abcam

Product datasheet

Anti-PARK7/DJ1 antibody ab18257

KO VALIDATED

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Overview

Product name	Anti-PARK7/DJ1 antibody
Description	Rabbit polyclonal to PARK7/DJ1
Tested applications	**Suitable for:** ICC/IF, WB, IHC-P
Species reactivity	**Reacts with:** Mouse, Rat, Rabbit, Human **Predicted to work with:** Cow, Dog
Immunogen	Synthetic peptide conjugated to KLH derived from within residues 150 to the C-terminus of Human PARK7/DJ1. Read Abcam's proprietary immunogen policy
Positive control	WB: HeLa, Jurkat, PC12 and NIH 3T3 whole cell lysates, mouse brain, liver, heart, kidney, pancreas, testis, skeletal muscle, spinal cord and ovary tissue lysates and rat brain, liver, heart and kidney tissue lysates. IHC-P: Human parathyroid tissue. ICC/IF: HeLa cells.

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 or -80°C. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.02% Sodium Azide Constituents: 1% BSA, PBS, pH 7.4
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab18257** 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
ICC/IF	★★★★★	Use a concentration of 5 µg/ml.
WB	★★★★★	Use a concentration of 1 µg/ml. Detects a band of approximately 24 kDa (predicted molecular weight: 20 kDa).
IHC-P		1/200. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

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.

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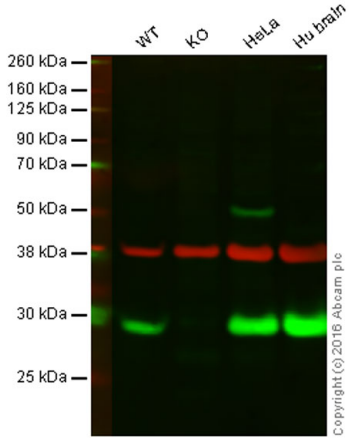
Images

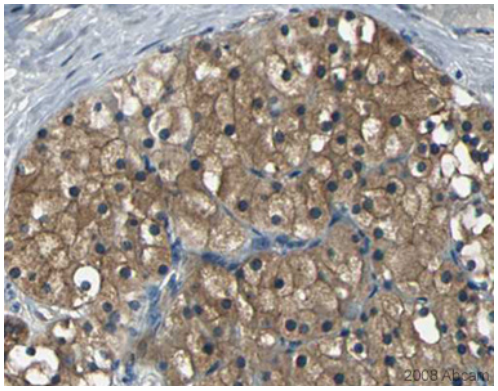


Western blot - Anti-PARK7/DJ1 antibody (ab18257)

Predicted band size : 20 kDa

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: PARK7/DJ1 knockout HAP1 cell lysate (20 µg)
Lane 3: HeLa cell lysate (20 µg)
Lane 4: Human brain tissue lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab18257 observed at 24 kDa. Red - loading control, ab8245, observed at 37 kDa.

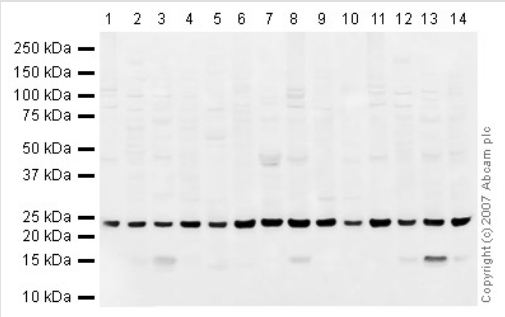
ab18257 was shown to specifically react with PARK/DJ1 in wild-type HAP1 cells. No band was observed when PARK/DJ1 knockout samples were used. Wild-type and PARK/DJ1 knockout samples were subjected to SDS-PAGE. ab18257 and ab8245 (loading control to GAPDH) were diluted to 1µg/mL and 1/10,000 respectively 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 1/10,000 dilution for 1hr at room temperature before imaging.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - PARK7/DJ1 antibody (ab18257)

Image courtesy of Human Protein Atlas

ab18257 staining PARK7/DJ1 in Human parathyroid. The paraffin embedded tissue was incubated with ab18257 (1/22000 dilution) for 30 mins at room temperature. Antigen retrieval was performed by heat induction in citrate buffer pH 6. ab18257 was tested in a tissue microarray (TMA) containing a wide range of normal and cancer tissues as well as a cell microarray consisting



Western blot - PARK7/DJ1 antibody (ab18257)

All lanes : Anti-PARK7/DJ1 antibody (ab18257) at 1 µg/ml

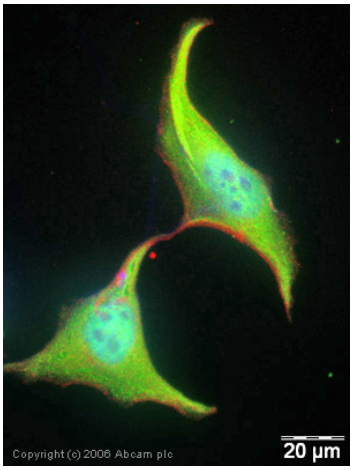
Lane 1 : Brain (Mouse) Tissue Lysate
Lane 2 : Liver (Mouse) Tissue Lysate - normal tissue
Lane 3 : Heart (Mouse) Tissue Lysate
Lane 4 : Kidney (Mouse) Tissue Lysate
Lane 5 : Mouse pancreas tissue lysate - total protein (ab29363)
Lane 6 : Testis (Mouse) Tissue Lysate - normal tissue
Lane 7 : Mouse skeletal muscle tissue lysate - total protein (ab29711)
Lane 8 : Spinal Cord (Mouse) Tissue Lysate
Lane 9 : Ovary (Mouse) Tissue Lysate - normal tissue
Lane 10 : PC12 (Rat adrenal pheochromocytoma cell line) Whole Cell Lysate
Lane 11 : Brain (Rat) Tissue Lysate - normal tissue
Lane 12 : Liver (Rat) Tissue Lysate
Lane 13 : Heart (Rat) Tissue Lysate
Lane 14 : Kidney (Rat) Whole Cell Lysate - normal tissue (ab29480)

Lysates/proteins at 10 µg per lane.

Secondary
IRDye 680 Conjugated Goat Anti-Rabbit IgG (H+L) at 1/10000 dilution

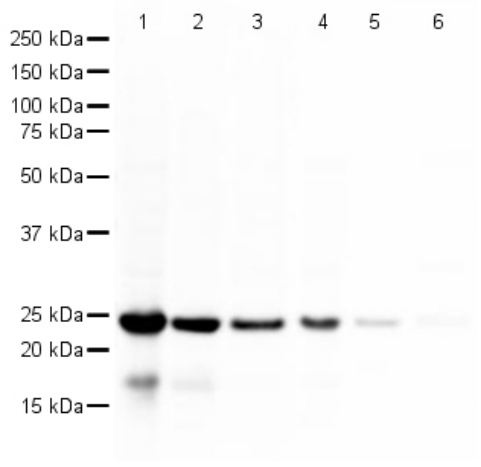
Performed under reducing conditions.

Predicted band size : 20 kDa
Observed band size : 24 kDa
Additional bands at : 15 kDa. We are unsure as to the identity of these extra bands.



Immunocytochemistry/ Immunofluorescence - PARK7/DJ1 antibody (ab18257)

ICC/IF image of ab18257 stained human HeLa cells. The cells were methanol fixed (5 min) and incubated with the antibody (ab18257, 5µg/ml) for 1h at room temperature. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Image-iT™ FX Signal Enhancer was used as the primary blocking agent, 5% BSA (in TBS-T) was used for all other blocking steps. DAPI was used to stain the cell nuclei (blue). Alexa Fluor® 594 phalloidin was used to label F-actin (red).



Western blot - PARK7/DJ1 antibody (ab18257)

All lanes : Anti-PARK7/DJ1 antibody (ab18257) at 1 µg/ml

Lane 1 : Jurkat lysate
Lane 2 : HeLa lysate
Lane 3 : 3T3 lysate
Lane 4 : Jurkat lysate with Human PARK7/DJ1 peptide (ab18659) at 1 µg/ml
Lane 5 : HeLa lysate with Human PARK7/DJ1 peptide (ab18659) at 1 µg/ml
Lane 6 : 3T3 lysate with Human PARK7/DJ1 peptide (ab18659) at 1 µg/ml

Lysates/proteins at 20 µg per lane.

Secondary
Alexa Fluor Goat polyclonal to Rabbit IgG (680) at 1/10000 dilution

Predicted band size : 20 kDa
Observed band size : 24 kDa

Western blot

Developed using the ECL technique

Performed under reducing conditions.

Predicted band size : 20 kDa

Exposure time : 1 minute

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