

LRRK2 Antibody (C-term)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP21200b

Specification

LRRK2 Antibody (C-term) - Product Information

Application	WB, IHC, FC,E
Primary Accession	Q5S007
Reactivity	Human
Host	Rabbit
Clonality	polyclonal
Isotype	Rabbit IgG
Calculated MW	286103

LRRK2 Antibody (C-term) - Additional Information

Gene ID 120892

Other Names

Leucine-rich repeat serine/threonine-protein kinase 2, Dardarin, LRRK2, PARK8

Target/Specificity

This LRRK2 antibody is generated from a rabbit immunized with a KLH conjugated synthetic peptide between 2171-2207 amino acids from the C-terminal region of human LRRK2.

Dilution

WB~~1:1000

IHC~~1:25

FC~~1:25

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

LRRK2 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

LRRK2 Antibody (C-term) - Protein Information

Name LRRK2

Synonyms PARK8

Function Serine/threonine-protein kinase which phosphorylates a broad range of proteins involved in multiple processes such as neuronal plasticity, innate immunity, autophagy, and vesicle trafficking (PubMed:[17114044](#), PubMed:[20949042](#), PubMed:[21850687](#), PubMed:[22012985](#), PubMed:[23395371](#), PubMed:[24687852](#), PubMed:[25201882](#), PubMed:[26014385](#), PubMed:[26824392](#), PubMed:[27830463](#), PubMed:[28720718](#), PubMed:[29125462](#), PubMed:[29127255](#), PubMed:[29212815](#), PubMed:[30398148](#), PubMed:[30635421](#)). Is a key regulator of RAB GTPases by regulating the GTP/GDP exchange and interaction partners of RABs through phosphorylation (PubMed:[26824392](#), PubMed:[28720718](#), PubMed:[29125462](#), PubMed:[29127255](#), PubMed:[29212815](#), PubMed:[30398148](#), PubMed:[30635421](#)). Phosphorylates RAB3A, RAB3B, RAB3C, RAB3D, RAB5A, RAB5B, RAB5C, RAB8A, RAB8B, RAB10, RAB12, RAB35, and RAB43 (PubMed:[23395371](#), PubMed:[26824392](#), PubMed:[28720718](#), PubMed:[29125462](#), PubMed:[29127255](#), PubMed:[29212815](#), PubMed:[30398148](#), PubMed:[30635421](#)). Regulates the RAB3IP-catalyzed GDP/GTP exchange for RAB8A through the phosphorylation of 'Thr-72' on RAB8A (PubMed:[26824392](#)). Inhibits the interaction between RAB8A and GDI1 and/or GDI2 by phosphorylating 'Thr-72' on RAB8A (PubMed:[26824392](#)). Regulates primary ciliogenesis through phosphorylation of RAB8A and RAB10, which promotes SHH signaling in the brain (PubMed:[29125462](#), PubMed:[30398148](#)). Together with RAB29, plays a role in the retrograde trafficking pathway for recycling proteins, such as mannose-6-phosphate receptor (M6PR), between lysosomes and the Golgi apparatus in a retromer-dependent manner (PubMed:[23395371](#)). Regulates neuronal process morphology in the intact central nervous system (CNS) (PubMed:[17114044](#)). Plays a role in synaptic vesicle trafficking (PubMed:[24687852](#)). Plays an important role in recruiting SEC16A to endoplasmic reticulum exit sites (ERES) and in regulating ER to Golgi vesicle-mediated transport and ERES organization (PubMed:[25201882](#)). Positively regulates autophagy through a calcium-dependent activation of the CaMKK/AMPK signaling pathway (PubMed:[22012985](#)). The process involves activation of nicotinic acid adenine dinucleotide phosphate (NAADP) receptors, increase in lysosomal pH, and calcium release from lysosomes (PubMed:[22012985](#)). Phosphorylates PRDX3 (PubMed:[21850687](#)). By phosphorylating APP on 'Thr-743', which promotes the production and the nuclear translocation of the APP intracellular domain (AICD), regulates dopaminergic neuron apoptosis (PubMed:[28720718](#)). Acts as a positive regulator of innate immunity by mediating phosphorylation of RIPK2 downstream of NOD1 and NOD2, thereby enhancing RIPK2 activation (PubMed:[27830463](#)). Independent of its kinase activity, inhibits the proteasomal degradation of MAPT, thus promoting MAPT oligomerization and secretion (PubMed:[26014385](#)). In addition, has GTPase activity via its Roc domain which regulates LRRK2 kinase activity (PubMed:[18230735](#), PubMed:[26824392](#), PubMed:[28720718](#), PubMed:[29125462](#), PubMed:[29212815](#)). Recruited by RAB29/RAB7L1 to overloaded lysosomes where it phosphorylates and stabilizes RAB8A and RAB10 which promote lysosomal content release and suppress lysosomal enlargement through the EHBP1 and EHBP1L1 effector proteins (PubMed:[30209220](#), PubMed:[38227290](#)).

Cellular Location

Cytoplasmic vesicle. Perikaryon. Golgi apparatus membrane; Peripheral membrane protein. Cell projection, axon. Cell projection, dendrite. Endoplasmic reticulum membrane; Peripheral membrane protein. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle membrane. Endosome {ECO:0000250|UniProtKB:Q5S006}. Lysosome Mitochondrion outer membrane; Peripheral membrane protein. Cytoplasm, cytoskeleton. Cytoplasmic vesicle, phagosome {ECO:0000250|UniProtKB:Q5S006}. Note=Colocalized with RAB29 along tubular structures emerging from Golgi apparatus (PubMed:[23395371](#)). Localizes to endoplasmic reticulum exit sites (ERES), also known as transitional endoplasmic reticulum (tER) (PubMed:[25201882](#)). Detected on phagosomes and stressed lysosomes but not detected on autophagosomes induced by starvation (By similarity) Recruitment to stressed lysosomes is dependent on the ATG8 conjugation system composed of ATG5, ATG12 and ATG16L1 and leads to lysosomal stress-induced activation of LRRK2 (By similarity) {ECO:0000250|UniProtKB:Q5S006, ECO:0000269|PubMed:[23395371](#), ECO:0000269|PubMed:[25201882](#)}

Tissue Location

Expressed in pyramidal neurons in all cortical laminae of the visual cortex, in neurons of the substantia nigra pars compacta and caudate putamen (at protein level). Expressed in neutrophils

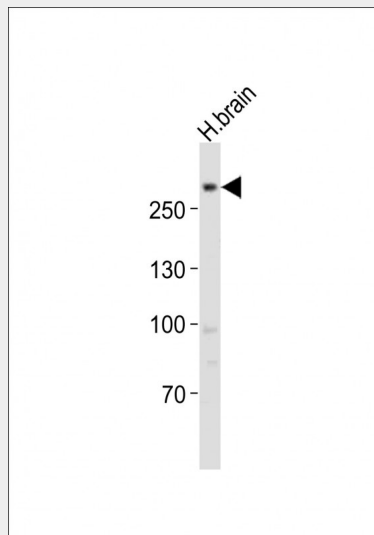
(at protein level) (PubMed:29127255). Expressed in the brain. Expressed throughout the adult brain, but at a lower level than in heart and liver. Also expressed in placenta, lung, skeletal muscle, kidney and pancreas. In the brain, expressed in the cerebellum, cerebral cortex, medulla, spinal cord occipital pole, frontal lobe, temporal lobe and putamen. Expression is particularly high in brain dopaminoceptive areas.

LRRK2 Antibody (C-term) - Protocols

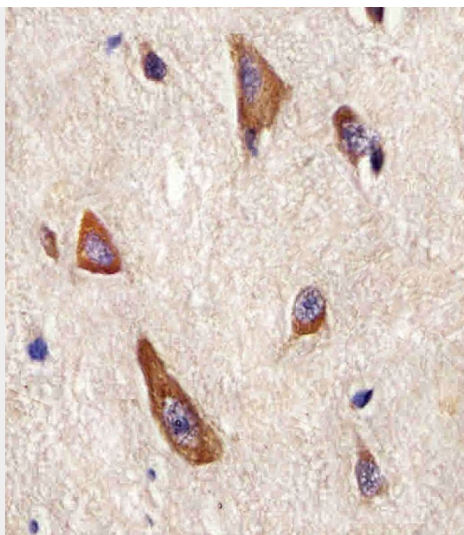
Provided below are standard protocols that you may find useful for product applications.

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

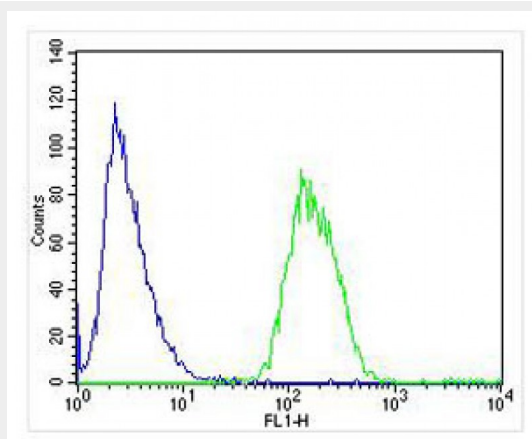
LRRK2 Antibody (C-term) - Images



Anti-LRRK2 Antibody (C-term) at 1:1000 dilution + human brain lysates Lysates/proteins at 20 μ g per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 286 kDa Blocking/Dilution buffer: 5% NFD/MTBST.



AP21200b staining LRRK2 in Human brain tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 3% BSA for 0.5 hour at room temperature; antigen retrieval was by heat mediation with a citrate buffer (pH6). Samples were incubated with primary antibody (1/25) for 1 hours at 37°C. A undiluted biotinylated goat polyvalent antibody was used as the secondary antibody.



Overlay histogram showing SH-SY5Y cells stained with AP21200b (green line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 90% methanol for 10 min. The cells were then incubated in 2% bovine serum albumin to block non-specific protein-protein interactions followed by the antibody (1:25 dilution) for 60 min at 37°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) (1583138) at 1/400 dilution for 40 min at 37°C. Isotype control antibody (blue line) was rabbit IgG1 (1µg/1x10⁶ cells) used under the same conditions. Acquisition of >10,000 events was performed.

LRRK2 Antibody (C-term) - Background

Positively regulates autophagy through a calcium-dependent activation of the CaMKK/AMPK signaling pathway. The process involves activation of nicotinic acid adenine dinucleotide phosphate (NAADP) receptors, increase in lysosomal pH, and calcium release from lysosomes. Together with RAB29, plays a role in the retrograde trafficking pathway for recycling proteins, such as mannose 6 phosphate receptor (M6PR), between lysosomes and the Golgi apparatus in a retromer-dependent manner. Regulates neuronal process morphology in the intact central nervous system (CNS). Phosphorylates PRDX3. May also have GTPase activity. May play a role in the phosphorylation of proteins central to Parkinson disease.

LRRK2 Antibody (C-term) - References

- Zimprich A., et al. *Neuron* 44:601-607(2004).
Scherer S.E., et al. *Nature* 440:346-351(2006).
Bechtel S., et al. *BMC Genomics* 8:399-399(2007).
Adams J.R., et al. *Brain* 128:2777-2785(2005).
Gloeckner C.J., et al. *Hum. Mol. Genet.* 15:223-232(2006).