

PINK1 Antibody
Purified Mouse Monoclonal Antibody (Mab)
Catalog # AW5456

Specification

PINK1 Antibody - Product Information

Application	IF, WB, IHC-P,E
Primary Accession	Q9BXM7
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Calculated MW	H=63;30,M=63;30 KDa
Isotype	IgG1
Antigen Source	HUMAN

PINK1 Antibody - Additional Information

Gene ID 65018

Antigen Region
Unknown

Other Names

Serine/threonine-protein kinase PINK1, mitochondrial, BRPK, PTEN-induced putative kinase protein 1, PINK1

Dilution

IF~~1:25
WB~~1:1000
IHC-P~~1:25

Target/Specificity

Recombinant PINK1 protein was used to produced this monoclonal antibody.

Format

Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, 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

PINK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

PINK1 Antibody - Protein Information

Name PINK1

Function

Serine/threonine-protein kinase which protects against mitochondrial dysfunction during cellular stress by phosphorylating mitochondrial proteins such as PRKN and DNMI1L, to coordinate mitochondrial quality control mechanisms that remove and replace dysfunctional mitochondrial components (PubMed:14607334, PubMed:15087508, PubMed:18443288, PubMed:18957282, PubMed:19229105, PubMed:19966284, PubMed:20404107, PubMed:20547144, PubMed:20798600, PubMed:22396657, PubMed:23620051, PubMed:23754282, PubMed:23933751, PubMed:24660806, PubMed:24751536, PubMed:24784582, PubMed:24896179, PubMed:24898855, PubMed:25527291, PubMed:32484300). Depending on the severity of mitochondrial damage and/or dysfunction, activity ranges from preventing apoptosis and stimulating mitochondrial biogenesis to regulating mitochondrial dynamics and eliminating severely damaged mitochondria via mitophagy (PubMed:15087508, PubMed:18443288, PubMed:19966284, PubMed:20404107, PubMed:20798600, PubMed:22396657, PubMed:23620051, PubMed:24898855, PubMed:32047033, PubMed:32484300). Mediates the translocation and activation of PRKN at the outer membrane (OMM) of dysfunctional/depolarized mitochondria (PubMed:19966284, PubMed:20404107, PubMed:20798600, PubMed:23754282, PubMed:24660806, PubMed:24751536, PubMed:24784582, PubMed:25474007, PubMed:25527291). At the OMM of damaged mitochondria, phosphorylates pre-existing polyubiquitin chains at 'Ser-65', the PINK1-phosphorylated polyubiquitin then recruits PRKN from the cytosol to the OMM where PRKN is fully activated by phosphorylation at 'Ser-65' by PINK1 (PubMed:19966284, PubMed:20404107, PubMed:20798600, PubMed:23754282, PubMed:24660806, PubMed:24751536, PubMed:25474007, PubMed:25527291).

href="http://www.uniprot.org/citations/24784582" target="_blank">24784582, PubMed:25474007, PubMed:25527291). In damaged mitochondria, mediates the decision between mitophagy or preventing apoptosis by promoting PRKN-dependent poly- or monoubiquitination of VDAC1; polyubiquitination of VDAC1 by PRKN promotes mitophagy, while monoubiquitination of VDAC1 by PRKN decreases mitochondrial calcium influx which ultimately inhibits apoptosis (PubMed:32047033). When cellular stress results in irreversible mitochondrial damage, functions with PRKN to promote clearance of damaged mitochondria via selective autophagy (mitophagy) (PubMed:14607334, PubMed:15087508, PubMed:19966284, PubMed:20404107, PubMed:20798600, PubMed:23933751). The PINK1-PRKN pathway also promotes fission of damaged mitochondria by phosphorylating and thus promoting the PRKN-dependent degradation of mitochondrial proteins involved in fission such as MFN2 (PubMed:18443288, PubMed:23620051, PubMed:24898855). This prevents the refusion of unhealthy mitochondria with the mitochondrial network or initiates mitochondrial fragmentation facilitating their later engulfment by autophagosomes (PubMed:18443288, PubMed:23620051). Also promotes mitochondrial fission independently of PRKN and ATG7-mediated mitophagy, via the phosphorylation and activation of DNM1L (PubMed:18443288, PubMed:32484300). Regulates motility of damaged mitochondria by promoting the ubiquitination and subsequent degradation of MIRO1 and MIRO2; in motor neurons, this likely inhibits mitochondrial intracellular anterograde transport along the axons which probably increases the chance of the mitochondria undergoing mitophagy in the soma (PubMed:22396657). Required for ubiquinone reduction by mitochondrial complex I by mediating phosphorylation of complex I subunit NDUFA10 (By similarity). Phosphorylates LETM1, positively regulating its mitochondrial calcium transport activity (PubMed:29123128).

Cellular Location

Mitochondrion outer membrane; Single-pass membrane protein. Mitochondrion inner membrane {ECO:0000250|UniProtKB:Q99MQ3}; Single-pass membrane protein. Cytoplasm, cytosol. Note=Localizes mostly in mitochondrion and the two smaller proteolytic processed fragments localize mainly in cytosol (PubMed:19229105). When mitochondria lose mitochondrial membrane potential following damage, PINK1 import is arrested, which induces its accumulation in the outer mitochondrial membrane, where it acquires kinase activity (PubMed:18957282)

Tissue Location

Highly expressed in heart, skeletal muscle and testis, and at lower levels in brain, placenta, liver, kidney, pancreas, prostate, ovary and small intestine. Present in the embryonic testis from an early stage of development

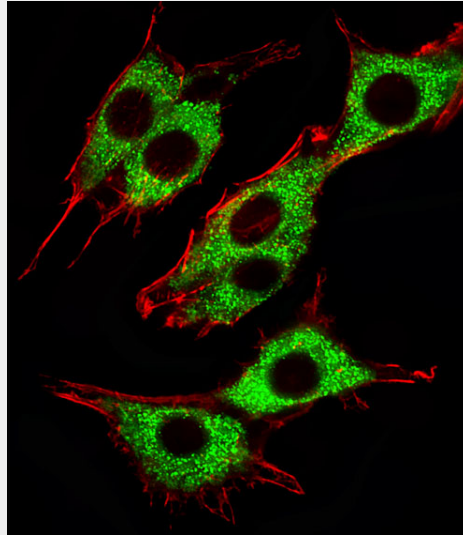
PINK1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

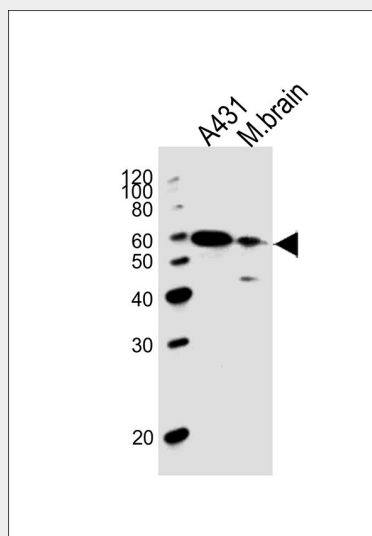
- [Western Blot](#)

- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

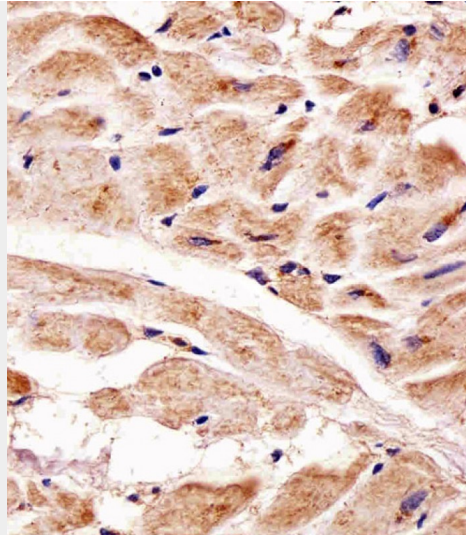
PINK1 Antibody - Images



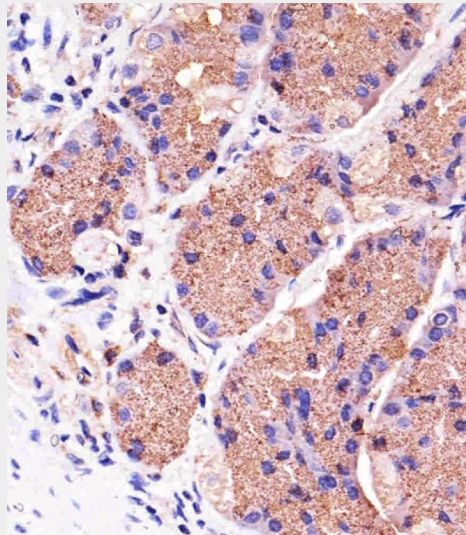
Fluorescent image of PC12 cells stained with Pink1(115-213) Antibody (Cat#AW5456). AW5456 was diluted at 1:25 dilution. An Alexa Fluor 488-conjugated goat anti-mouse IgG at 1:400 dilution was used as the secondary antibody (green). Cytoplasmic actin was counterstained with Alexa Fluor® 555 conjugated with Phalloidin (red).



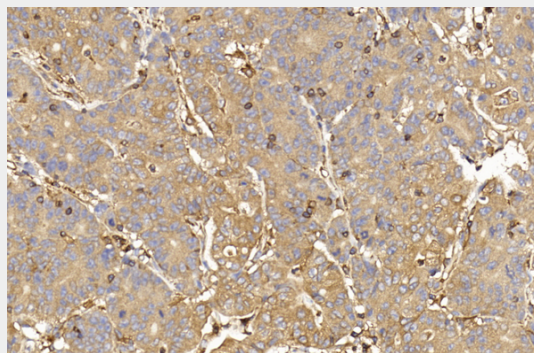
All lanes : Anti-Pink1 Antibody at 1:1000 dilution Lane 1: A431 whole cell lysates Lane 2: mouse brain lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Mouse IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 63 kDa Blocking/Dilution buffer: 5% NFDN/TBST.



Immunohistochemical analysis of paraffin-embedded H. heart section using Pink1(115-213)(Cat#AW5456). AW5456 was diluted at 1:25 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.



Immunohistochemical analysis of paraffin-embedded H. stomach section using Pink1(115-213)(Cat#AW5456). AW5456 was diluted at 1:25 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.



Immunohistochemical analysis of paraffin-embedded Human colon cancer section using Pink1(Cat#AW5456). AW5456 was diluted at 1:200 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.

PINK1 Antibody - Background

This gene encodes a serine/threonine protein kinase that localizes to mitochondria. It is thought to protect cells from stress-induced mitochondrial dysfunction. Mutations in this gene cause one form of autosomal recessive early-onset Parkinson disease.

PINK1 Antibody - References

Oxidative stress alters the regulatory control of p66Shc and Akt in PINK1 deficient cells. Maj MC, et al. Biochem Biophys Res Commun, 2010 Aug 27. PMID 20637729.

Assessing the prevalence of PINK1 genetic variants in South African patients diagnosed with early- and late-onset Parkinson's disease. Keyser RJ, et al. Biochem Biophys Res Commun, 2010 Jul 16. PMID 20558144.

Progression of subtle motor signs in PINK1 mutation carriers with mild dopaminergic deficit. Eggers C, et al. Neurology, 2010 Jun 1. PMID 20513816.

Structural imaging in the presymptomatic stage of genetically determined parkinsonism. Reetz K, et al. Neurobiol Dis, 2010 Sep. PMID 20483373.

Clinical and demographic characteristics of PINK1 mutation carriers--a meta-analysis. Kasten M, et al. Mov Disord, 2010 May 15. PMID 20461815.

PINK1 Antibody - Citations

- [Deafness-associated tRNA mutation impaired mitochondrial and cellular integrity](#)
- [Deficient tRNA posttranscription modification dysregulated the mitochondrial quality controls and apoptosis](#)
- [Leber's hereditary optic neuropathy-associated ND6 14484T > C mutation caused pleiotropic effects on the complex I, RNA homeostasis, apoptosis and mitophagy](#)
- [Mitophagy receptor FUNDC1 is regulated by PGC-1 \$\alpha\$ /NRF1 to fine tune mitochondrial homeostasis](#)
- [OPA1 haploinsufficiency due to a novel splicing variant resulting in mitochondrial dysfunction without mitochondrial DNA depletion](#)
- [Sustained adenosine exposure causes endothelial mitochondrial dysfunction via equilibrative nucleoside transporters](#)
- [Global Landscape and Dynamics of Parkin and USP30-Dependent Ubiquitylomes in iNeurons during Mitophagic Signaling](#)
- [RAB7A phosphorylation by TBK1 promotes mitophagy via the PINK-PARKIN pathway.](#)