Phospho-ULK1 (Ser556) Antibody / Unc-51 like autophagy activating kinase 1 [clone 31U30] (FY13231)

Catalog No.	Formulation	Size
FY13231	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human, Mouse
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	31U30
Purity	Affinity-chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	O75385
Applications	Immunofluorescence : 1:50-1:200 Immunocytochemistry/Western Blot : 1:500-1:2000
Limitations	This Phospho-ULK1 (Ser556) antibody is available for research use only.

Description

Phospho-ULK1 (Ser556) antibody detects Unc-51 like autophagy activating kinase 1 phosphorylated at serine 556, encoded by the ULK1 gene. ULK1 is a serine/threonine kinase that initiates autophagy in response to nutrient status and energy stress. Phosphorylation at Ser556 is an important regulatory event that integrates upstream signaling pathways to control autophagosome formation. Phospho-ULK1 (Ser556) antibody provides researchers with a highly specific reagent to study the regulation of autophagy and its role in physiology and disease.

ULK1 functions as the mammalian homolog of yeast Atg1, acting at the top of the autophagy hierarchy. Research using Phospho-ULK1 (Ser556) antibody has demonstrated that phosphorylation at serine 556 by AMP activated protein kinase promotes activation of ULK1 under conditions of energy depletion. This modification stimulates autophagy initiation by enabling the ULK1 complex to recruit downstream autophagy machinery. By contrast, mTORC1 signaling suppresses ULK1 through phosphorylation at other sites, highlighting the dynamic control of ULK1 activity by nutrient and energy

signals.

Phospho-ULK1 (Ser556) antibody has been used to show that phosphorylation at this site acts as a molecular switch for autophagy induction. In starvation or low energy states, phosphorylation at Ser556 ensures cells adapt by recycling cytoplasmic contents through lysosomal degradation. This process provides metabolic substrates for survival and maintains homeostasis. Inhibiting phosphorylation at Ser556 impairs autophagy, underscoring its essential role in this pathway.

Dysregulation of ULK1 phosphorylation has been linked to human disease. Studies with Phospho-ULK1 (Ser556) antibody have revealed that impaired autophagy contributes to neurodegenerative diseases, metabolic disorders, and cancer. In cancer, altered ULK1 phosphorylation influences tumor cell survival under stress conditions, promoting growth in nutrient-poor environments. In neurodegeneration, reduced ULK1 activation leads to accumulation of toxic proteins. These findings emphasize the clinical importance of monitoring ULK1 phosphorylation states.

Phospho-ULK1 (Ser556) antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting reveals phosphorylation-dependent shifts in ULK1 activity, immunohistochemistry highlights tissue-specific patterns of autophagy activation, and immunofluorescence demonstrates dynamic localization of phosphorylated ULK1 at autophagosome initiation sites. These applications make Phospho-ULK1 (Ser556) antibody an indispensable reagent in autophagy research.

By supplying validated Phospho-ULK1 (Ser556) antibody reagents, NSJ Bioreagents supports research into energy sensing, autophagy regulation, and disease mechanisms. Detection of phosphorylation at Ser556 provides a precise marker of ULK1 activation and autophagy initiation.

Application Notes

Optimal dilution of the Phospho-ULK1 (Ser556) antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Phospho-ULK1 (S556) was used as the immunogen for the Phospho-ULK1 (Ser556) antibody.

Storage

Store the Phospho-ULK1 (Ser556) antibody at -20oC.