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WIPI1 Antibody

Catalog # ASC11550

Product Information

Application	WB, IF, E
Primary Accession	Q5MNZ9
Other Accession	NP_060453, 157388939
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	48673
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	WIPI1 antibody can be used for detection of Wipi1 by Western blot at 1 - 2 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	55062
Other Names	WD repeat domain phosphoinositide-interacting protein 1, WIPI-1, Atg18 protein homolog, WD40 repeat protein interacting with phosphoinositides of 49 kDa, WIPI 49 kDa, WIPI1, WIPI49
Target/Specificity	WIPI1; At least two isoforms of WIPI1 are known to exist; this antibody will detect both isoforms.
Reconstitution & Storage	WIPI1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	WIPI1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	WIPI1
Synonyms	WIPI49
Function	Component of the autophagy machinery that controls the major intracellular degradation process by which cytoplasmic materials are packaged into autophagosomes and delivered to lysosomes for degradation (PubMed:15602573, PubMed:20114074, PubMed:20484055, PubMed:20639694, PubMed:23088497, PubMed:28561066, PubMed:31271352). Plays an important role in starvation- and

	calcium-mediated autophagy, as well as in mitophagy (PubMed:28561066). Functions downstream of the ULK1 and PI3- kinases that produce phosphatidylinositol 3-phosphate (PtdIns3P) on membranes of the endoplasmic reticulum once activated (PubMed:28561066). Binds phosphatidylinositol 3-phosphate (PtdIns3P), and maybe other phosphoinositides including PtdIns3,5P2 and PtdIns5P, and is recruited to phagophore assembly sites at the endoplasmic reticulum membranes (PubMed:28561066, PubMed:31271352, PubMed:33499712). There, it assists WIPI2 in the recruitment of ATG12- ATG5-ATG16L1, a complex that directly controls the elongation of the nascent autophagosomal membrane (PubMed:28561066). Together with WDR45/WIPI4, promotes ATG2 (ATG2A or ATG2B)-mediated lipid transfer by enhancing ATG2-association with phosphatidylinositol 3-monophosphate (PI3P)-containing membranes (PubMed:31271352). Involved in xenophagy of Staphylococcus aureus (PubMed:22829830). Invading S.aureus cells become entrapped in autophagosome-like WIPI1 positive vesicles targeted for lysosomal degradation (PubMed:22829830). Also plays a distinct role in controlling the transcription of melanogenic enzymes and melanosome maturation, a process that is distinct from starvation-induced autophagy (PubMed:21317285). May also regulate the trafficking of proteins involved in the mannose-6-phosphate receptor (MPR) recycling pathway (PubMed:15020712).
Cellular Location	Golgi apparatus, trans-Golgi network. Endosome. Cytoplasmic vesicle, clathrin-coated vesicle. Preautophagosomal structure membrane; Peripheral membrane protein. Cytoplasm, cytoskeleton. Note=Trans elements of the Golgi and peripheral endosomes. Dynamically cycles through these compartments and is susceptible to conditions that modulate membrane flux. Enriched in clathrin-coated vesicles. Upon starvation-induced autophagy, accumulates at subcellular structures in the cytoplasm: enlarged vesicular and lasso-like structures, and large cup-shaped structures predominantly around the nucleus. Recruitment to autophagic membranes is controlled by MTMR14. Labile microtubules specifically recruit markers of autophagosome formation like WIPI1, whereas mature autophagosomes may bind to stable microtubules
Tissue Location	Ubiquitously expressed. Highly expressed in skeletal muscle, heart, testis, pancreas and placenta. Highly expressed in G361, Sk-mel-28, Sk-mel-13, WM852 and WM451 cells. Up-regulated in a variety of tumor tissues.

Background

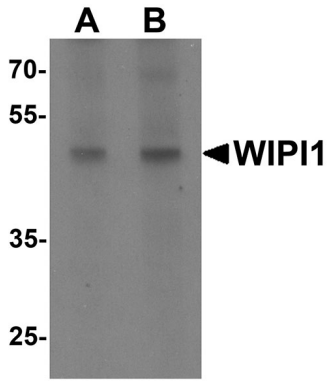
WIPI1 Antibody: WIPI1 (WD repeat domain, phosphoinositide interacting-1), also known as WIPI1, ATG18 or WIPI49, is thought to play a role in autophagy and may regulate protein trafficking in certain recycling pathways. It contains three WD repeats and has a 7-bladed propeller structure with a conserved motif that facilitates its interaction with other proteins. WIPI1 localizes to cytoplasmic vesicles, endosomes, clathrin-coated vesicles and the trans-Golgi network. It is ubiquitously expressed with highest expression in heart, testis, placenta, pancreas and skeletal muscle. WIPI1 is upregulated in a variety of tumors, suggesting a role in carcinogenesis.

References

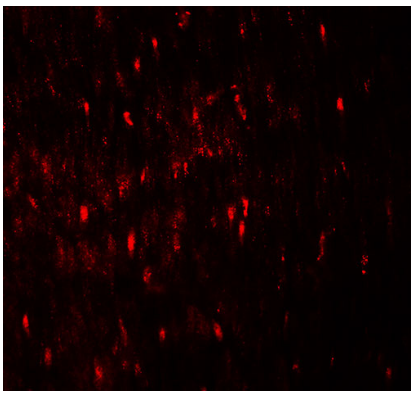
Proikas-Cezanne T and Robenek H. Freeze-fracture replica immunolabelling reveals human WIPI-1 and WIPI-2 as membrane proteins of autophagosomes. J. Cell. Mol. Med. 2011; 15:2007-10.
Jeffries TR, Dove SK, Michell RH, et al. PtdIns-specific MPR pathway association of a novel WD40 repeat protein, WIPI49. Mol. Biol. Cell. 2004;15:2652-63.
Proikas-Cezanne T, Waddell S, Gaugel A, et al. WIPI-1 (WIPI49), a member of the novel 7-bladed WIPI protein family, is aberrantly expressed in human cancer and is linked to starvation-induced autophagy. Oncogene

2004; 23:9314-25.
Proikas-Cezanne T, Ruckerbauer S, Stierhof YD, et al. Human WIPI-1 puncta-formation: a novel assay to assess mammalian autophagy. FEBS Lett. 2007; 581:3396-404.

Images



Western blot analysis of WIPI1 in rat colon tissue lysate with WIPI1 antibody at (A) 1 and (B) 2 µg/mL.



Immunofluorescence of WIPI1 in human colon tissue with WIPI1 antibody at 20 µg/mL.