

## Product datasheet

# Anti-LRRK2 (phospho S973) antibody [MJF-R12 (37-1)] ab181364

Recombinant RabMAb

[4 References](#) [2 Images](#)

### Overview

<b>Product name</b>	Anti-LRRK2 (phospho S973) antibody [MJF-R12 (37-1)]
<b>Description</b>	Rabbit monoclonal [MJF-R12 (37-1)] to LRRK2 (phospho S973)
<b>Host species</b>	Rabbit
<b>Tested applications</b>	<b>Suitable for:</b> WB <b>Unsuitable for:</b> ICC/IF, IHC-P or IP
<b>Species reactivity</b>	<b>Reacts with:</b> Human
<b>Immunogen</b>	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
<b>Positive control</b>	Lysate from HEK293 cells expressing LRRK2 protein.
<b>General notes</b>	<p>This antibody was developed with support of The Michael J. Fox Foundation (MJFF) with the assistance of a consortium of investigators to help accelerate LRRK2 research.</p> <p>LRRK2 (Leucine-rich repeat kinase 2, dardarin) is a multi-domain protein belonging to the ROCO family of proteins that contains a kinase and GTPase domain among its many protein interaction domains. 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. The most common mutation replaces glycine 2019 with a serine that results in increased LRRK2 kinase activity. This indicates that inhibitors of LRRK2 kinase activity might be of therapeutic benefit for the treatment of Parkinson's disease and has stimulated much activity in this field of research. Based upon mass spectrometry findings, a number of other residues within LRRK2 have also been found to be phosphorylated as well.</p> <p>It is of note that phosphorylation of Serine 973 is not thought to be the result of autophosphorylation of the kinase though currently, the physiological relevance of these phospho-sites is not clear. Thus with the generation of this phospho-specific antibody, it is MJFF's hope that investigators may have at hand a critical tool to assist in their research endeavors that might thereby lend further clarity to the field of LRRK2 and its role in PD pathogenesis.</p> <p>Acknowledgements: The Michael J. Fox Foundation would like to acknowledge the assistance of the following laboratories and individuals, whose input, guidance and assistance in testing all phospho specific LRRK2 antibodies was critical:</p> <ul style="list-style-type: none"> <li>• The Laboratory of Dr. Dario Alessi (University of Dundee) -- Paul Davies, PhD</li> <li>• The Laboratory of Dr. Mark Cookson (National Institute on Aging) -- Alexandra Beilina, PhD</li> <li>• The Laboratory of Dr. Johannes Gloeckner (Helmholtz Zentrum Munchen)</li> </ul>

- The Laboratory of Dr. Takeshi Iwatsubo (University of Tokyo) -- Genta Ito, PhD
- The Laboratory of Dr. Jeremy Nichols (The Parkinson's Institute)
- The Laboratory of Dr. Andrew West (University of Alabama)

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

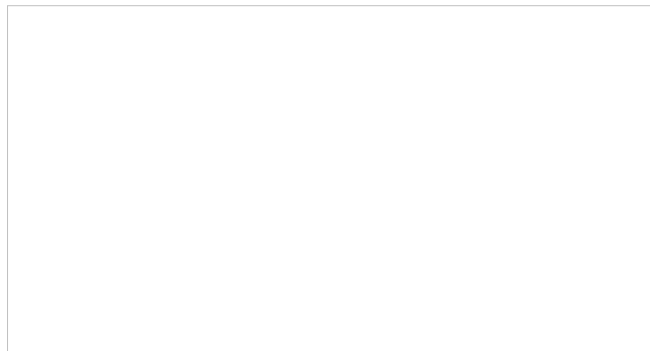
- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free production

For more information [see here](#).

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

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

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



## Properties

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<b>Form</b>	Liquid
<b>Storage instructions</b>	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.
<b>Storage buffer</b>	pH: 7.20 Preservative: 0.01% Sodium azide Constituents: 9% PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA, 50% Tissue culture supernatant
<b>Purity</b>	Protein A purified
<b>Clonality</b>	Monoclonal
<b>Clone number</b>	MJF-R12 (37-1)
<b>Isotype</b>	IgG

## Applications

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**The Abpromise guarantee**      Our [Abpromise guarantee](#) covers the use of ab181364 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		1/1000 - 1/5000. Predicted molecular weight: 286 kDa.

**Application notes** Is unsuitable for ICC/IF, IHC-P or IP.

## 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 dopaminergic areas.

**Involvement in disease** Parkinson disease 8

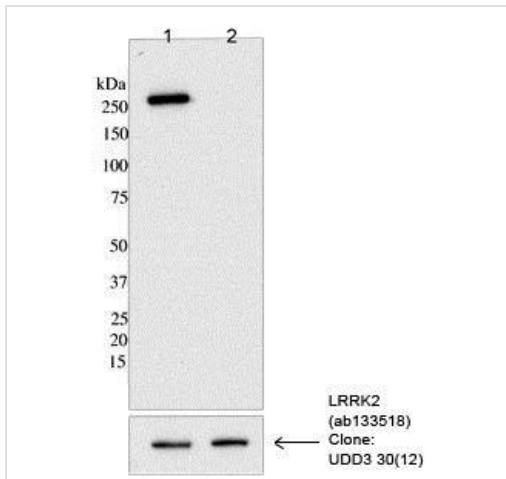
**Sequence similarities** Belongs to the protein kinase superfamily. TKL Ser/Thr protein kinase family. Contains 12 LRR (leucine-rich) repeats. Contains 1 protein kinase domain. Contains 1 Roc domain. Contains 7 WD repeats.

**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



**All lanes** : Anti-LRRK2 (phospho S973) antibody [MJF-R12 (37-1)] (ab181364) at 1/1000 dilution

**Lane 1** : Lysate from HEK293 cells expressing LRRK2


**Lane 2** : Lysate from HEK293 cells expressing LRRK2(S973A)

**Predicted band size:** 286 kDa

Western blot - Anti-LRRK2 (phospho S973) antibody [MJF-R12 (37-1)] (ab181364)

Data kindly provided by Drs. Dario Alessi and Paul Davies, The University of Dundee.

### Why choose a recombinant antibody?

 <p><b>Research with confidence</b> Consistent and reproducible results</p>	 <p><b>Long-term and scalable supply</b> Recombinant technology</p>
 <p><b>Success from the first experiment</b> Confirmed specificity</p>	 <p><b>Ethical standards compliant</b> Animal-free production</p>

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

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