

SQSTM1 (p62) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP2183B

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	Q13501
Other Accession	Q08623 , Q64337
Reactivity	Human, Mouse, Rat
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	47687
Antigen Region	317-346

Additional Information

Gene ID	8878
Other Names	Sequestosome-1, EBI3-associated protein of 60 kDa, EBIAP, p60, Phosphotyrosine-independent ligand for the Lck SH2 domain of 62 kDa, Ubiquitin-binding protein p62, SQSTM1, ORCA, OSIL.
Target/Specificity	This SQSTM1 (p62) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 317-346 amino acids of human SQSTM1 (p62).
Dilution	WB~~1:500 IHC-P~~1:100~500 IF~~1:200 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
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	SQSTM1 (p62) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SQSTM1 {ECO:0000303 PubMed:16286508, ECO:0000312 HGNC:HGNC:11280}
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Function	Molecular adapter required for selective macroautophagy (aggrephagy) by acting as a bridge between polyubiquitinated proteins and autophagosomes (PubMed: 15340068 , PubMed: 15953362 , PubMed: 16286508 , PubMed: 17580304 , PubMed: 20168092 , PubMed: 22017874 , PubMed: 22622177 , PubMed: 24128730 , PubMed: 28404643 , PubMed: 29343546 , PubMed: 29507397 , PubMed: 31857589 , PubMed: 33509017 , PubMed: 34471133 , PubMed: 34893540 , PubMed: 35831301 , PubMed: 37306101 , PubMed: 37802024). Promotes the recruitment of ubiquitinated cargo proteins to autophagosomes via multiple domains that bridge proteins and organelles in different steps (PubMed: 16286508 , PubMed: 20168092 , PubMed: 22622177 , PubMed: 24128730 , PubMed: 28404643 , PubMed: 29343546 , PubMed: 29507397 , PubMed: 34893540 , PubMed: 37802024). SQSTM1 first mediates the assembly and removal of ubiquitinated proteins by undergoing liquid-liquid phase separation upon binding to ubiquitinated proteins via its UBA domain, leading to the formation of insoluble cytoplasmic inclusions, known as p62 bodies (PubMed: 15911346 , PubMed: 20168092 , PubMed: 22017874 , PubMed: 24128730 , PubMed: 29343546 , PubMed: 29507397 , PubMed: 31857589 , PubMed: 37802024). SQSTM1 then interacts with ATG8 family proteins on autophagosomes via its LIR motif, leading to p62 body recruitment to autophagosomes, followed by autophagic clearance of ubiquitinated proteins (PubMed: 16286508 , PubMed: 17580304 , PubMed: 20168092 , PubMed: 22622177 , PubMed: 24128730 , PubMed: 28404643 , PubMed: 37802024). SQSTM1 is itself degraded along with its ubiquitinated cargos (PubMed: 16286508 , PubMed: 17580304 , PubMed: 37802024). Also required to recruit ubiquitinated proteins to PML bodies in the nucleus (PubMed: 20168092). Also involved in autophagy of peroxisomes (pexophagy) in response to reactive oxygen species (ROS) by acting as a bridge between ubiquitinated PEX5 receptor and autophagosomes (PubMed: 26344566). Acts as an activator of the NFE2L2/NRF2 pathway via interaction with KEAP1: interaction inactivates the BCR(KEAP1) complex by sequestering the complex in inclusion bodies, promoting nuclear accumulation of NFE2L2/NRF2 and subsequent expression of cytoprotective genes (PubMed: 20452972 , PubMed: 28380357 , PubMed: 33393215 , PubMed: 37306101). Promotes relocalization of 'Lys-63'-linked ubiquitinated STING1 to autophagosomes (PubMed: 29496741). Involved in endosome organization by retaining vesicles in the perinuclear cloud: following ubiquitination by RNF26, attracts specific vesicle-associated adapters, forming a molecular bridge that restrains cognate vesicles in the perinuclear region and organizes the endosomal pathway for efficient cargo transport (PubMed: 27368102 , PubMed: 33472082). Sequesters tensin TNS2 into cytoplasmic puncta, promoting TNS2 ubiquitination and proteasomal degradation (PubMed: 25101860). May regulate the activation of NFKB1 by TNF, nerve growth factor (NGF) and interleukin-1 (PubMed: 10356400 , PubMed: 10747026 , PubMed: 11244088 , PubMed: 12471037 , PubMed: 16079148 , PubMed: 19931284). May play a role in titin/TTN downstream signaling in muscle cells (PubMed: 15802564). Adapter that mediates the interaction between TRAF6 and CYLD (By similarity).
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Cellular Location

Cytoplasmic vesicle, autophagosome. Preautophagosomal structure. Cytoplasm, cytosol. Nucleus, PML body. Late endosome. Lysosome. Nucleus Endoplasmic reticulum. Cytoplasm, myofibril, sarcomere {ECO:0000250|UniProtKB:O08623}. Note=In cardiac muscle, localizes to the sarcomeric band (By similarity). Localizes to cytoplasmic membraneless inclusion bodies, known as p62 bodies, containing polyubiquitinated protein aggregates (PubMed:[11786419](#), PubMed:[20357094](#), PubMed:[22017874](#), PubMed:[29343546](#), PubMed:[29507397](#), PubMed:[31857589](#), PubMed:[37306101](#), PubMed:[37802024](#)). In neurodegenerative diseases, detected in Lewy bodies in Parkinson disease, neurofibrillary tangles in Alzheimer disease, and HTT aggregates in Huntington disease

(PubMed:15158159). In protein aggregate diseases of the liver, found in large amounts in Mallory bodies of alcoholic and nonalcoholic steatohepatitis, hyaline bodies in hepatocellular carcinoma, and in SERPINA1 aggregates (PubMed:11981755) Enriched in Rosenthal fibers of pilocytic astrocytoma (PubMed:11786419). In the cytoplasm, observed in both membrane-free ubiquitin-containing protein aggregates (sequestosomes) and membrane-surrounded autophagosomes (PubMed:15953362, PubMed:17580304) Colocalizes with TRIM13 in the perinuclear endoplasmic reticulum (PubMed:22178386). Co-localizes with TRIM5 in cytoplasmic bodies (PubMed:20357094). When nuclear export is blocked by treatment with leptomycin B, accumulates in PML bodies (PubMed:20168092) {ECO:0000250 | UniProtKB:O08623, ECO:0000269 | PubMed:11786419, ECO:0000269 | PubMed:11981755, ECO:0000269 | PubMed:15158159, ECO:0000269 | PubMed:15953362, ECO:0000269 | PubMed:17580304, ECO:0000269 | PubMed:20168092, ECO:0000269 | PubMed:20357094, ECO:0000269 | PubMed:22017874, ECO:0000269 | PubMed:22178386, ECO:0000269 | PubMed:29343546, ECO:0000269 | PubMed:29507397, ECO:0000269 | PubMed:31857589, ECO:0000269 | PubMed:37306101, ECO:0000269 | PubMed:37802024}

Tissue Location	Ubiquitously expressed.
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Background

SQSTM1/p62 is an adapter protein which binds ubiquitin and may regulate the activation of NFKB1 by TNF-alpha, nerve growth factor (NGF) and interleukin-1. This protein may play a role in titin/TTN downstream signaling in muscle cells, and may also regulate signaling cascades through ubiquitination. This protein is involved in cell differentiation, apoptosis, immune response and regulation of K(+) channels. SQSTM1/p62 also appears to play a role in macroautophagic removal of intracellular protein aggregates. Cellular depletion studies of SQSTM1/p62 have indicated a role for association with LC3 and aggregate proteins in order to facilitate normal formation of the autophagosome.

References

References for protein:

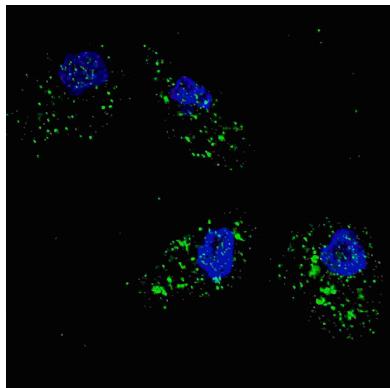
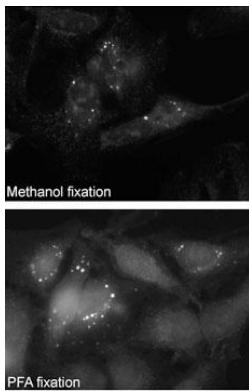
- 1.Seibenhener, M.L., et al., Mol. Cell. Biol. 24(18):8055-8068 (2004).
- 2.Eekhoff, E.W., et al., Arthritis Rheum. 50(5):1650-1654 (2004).
- 3.Brajenovic, M., et al., J. Biol. Chem. 279(13):12804-12811 (2004).
- 4.Kuusisto, E., et al., J. Neuropathol. Exp. Neurol. 62(12):1241-1253 (2003).
5. Johnson-Pais, T.L., et al., J. Bone Miner. Res. 18(10):1748-1753 (2003).

References for U251 cell line:

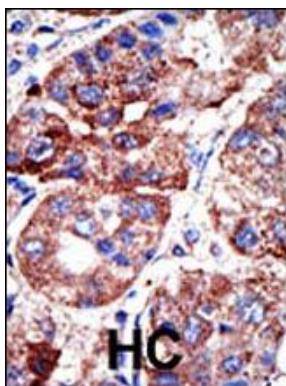
1. Westermark B.; Pontén J.; Hugosson R. (1973)." Determinants for the establishment of permanent tissue culture lines from human gliomas". Acta Pathol Microbiol Scand A. 81:791-805. [PMID: 4359449].
2. Pontén, J.,Westermark B. (1978)." Properties of Human Malignant Glioma Cells in Vitro". Medical Biology 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

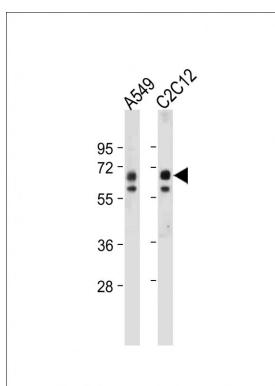
Immunofluorescence staining of Autophagy SQSTM1 (p62) Antibody (C-term) (Cat# AP2183b) on Methanol-fixed and PFA fixed HeLa cells. Data courtesy of Dr. Eeva-Liisa Eskelinen, University of Helsinki,Finland.



Fluorescent image of U251 cells stained with SQSTM1 (p62) (C-term) antibody. U251 cells were treated with Chloroquine (50 μ M, 16h), then fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP2183b SQSTM1 (p62) (C-term) 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 μ g/ml, 5 min). SQSTM1 (p62) immunoreactivity is localized to autophagic vacuoles in the cytoplasm of U251 cells, supported by Human Protein Atlas Data (<http://www.proteinatlas.org/ENSG00000161011>).

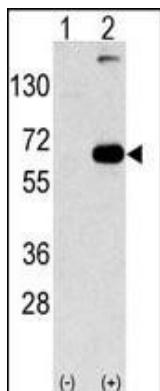
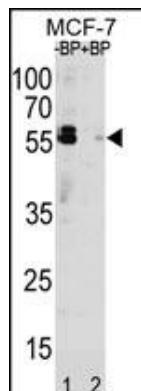


Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



All lanes : Anti-SQSTM1 (p62) Antibody (C-term) at 1:2000 dilution Lane 1: A549 whole cell lysate Lane 2: C2C12 whole cell lysate Lysates/proteins at 20 μ g per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 48 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Western blot analysis of SQSTM1 Antibody (C331) Pab (Cat.#AP2183b) pre-incubated without(lane 1) and with(lane 2) blocking peptide in MCF-7 cell line lysate. SQSTM1 Antibody (C331) (arrow) was detected using the purified Pab.



Western blot analysis of SQSTM1 (arrow) using rabbit polyclonal Autophagy SQSTM1 (p62) Antibody (C-term) (Cat.#AP2183b). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the SQSTM1 gene (Lane 2) (Origene Technologies).

Citations

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- [TXNIP/VDUP1 attenuates steatohepatitis via autophagy and fatty acid oxidation](#)
- [Rapamycin induces megakaryocytic differentiation through increasing autophagy in Dami cells](#)
- [Enteritidis Effector AvrA Suppresses Autophagy by Reducing Beclin-1 Protein](#)
- [Axonal autophagosome maturation defect through failure of ATG9A sorting underpins pathology in AP-4 deficiency syndrome](#)
- [The p53 inactivators pifithrin- \$\mu\$ and pifithrin- \$\alpha\$ mitigate TBI-induced neuronal damage through regulation of oxidative stress, neuroinflammation, autophagy and mitophagy](#)
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- [p62/SQSTM1 prominently accumulates in renal proximal tubules in nephropathic cystinosis](#)
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- [Overexpression of the autophagic beclin-1 protein clears mutant ataxin-3 and alleviates Machado-Joseph disease](#)

- [Autophagy negatively regulates keratinocyte inflammatory responses via scaffolding protein p62/SQSTM1.](#)
- [Roles of SIRT1 in the acute and restorative phases following induction of inflammation.](#)
- [Invasion and multiplication of Helicobacter pylori in gastric epithelial cells and implications for antibiotic resistance.](#)
- [Epidermal growth factor reduces autophagy in intestinal epithelium and in the rat model of necrotizing enterocolitis.](#)
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- [Transcription factor GATA4 inhibits doxorubicin-induced autophagy and cardiomyocyte death.](#)
- [Absence of autophagy results in reactive oxygen species-dependent amplification of RLR signaling.](#)
- [Impaired protein aggregate handling and clearance underlie the pathogenesis of p97/VCP-associated disease.](#)

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