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PI3KC3 Antibody (S34)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1851E

Product Information

Application	IF, WB, IHC-P, E
Primary Accession	Q8NEB9
Other Accession	Q6AZN6, O88763, Q5D891, Q6PF93
Reactivity	Human
Predicted	Mouse, Rat, Pig, Xenopus
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	101549
Antigen Region	14-39

Additional Information

Gene ID	5289
Other Names	Phosphatidylinositol 3-kinase catalytic subunit type 3, PI3-kinase type 3, PI3K type 3, PtdIns-3-kinase type 3, Phosphatidylinositol 3-kinase p100 subunit, Phosphoinositide-3-kinase class 3, hVps34, PIK3C3, VPS34
Target/Specificity	This PI3KC3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 14-39 amino acids from human PI3KC3.
Dilution	IF~~1:200 WB~~1:1000 IHC-P~~1:100 E~~Use at an assay dependent concentration.
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	PI3KC3 Antibody (S34) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIK3C3 (HGNC:8974)
Synonyms	VPS34 {ECO:0000305}

Function	Catalytic subunit of the PI3K complex that mediates formation of phosphatidylinositol 3-phosphate; different complex forms are believed to play a role in multiple membrane trafficking pathways: PI3KC3-C1 is involved in initiation of autophagosomes and PI3KC3-C2 in maturation of autophagosomes and endocytosis (PubMed:14617358, PubMed:33637724, PubMed:7628435, PubMed:33993848). As part of PI3KC3- C1, promotes endoplasmic reticulum membrane curvature formation prior to vesicle budding (PubMed:32690950). Involved in regulation of degradative endocytic trafficking and required for the abscission step in cytokinesis, probably in the context of PI3KC3-C2 (PubMed:20208530, PubMed:20643123). Involved in the transport of lysosomal enzyme precursors to lysosomes (By similarity). Required for transport from early to late endosomes (By similarity).
Cellular Location	Midbody. Late endosome. Cytoplasmic vesicle, autophagosome. Note=As component of the PI3K complex I localized to pre-autophagosome structures. As component of the PI3K complex II localized predominantly to endosomes (PubMed:14617358). Also localizes to discrete punctae along the ciliary axoneme and to the base of the ciliary axoneme (By similarity) {ECO:0000250|UniProtKB:Q6PF93, ECO:0000305|PubMed:14617358}
Tissue Location	Ubiquitously expressed, with a highest expression in skeletal muscle.

Background

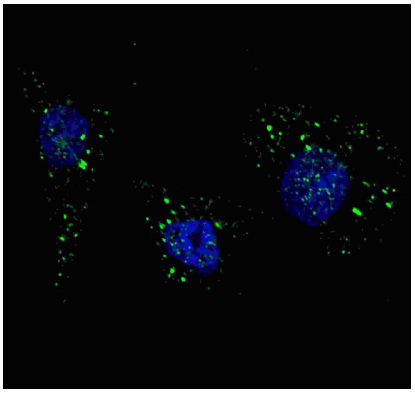
PI3KC3 is a catalytic subunit of the PI3K complex involved in the transport of lysosomal enzyme precursors to lysosomes. This enzyme acts catalytically to convert 1-phosphatidyl-1D-myo-inositol to 1-phosphatidyl-1D-myo-inositol 3-phosphate. Macroautophagy is the major inducible pathway for the general turnover of cytoplasmic constituents in eukaryotic cells, it is also responsible for the degradation of active cytoplasmic enzymes and organelles during nutrient starvation. Macroautophagy involves the formation of double-membrane bound autophagosomes which enclose the cytoplasmic constituent targeted for degradation in a membrane bound structure, which then fuse with the lysosome (or vacuole) releasing a single-membrane bound autophagic bodies which are then degraded within the lysosome (or vacuole). The regulation of the Beclin 1-PI3KC3 complex lipid kinase activity is a critical element in the autophagy signaling pathway.

References

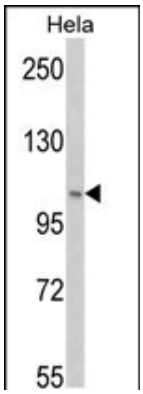
References for protein:
1.Vergne, I., et al., J. Exp. Med. 198(4):653-659 (2003).
2.Volinia, S., et al., EMBO J. 14(14):3339-3348 (1995).
References for U251 cell line:
1. Westermark B.; Pontén J.; Hugosson R. (1973).” Determinants for the establishment of permanent tissue culture lines from human gliomas”. Acta Pathol Microbiol Scand A. 81:791-805. [PMID: 4359449].
2. Pontén, J.,Westermark 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].

Images

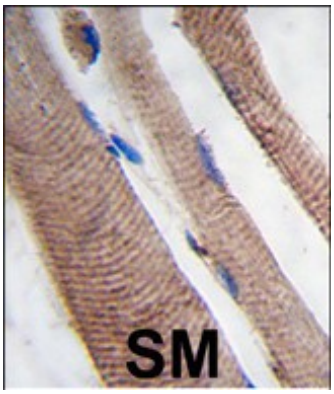
Fluorescent image of U251 cells stained with PI3KC3 (S34) antibody. U251 cells were treated with Chloroquine (50 µM,16h), then fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then



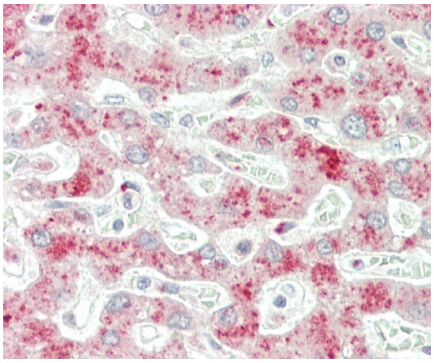
incubated with AP1851e PI3KC3 (S34) primary antibody (1:200, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10 µg/ml, 5 min). PI3KC3 immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells.



Western blot analysis of PI3KC3 (S34) (Cat. #AP1851e) in Hela cell line lysates (35ug/lane). PI3KC3 (arrow) was detected using the purified Pab.



Formalin-fixed and paraffin-embedded human skeletal muscle tissue reacted with PI3KC3 Antibody (S34), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Formalin-fixed and paraffin-embedded H.liver tissue reacted with PI3KC3 Antibody (S34) (Cat#AP1851e).

Citations

- Membrane phospholipid metabolism during phagocytosis in human neutrophils.
- Biochemical isolation and characterization of the tubulovesicular LC3-positive autophagosomal compartment.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.