

Product datasheet

Anti-LRRK2 antibody [MJFF5 (68-7)] ab181386

KO **VALIDATED** Recombinant RabMAB

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Overview

Product name	Anti-LRRK2 antibody [MJFF5 (68-7)]
Description	Rabbit monoclonal [MJFF5 (68-7)] to LRRK2
Host species	Rabbit
Tested applications	Suitable for: WB
Species reactivity	Reacts with: Mouse, Human
Immunogen	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
Positive control	Human brain cortex and mouse brain cortex lysates.
General notes	<p>Well-characterized antibodies to efficiently detect and purify LRRK2 protein are a critical need in the Parkinson's Disease (PD) research community. To help accelerate LRRK2 research, The Michael J. Fox Foundation (MJFF), working with Epitomics, Inc., has generated unique and high quality LRRK2 rabbit monoclonal antibodies to be widely available for PD research community.</p> <p>LRRK2 (Leucine-rich repeat kinase 2, dardarin) is a protein kinase belonging to the ROCO family, which is defined by the presence of a ROC (Ras/GTPase of complex proteins) domain and COR (C-terminal of Roc) region. LRRK2 exhibits kinase activity whereby it can undergo autophosphorylation and can phosphorylate generic substrates. In addition, the GTPase domain of LRRK2 can mediate GDP (guanosine-5'-diphosphate)/GTP (guanosine-5'-triphosphate) binding as well as GTP hydrolysis.</p> <p>LRRK2 is mutated in a significant number of Parkinson's disease (PD) patients. Mutations in this gene account for 4% of PD, and are observed in 1% of sporadic PD patients. Clinical symptoms of patients carrying PD-associated mutations of LRRK2 are indistinguishable from typical sporadic PD. The spectra of neuropathological features of PARK8 (type 8), the type corresponding to LRRK2, is broad and appears to encompass those associated with other familial PD cases such as PARK1 (alpha-synuclein) and PARK2 (Parkin). Patients with this gene mutation have typical relatively late onset Parkinsonism with features comparable with idiopathic PD; symptoms include asymmetric rest tremor, bradykinesia, rigidity, and a good response to 3,4-dihydroxy-L-phenylalanine (L-DOPA). The pathology of cases with LRRK2 mutations is pleomorphic.</p> <p>This antibody clone (c68-7) has been re-introduced to the Epitomics catalog as characterization efforts have indicated that it performs very well at immunoprecipitating LRRK2 protein from cell lines and tissue lysate. This may facilitate investigators' ability to more broadly examine alterations in LRRK2 protein levels and activity to interrogate changes in the biological samples.</p> <p>For more characterization data and protocols using this LRRK2 Antibody, please refer to Davies,</p>

et al. 2013. Biochemical J 453(1):101-113 [PMID: 23560750]

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free production

For more information [see here](#).

Our RabMAb[®] technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to [RabMAb[®] patents](#).

Rat: We have preliminary internal testing data to indicate this antibody may not react with this species. Please contact us for more information.

This antibody was developed with support from The Michael J. Fox Foundation.



Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.20 Preservative: 0.01% Sodium azide Constituent: 99% PBS
Purity	Protein A purified
Clonality	Monoclonal
Clone number	MJFF5 (68-7)
Isotype	IgG

Applications

The Abpromise guarantee Our [Abpromise guarantee](#) covers the use of ab181386 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB		Use a concentration of 1 µg/ml. Predicted molecular weight: 286 kDa. We recommend customers use 3% milk as the blocking agent for ab181386.

Target

Function 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). Plays a role in synaptic vesicle trafficking. Phosphorylates PRDX3. Has GTPase activity. May play a role in the phosphorylation of proteins central to Parkinson disease.

Tissue specificity

Expressed in the brain. 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 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.

Involvement in disease

Parkinson disease 8

Sequence similarities

Belongs to the protein kinase superfamily. TKL Ser/Thr protein kinase family.
Contains 12 LRR (leucine-rich) repeats.
Contains 1 protein kinase domain.
Contains 1 Roc domain.
Contains 7 WD repeats.

Domain

The seven-bladed WD repeat region is critical for synaptic vesicle trafficking and mediates interaction with multiple vesicle-associated presynaptic proteins.
The Roc domain mediates homodimerization and regulates kinase activity.

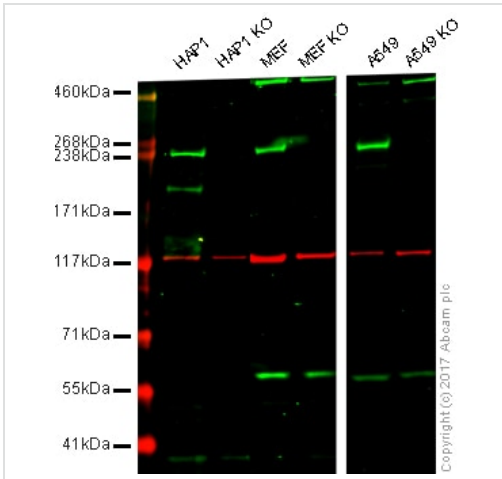
Post-translational modifications

Autophosphorylated.

Cellular localization

Membrane. Cytoplasm. Perikaryon. Mitochondrion. Golgi apparatus. Cell projection, axon. Cell projection, dendrite. Endoplasmic reticulum. Cytoplasmic vesicle, secretory vesicle, synaptic vesicle membrane. Endosome. Lysosome. Mitochondrion outer membrane. Mitochondrion inner membrane. Mitochondrion matrix. Predominantly associated with intracytoplasmic vesicular and membranous structures (By similarity). Localized in the cytoplasm and associated with cellular membrane structures. Predominantly associated with the mitochondrial outer membrane of the mitochondria. Colocalized with RAB29 along tubular structures emerging from Golgi apparatus. Localizes in intracytoplasmic punctate structures of neuronal perikarya and dendritic and axonal processes.

Images



Western blot - Anti-LRRK2 antibody [MJFF5 (68-7)] (ab181386)

Lane 1: Wild-type HAP1 cell lysate (20 µg)

Lane 2: LRRK2 knockout HAP1 cell lysate (20 µg)

Lane 3: MEF cell lysate (20 µg)

Lane 4: LRRK2 knockout MEF cell lysate (20 µg)

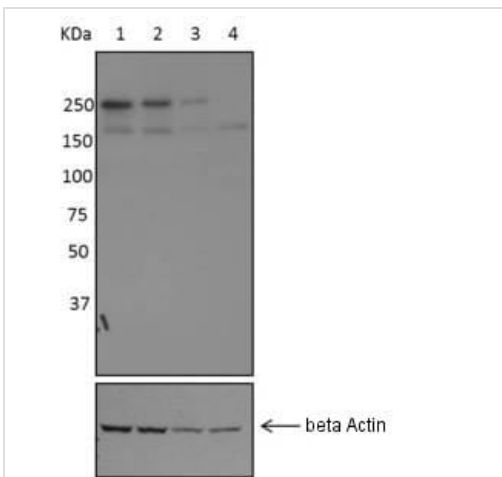
Lane 5: A549 cell lysate (20 µg)

Lane 6: LRRK2 knockout A549 cell lysate (20 µg)

Lanes 1 - 6: Merged signal (red and green). Green - ab181386 observed at 238 kDa. Red - loading control, **ab18058**, observed at 124 kDa.

ab181386 was shown to specifically react with wildtype HAP1, MEF and A549 cell lysates with additional cross-reactive bands. No bands were observed when LRRK2 knockout samples were used. Wild-type and LRRK2 knockout samples were subjected to SDS-PAGE. Membranes were blocked in 3% milk for 1 hour at room temperature. ab181386 and **ab130007** (loading control to Vinculin) were diluted at 2.5 µg/mL and 1/10000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (**ab216773**) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (**ab216776**) secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.

Wild-type and LRRK2 knockout MEF and A549 cells were provided as a generous gift from Professor Dario Alessi, MRC Protein Phosphorylation and Ubiquitination Unit (University of Dundee).



Western blot - Anti-LRRK2 antibody [MJFF5 (68-7)] (ab181386)

Data provided by Dr. Andrew West (University of Alabama at Birmingham)

All lanes : Anti-LRRK2 antibody [MJFF5 (68-7)] (ab181386) at 1 µg/ml

Lanes 1-2 : Human brain cortex lysate

Lane 3 : mouse brain cortex lysate

Lane 4 : LRRK2-knock-out mouse brain cortex lysate

Developed using the ECL technique.

Predicted band size: 286 kDa

Why choose a recombinant antibody?



Research with confidence
Consistent and reproducible results



Long-term and scalable supply
Recombinant technology



Success from the first experiment
Confirmed specificity



Ethical standards compliant
Animal-free production

Anti-LRRK2 antibody [MJFF5 (68-7)] (ab181386)

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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