activities of ATG4B (PubMed:<a href="http://www.uniprot.org/citations/28821708" target="\_blank">28821708</a>).

#### Cellular Location

Cytoplasm, cytosol. Preautophagosomal structure. Note=Under starvation conditions, is localized to punctate structures primarily representing the isolation membrane that sequesters a portion of the cytoplasm resulting in the formation of an autophagosome.

#### Tissue Location

Ubiquitously expressed. Detected in the following adult tissues: skeletal muscle, heart, pancreas, brain, placenta, liver, kidney, and lung

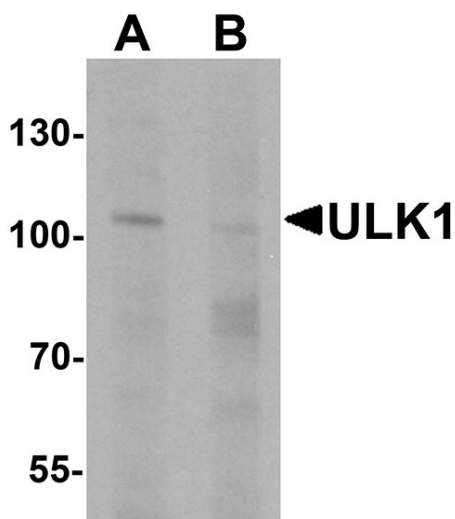
#### ULK1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

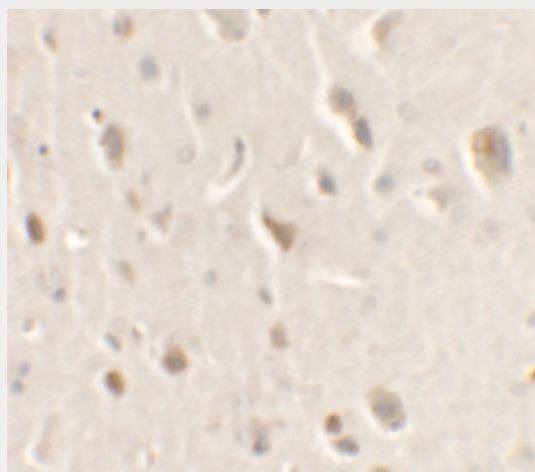
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### ULK1 Antibody - Images

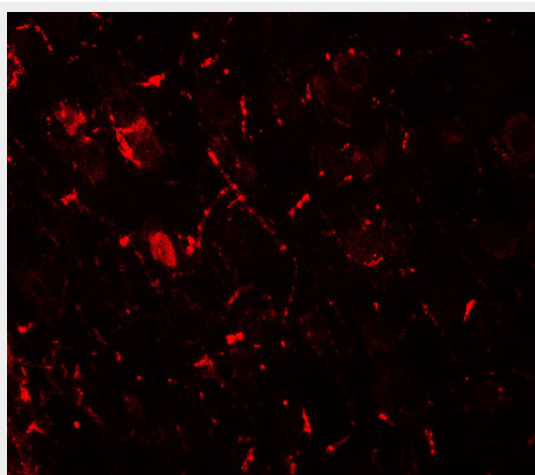




Western blot analysis of ULK1 in rat brain tissue lysate with ULK1 antibody at 1  $\mu\text{g/mL}$  in (A) the absence and (B) the presence of blocking peptide.



Immunohistochemistry of ULK1 in rat brain tissue with ULK1 antibody at 2.5  $\mu\text{g/ml}$ .



Immunofluorescence of ULK1 in rat brain tissue with ULK1 antibody at 20  $\mu\text{g/ml}$ .

#### **ULK1 Antibody - Background**

ULK1 Antibody: ULK1, also known as ATG1, is a key serine/threonine protein kinase probably acting

at the most upstream step of autophagosome formation. Knockout of ULK1 results in a severe defect in the autophagy pathway. ULK1 is highly conserved among eukaryotes, and are the Unc-51-like kinases, ULK1 and ULK2 in mammals. ULK1 is ubiquitously expressed and involved in autophagy in response to starvation. It is the target of the TOR kinase signaling pathway that regulates autophagy through the control of phosphorylation status of ATG13. ULK1 also plays a role early in neuronal differentiation.

### **ULK1 Antibody - References**

Suzuki K, Kubota Y, Sekito T, et al. Hierarchy of Atg proteins in pre-autophagosomal structure organization. *Genes to Cells* 2007; 12:209-18.

Lee EJ and Tournier C. The requirement of uncoordinated 51-like kinase 1 (ULK1) and ULK2 in the regulation of autophagy. *Autophagy* 2011; 7:689-95.

Yan J, Kuroyanagi H, Tomemori T, et al. Mouse ULK2, a novel member of the UNC-51-like protein kinases: unique features of functional domains. *Oncogene* 1999; 18:5850-9.

Bach M, Larance M, James DE, et al. The serine/threonine kinase ULK1 is a target of multiple phosphorylation events. *Biochem. J.* 2011; 440:283-91.