

**Phospho-ULK1(S556) Antibody**  
**Affinity Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP3804a**

## Specification

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### Phospho-ULK1(S556) Antibody - Product Information

Application	IF, DB,E
Primary Accession	<a href="#">O75385</a>
Other Accession	<a href="#">NP_003556.1</a>
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	112631

### Phospho-ULK1(S556) Antibody - Additional Information

**Gene ID** 8408

#### Other Names

Serine/threonine-protein kinase ULK1, Autophagy-related protein 1 homolog, ATG1, hATG1, Unc-51-like kinase 1, ULK1, KIAA0722

#### Target/Specificity

This ULK1 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding S556 of human ULK1.

#### Dilution

IF~~1:200  
DB~~1:500

#### Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

#### Storage

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

#### Precautions

Phospho-ULK1(S556) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

### Phospho-ULK1(S556) 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:[18936157](#), PubMed:[21460634](#), PubMed:[21795849](#), PubMed:[23524951](#), PubMed:[25040165](#), PubMed:[29487085](#), PubMed:[31123703](#)). Acts upstream of phosphatidylinositol 3-kinase PIK3C3 to regulate the formation of autophagophores, the precursors of autophagosomes (PubMed:[18936157](#), PubMed:[21460634](#), PubMed:[21795849](#), PubMed:[25040165](#)). 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:[21795849](#)). 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:[21460634](#)). May phosphorylate ATG13/KIAA0652 and RPTOR; however such data need additional evidences (PubMed:[18936157](#)). Plays a role early in neuronal differentiation and is required for granule cell axon formation (PubMed:[11146101](#)). Also phosphorylates SESN2 and SQSTM1 to regulate autophagy (PubMed:[25040165](#), PubMed:[37306101](#)). Phosphorylates FLCN, promoting autophagy (PubMed:[25126726](#)). Phosphorylates AMBRA1 in response to autophagy induction, releasing AMBRA1 from the cytoskeletal docking site to induce autophagosome nucleation (PubMed:[20921139](#)). Phosphorylates ATG4B, leading to inhibit autophagy by decreasing both proteolytic activation and delipidation activities of ATG4B (PubMed:[28821708](#)).

#### 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

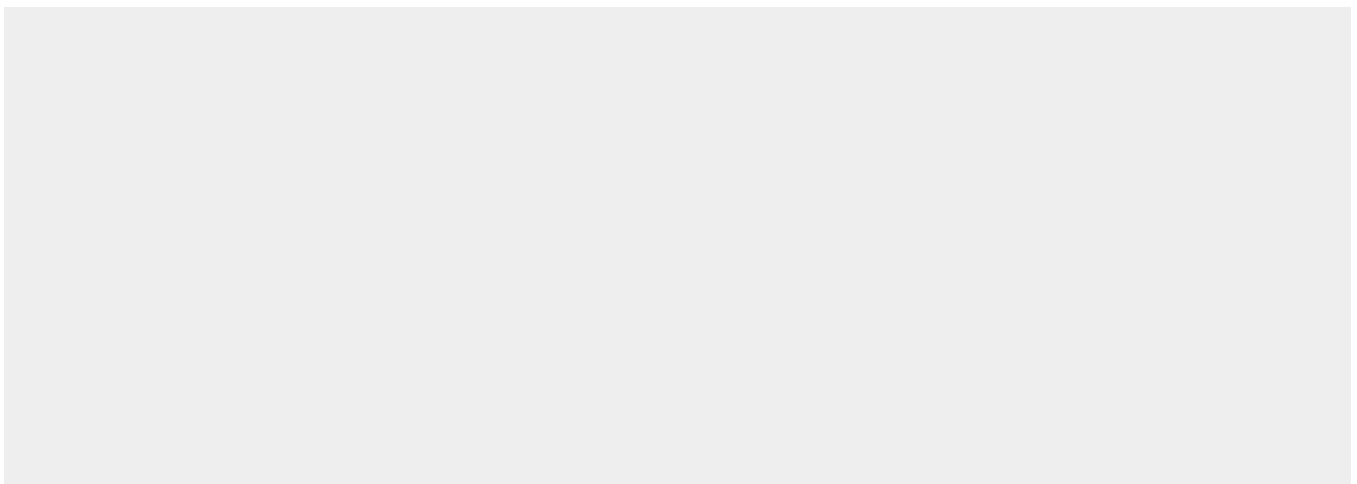
Ubiquitously expressed. Detected in the following adult tissues: skeletal muscle, heart, pancreas, brain, placenta, liver, kidney, and lung

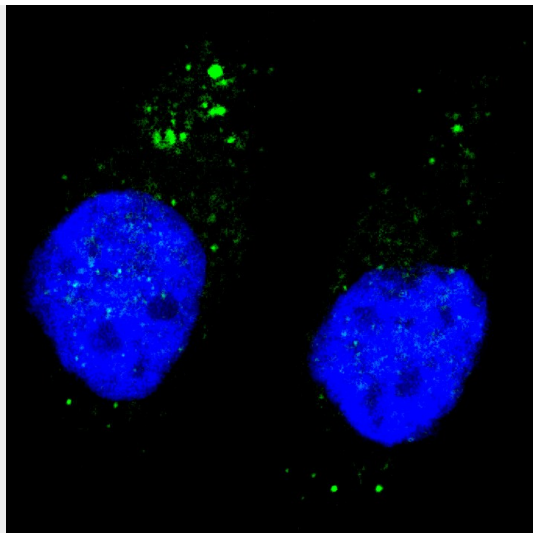
#### Phospho-ULK1(S556) Antibody - Protocols

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

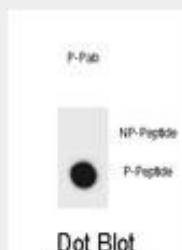
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### Phospho-ULK1(S556) Antibody - Images





Fluorescent image of U251 cells stained with ULK1 (phospho S556) antibody. U251 cells were treated with Chloroquine (50  $\mu$ M, 16h), then fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP3804a ULK1 (phospho S556) primary antibody (1:200, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10  $\mu$ g/ml, 5 min). ULK1 (phospho S556) immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.



Dot blot analysis of ULK1 Antibody (Phospho S556) Phospho-specific Pab (Cat. #AP3804a) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentrations are 0.6ug per ml.

### Phospho-ULK1(S556) Antibody - Background

Involved in autophagy. Required for autophagosome formation (By similarity). Target of the TOR kinase signaling pathway that regulates autophagy through the control of phosphorylation status of ATG13/KIAA0652 and ULK1, and the regulation of the ATG13-ULK1-RB1CC1 complex (By similarity). Phosphorylates ATG13/KIAA0652. Involved in axon growth (By similarity). Plays an essential role in neurite extension of cerebellar granule cells (By similarity).

### Phospho-ULK1(S556) Antibody - References

References for protein:

1. Mercer, C.A., et al. *Autophagy* 5(5):649-662(2009)
2. Ganley, I.G., et al. *J. Biol. Chem.* 284(18):12297-12305(2009)
3. Jung, C.H., et al. *Mol. Biol. Cell* 20(7):1992-2003(2009)
4. Hosokawa, N., et al. *Mol. Biol. Cell* 20(7):1981-1991(2009)
5. Chan, E.Y. *Sci Signal* 2 (84), PE51 (2009)

References for U251 cell line:

1. Westermarck B.; Pontén J.; Hugosson R. (1973). "Determinants for the establishment of permanent tissue culture lines from human gliomas". *Acta Pathol Microbiol Scand A.* 81:791-805.

[PMID: 4359449].

2. Pontén, J., Westermarck B. (1978). "Properties of Human Malignant Glioma Cells in Vitro". Medical Biology 56: 184-193.[PMID: 359950].

3. Geng Y.; Kohli L.; Klocke B.J.; Roth K.A.(2010). "Chloroquine-induced autophagic vacuole accumulation and cell death in glioma cells is p53 independent". Neuro Oncol. 12(5): 473-481.[PMID: 20406898].