

PINK1 Antibody

Purified Mouse Monoclonal Antibody (Mab)

Catalog # AM6406B

Product Information

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|--------------------------|------------------------|
| Application | WB, IHC-P, IF, E |
| Primary Accession | Q9BXM7 |
| Reactivity | Human, Mouse |
| Host | Mouse |
| Clonality | Monoclonal |
| Isotype | IgG1 |
| Clone Names | 38CT18.2.6 |
| Calculated MW | 62769 |
| Antigen Region | Unknown |

Additional Information

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|---------------------------|---|
| Gene ID | 65018 |
| Other Names | Serine/threonine-protein kinase PINK1, mitochondrial, BRPK, PTEN-induced putative kinase protein 1, PINK1 |
| Target/Specificity | Recombinant PINK1 protein was used to produced this monoclonal antibody. |
| Dilution | WB~~1:2000 IHC-P~~1:100~500 IF~~1:25 E~~Use at an assay dependent concentration. |
| 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. |

Protein Information

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| Name | PINK1 |
| Function | Serine/threonine-protein kinase which acts as a sensor of mitochondrial damage and protects against mitochondrial dysfunction during cellular stress. It phosphorylates mitochondrial proteins 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, activity ranges from preventing apoptosis and stimulating mitochondrial biogenesis to eliminating severely damaged mitochondria via PINK1-PRKN-dependent mitophagy (PubMed:[14607334](#), PubMed:[15087508](#), PubMed:[18443288](#), PubMed:[19966284](#), PubMed:[20404107](#), PubMed:[20798600](#), PubMed:[22396657](#), PubMed:[23620051](#), PubMed:[23933751](#), PubMed:[24898855](#), PubMed:[32047033](#), PubMed:[32484300](#)). When cellular stress results in irreversible mitochondrial damage, PINK1 accumulates at the outer mitochondrial membrane (OMM) where it phosphorylates pre-existing polyubiquitin chains at 'Ser-65', recruits PRKN from the cytosol to the OMM and activates PRKN by phosphorylation at 'Ser-65'; activated PRKN then ubiquitinates VDAC1 and other OMM proteins to initiate mitophagy (PubMed:[14607334](#), PubMed:[15087508](#), PubMed:[19966284](#), PubMed:[20404107](#), PubMed:[20798600](#), PubMed:[23754282](#), PubMed:[23933751](#), PubMed:[24660806](#), PubMed:[24751536](#), PubMed:[24784582](#), PubMed:[25474007](#), PubMed:[25527291](#), PubMed:[32047033](#)). The PINK1-PRKN pathway also promotes fission of damaged mitochondria through phosphorylation and 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). Upon mitochondrial membrane depolarization following damage, PINK1 import into the mitochondria 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

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.

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.

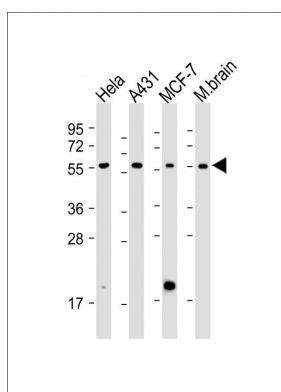
Assessing the prevalence of PINK1 genetic variants in South African patients diagnosed with early- and late-onset Parkinson's disease. Keyser RJ, et al. Biochem Biophys Res Commun, 2010 Jul 16. PMID 20558144.

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

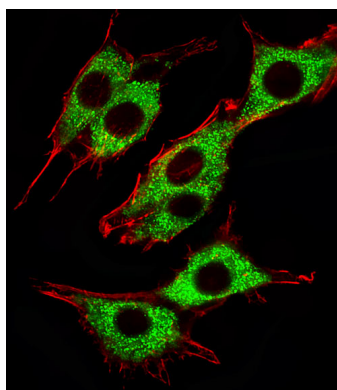
Structural imaging in the presymptomatic stage of genetically determined parkinsonism. Reetz K, et al. Neurobiol Dis, 2010 Sep. PMID 20483373.

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

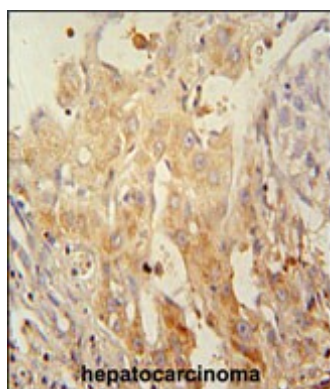
Images



All lanes : Anti-Pink1(115-213) at 1:4000 dilution Lane 1: HeLa whole cell lysate Lane 2: A431 whole cell lysate Lane 3: MCF-7 whole cell lysate Lane 4: Mouse brain lysate 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% NFDM/TBST.



Fluorescent image of PC12 cells stained with Pink1(115-213) Antibody (Cat#AM6406b). AM6406b 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).



PINK1 Monoclonal Antibody (Cat. #AM6406b) immunohistochemistry analysis in formalin fixed and paraffin embedded human kidney tissue followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the PINK1 Monoclonal Antibody for immunohistochemistry. Clinical relevance has not been evaluated.