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ULK3 Antibody

Catalog # ASC11729

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q6PHR2
Other Accession	NP_001092906, 150456432
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	53444
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ULK3 antibody can be used for detection of ULK3 by Western blot at 0.5 - 1 g/ml. Antibody can also be used for Immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	25989
Other Names	Serine/threonine-protein kinase ULK3, 2.7.11.1, Unc-51-like kinase 3, ULK3
Target/Specificity	ULK3; ULK3 antibody is human specific. Multiple isoforms of ULK3 are known to exist.
Reconstitution & Storage	ULK3 antibody can be stored at 4°C for three months and -20°C, stable for up to one year.
Precautions	ULK3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ULK3 {ECO:0000303|PubMed:19878745, ECO:0000312|HGNC:HGNC:19703}
Function	Serine/threonine protein kinase that acts as a regulator of smoothened signaling and autophagy (PubMed:19279323, PubMed:19878745, PubMed:20643644, PubMed:31279575). Acts as a positive regulator of smoothened signaling in the presence of hedgehog (DHH, IHH or SHH) ligand: autophosphorylates and mediates phosphorylation of full-length GLI2, promoting subsequent phosphorylation by CDK1 and GLI2 dissociation from SUFU and translocation to the nucleus (PubMed:19878745, PubMed:20643644, PubMed:31279575). Also phosphorylates as GLI1 and GLI3, although less efficiently (PubMed:19878745, PubMed:20643644). In the absence of hedgehog ligand, interacts with SUFU, thereby inactivating the protein kinase activity and preventing phosphorylation of GLI proteins (GLI1,

	GLI2 and/or GLI3) (PubMed:20643644). Also acts as a regulator of autophagy: following cellular senescence, able to induce autophagy (PubMed:19279323).
Cellular Location	Cytoplasm. Note=Localizes to pre-autophagosomal structure during cellular senescence.
Tissue Location	Widely expressed. Highest levels observed in fetal brain. In adult tissues, high levels in brain, liver and kidney, moderate levels in testis and adrenal gland and low levels in heart, lung, stomach, thymus, prostate and placenta. In the brain, highest expression in the hippocampus, high levels also detected in the cerebellum, olfactory bulb and optic nerve. In the central nervous system, lowest levels in the spinal cord

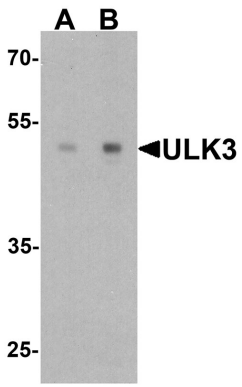
Background

ULK3 belongs to the Ser/Thr protein kinase superfamily and plays a role in the ATP-dependent phosphorylation of target proteins (1). Knockout of ULK genes results in a severe defect in the autophagy pathway (2). ULK3, like the other Unc-51-like kinases such as ULK1, ULK2 and ULK4, is highly conserved among eukaryotes (3). ULK3 has been shown to be a positive regulator of the Hedgehog signaling pathway by enhancing GLI1 and GLI2 transcriptional activity (4). Furthermore, ULK3 can also interact with SUFU, a protein required for the negative regulation of GLI proteins; this interaction blocks the autophosphorylation of ULK3 and blocks its ability to regulate the GLI proteins (5).

References

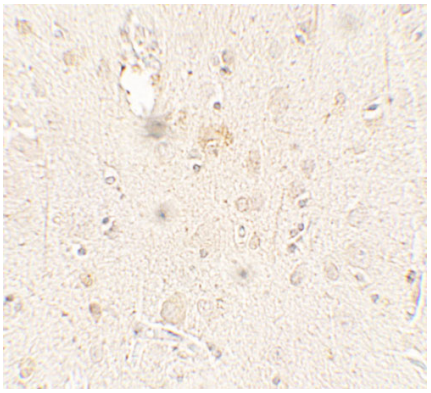
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Lee EJ and Tournier C. The requirement of uncoordinated 51-like kinase 1 (ULK1) and ULK2 in the regulation of autophagy. Autophagy 2011; 7:689-95.
Zhou X, Babu JR, da Silva S, et al. Unc-51-like kinase 1/2-mediated endocytic processes regulate filopodia extension and branching of sensory axons. Proc. Natl. Acad. Sci. USA 2007; 104:5842-7.
Maloverjan A, Piirsoo M, Michelson P, et al. Identification of a novel serine/threonine kinase ULK3 as a positive regulator of Hedgehog pathway. Exp. Cell Res. 2010; 316:627-37.

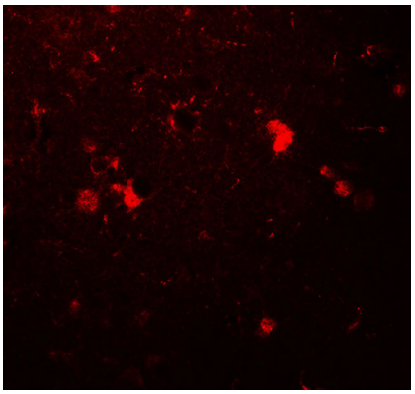
Images



Western blot analysis of ULK3 in human brain tissue lysate with ULK3 antibody at (A) 0.5 and (B) 1 µg/ml.

Immunohistochemistry of ULK3 in human brain tissue with ULK3 antibody at 5 µg/mL.





Immunofluorescence of ULK3 in human brain tissue with ULK3 antibody at 20 µg/mL.

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