abcam

Product datasheet

Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - BSA and Azide free ab218374

Recombinant RabMAb

3 Images

Overview

Product name	Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - BSA and Azide free
Description	Rabbit monoclonal [MJF-R16 (66-5)] to PARK7/DJ1 - BSA and Azide free
Host species	Rabbit
Specificity	This antibody detects the oxidised form of the Park7 protein.
Tested applications	**Suitable for:** WB **Unsuitable for:** ICC/IF or IHC-P
Species reactivity	**Reacts with:** Human
Immunogen	Synthetic peptide within Human PARK7/DJ1 aa 100-200. The exact sequence is proprietary. Database link: **Q99497**
General notes	ab218374 is the carrier-free version of **ab169520**. In recent years, a critical need in the Parkinson's Disease (PD) research community has been access to well-characterized antibodies directed against known PD-relevant proteins. The Michael J. Fox Foundation (MJFF) has supported this effort by partnering with Drs. Un Kang and David White (University of Chicago) to help accelerate PD research. DJ-1 is widely expressed in the adult mammal and highly conserved between species. Loss-of-function mutations in DJ-1 were recently identified in an autosomal recessive form of Parkinson's disease (PARK7). Among other roles, DJ-1 protects cells against oxidative stress. Oxidization of the cysteine 106 residue (C106) of DJ-1 occurs as a consequence oxidative stress, but is also necessary to fully activate DJ-1 functions. The oxidation state of DJ-1 C106 appears to lead to distinct roles for DJ-1 in the cellular response to oxidative stress. Oxidation of C106 to the sulfinic (-SO2H) form has been implicated as a necessary step to achieve optimal protective functions of DJ-1, whereas oxidation to the sulfonic form (-SO3H) results in the oxidative destabilization of DJ-1 structure. The sulfonic form has been identified as a major oxidized form in PD brains. With the generation of this critical research tool, MJFF hopes to ensure that the role of this modification can be further investigated by all researchers and the relevance of oxidized forms of DJ-1 can be more definitively examined in Parkinson's disease. Our **carrier-free** antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. The carrier-free buffer and high concentration allow for increased conjugation efficiency. This conjugation-ready format is designed for use with fluorochromes, metal isotopes,

oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our **conjugation kits** for antibody conjugates that are ready-to-use in as little as 20 minutes with <1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

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. Do Not Freeze.
Storage buffer	pH: 7.2 Constituent: PBS
Carrier free	Yes
Purity	Protein A purified
Clonality	Monoclonal
Clone number	MJF-R16 (66-5)
Isotype	IgG

Applications

The Abpromise guarantee	Our **Abpromise guarantee** covers the use of ab218374 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 at an assay dependent concentration. Predicted molecular weight: 20 kDa.

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

Target

Function Protects cells against oxidative stress and cell death. Plays a role in regulating expression or stability of the mitochondrial uncoupling proteins SLC25A14 and SLC25A27 in dopaminergic neurons of the substantia nigra pars compacta and attenuates the oxidative stress induced by calcium entry into the neurons via L-type channels during pacemaking. Eliminates hydrogen peroxide and protects cells against hydrogen peroxide-induced cell death. May act as an atypical peroxiredoxin-like peroxidase that scavenges hydrogen peroxide. Following removal of a C-terminal peptide, displays protease activity and enhanced cytoprotective action against oxidative stress-induced apoptosis. Stabilizes NFE2L2 by preventing its association with KEAP1 and its subsequent ubiquitination. Binds to OTUD7B and inhibits its deubiquitinating activity. Enhances RELA nuclear translocation. Binds to a number of mRNAs containing multiple copies of GG or CC motifs and partially inhibits their translation but dissociates following oxidative stress. Required for correct mitochondrial morphology and function and for autophagy of dysfunctional mitochondria. Regulates astrocyte inflammatory responses. Acts as a positive regulator of androgen receptor-dependent transcription. Prevents aggregation of SNCA. Plays a role in fertilization. Has no proteolytic activity. Has cell-growth promoting activity and transforming activity. May function as a redox-sensitive chaperone.

Tissue specificity Highly expressed in pancreas, kidney, skeletal muscle, liver, testis and heart. Detected at slightly lower levels in placenta and brain. Detected in astrocytes, Sertoli cells, spermatogonia, spermatids and spermatozoa.

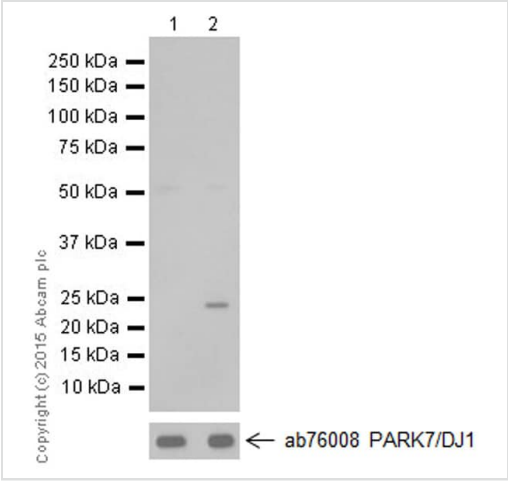
Involvement in disease Defects in PARK7 are the cause of Parkinson disease type 7 (PARK7) [MIM:606324]. A neurodegenerative disorder characterized by resting tremor, postural tremor, bradykinesia, muscular rigidity, anxiety and psychotic episodes. PARK7 has onset before 40 years, slow progression and initial good response to levodopa. Some patients may show traits reminiscent of amyotrophic lateral sclerosis-parkinsonism/dementia complex (Guam disease).

Sequence similarities Belongs to the peptidase C56 family.

Post-translational modifications Sumoylated on Lys-130 by PIAS2 or PIAS4; which is enhanced after ultraviolet irradiation and essential for cell-growth promoting activity and transforming activity.
Cys-106 is easily oxidized to sulfinic acid.
Undergoes cleavage of a C-terminal peptide and subsequent activation of protease activity in response to oxidative stress.

Cellular localization Cytoplasm. Nucleus. Mitochondrion. Under normal conditions, located predominantly in the cytoplasm and, to a lesser extent, in the nucleus and mitochondrion. Translocates to the mitochondrion and subsequently to the nucleus in response to oxidative stress and exerts an increased cytoprotective effect against oxidative damage. Detected in tau inclusions in brains from neurodegenerative disease patients.

Images



Western blot - Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - BSA and Azide free (ab218374)

All lanes : Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - Oxidized (**ab169520**) at 1/10000 dilution (purified)

Lane 1 : Untreated HeLa whole cell lysate
Lane 2 : HeLa whole cell lysate treated with hydrogen peroxide

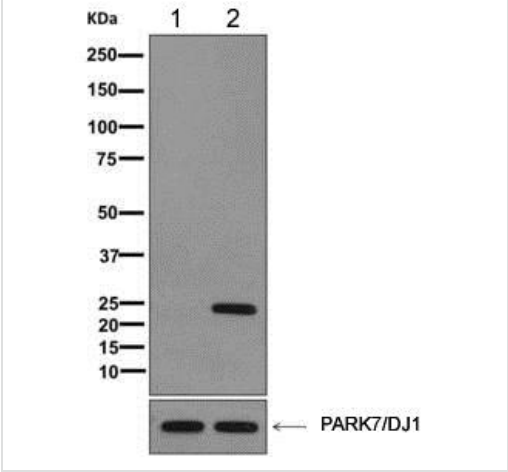
Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/20000 dilution

Predicted band size: 20 kDa
Observed band size: 23 kDa

This data was developed using **ab169520**, the same antibody clone in a different buffer formulation.

Blocking and dilution buffer: 5% NFDM/TBST.



Western blot - Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - BSA and Azide free (ab218374)

This image is courtesy of Drs. Un Kang and David White (University of Chicago)

All lanes : Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - Oxidized (**ab169520**) at 1/1000 dilution (Unpurified)

Lane 1 : HeLa cell lysate, untreated
Lane 2 : HeLa cell lysate, treated with hydrogen peroxide

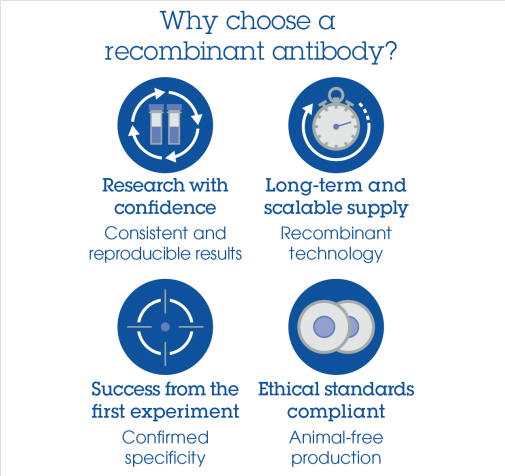
Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 20 kDa

This data was developed using **ab169520**, the same antibody clone in a different buffer formulation.

ab169520 highlights the presence or absence of the oxidized form of this protein; an antibody directed against total PARK7/DJ1 illustrates the presence of PARK7/DJ1 protein in both lanes.



Anti-PARK7/DJ1 antibody [MJF-R16 (66-5)] - BSA and Azide free (ab218374)

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