## Overview

### Product name
Anti-DRP1 antibody [EPR19274]  
**Abcam**

### Description
Rabbit monoclonal [EPR19274] to DRP1

### Host species
Rabbit

### Tested applications
Suitable for: WB, ICC/IF, IP, Flow Cyt, IHC-P

### Species reactivity
Reacts with: Mouse, Rat, Human

### Immunogen
Recombinant fragment within Mouse DRP1 aa 1-350. The exact sequence is proprietary.  
Database link: Q8K1M6

### Positive control
WB: Human fetal kidney, rat brain, rat heart and mouse brain lysates; A549, U-2 OS, HeLa, Jurkat, HEK-293, HCT 116, PC-12 and NIH/3T3 whole cell lysates.  
IHC-P: Mouse cerebral cortex and rat cerebellum tissues.  
ICC/IF: HeLa and NIH/3T3 cells.  
Flow Cyt: NIH/3T3 cells.  
IP: HeLa whole cell lysate.

### General notes
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.  
This product is a recombinant rabbit monoclonal antibody.

## Properties

### Form
Liquid

### Storage instructions

### Storage buffer
Preservative: 0.01% Sodium azide  
Constituents: 59% PBS, 0.05% BSA, 40% Glycerol

### Purity
Protein A purified

### Clonality
Monoclonal

### Clone number
EPR19274

### Isotype
IgG

## Applications

This page contains information about the Anti-DRP1 antibody [EPR19274] ab184247 product datasheet from Abcam. The product is a recombinant rabbit monoclonal antibody. It is suitable for a variety of applications including Western Blotting (WB), Immunocytochemistry (ICC/IF), Immunoprecipitation (IP), Flow Cytometry (Flow Cyt), and Immunohistochemistry (IHC-P). The antibody reacts with Mouse, Rat, and Human species. The immunogen is a recombinant fragment within Mouse DRP1 amino acids 1-350. The exact sequence is proprietary. Positive controls include human fetal kidney, rat brain, rat heart, and mouse brain lysates, as well as various cell lines for WB, ICC/IF, IP, Flow Cyt, and IHC-P. The antibody is shipped at 4°C, and upon delivery aliquoting is recommended before storing at -20°C. The storage buffer contains 0.01% Sodium azide, 59% PBS, 0.05% BSA, and 40% Glycerol. The product is protein A purified and monoclonal. The clone number is EPR19274, and the isotype is IgG.
**Function**

Functions in mitochondrial and peroxisomal division. Mediates membrane fission through oligomerization into ring-like structures which wrap around the scission site to constrict and sever the mitochondrial membrane through a GTP hydrolysis-dependent mechanism. Required for normal brain development. Facilitates developmentally-regulated apoptosis during neural tube development. Required for a normal rate of cytochrome c release and caspase activation during apoptosis. Also required for mitochondrial fission during mitosis. May be involved in vesicle transport. Isoform 1 and isoform 4 inhibit peroxisomal division when overexpressed.

**Tissue specificity**

Ubiquitously expressed with highest levels found in skeletal muscles, heart, kidney and brain. Isoform 1 is brain-specific. Isoform 2 and isoform 3 are predominantly expressed in testis and skeletal muscles respectively. Isoform 4 is weakly expressed in brain, heart and kidney. Isoform 5 is dominantly expressed in liver, heart and kidney. Isoform 6 is expressed in neurons.

**Involvement in disease**

Note=May be associated with Alzheimer disease through beta-amyloid-induced increased S-nitrosylation of DNM1L, which triggers, directly or indirectly, excessive mitochondrial fission, synaptic loss and neuronal damage.

**Sequence similarities**

Belongs to the dynamin family. Contains 1 GED domain.

**Domain**

The GED domain folds back to interact, in cis, with the GTP-binding domain and middle domain, and interacts, in trans, with the GED domains of other DNM1L molecules, and is thus critical for activating GTPase activity and for DNM1L dimerization.

**Post-translational modifications**

Phosphorylation/dephosphorylation events on two sites near the GED domain regulate mitochondrial fission. Phosphorylation on Ser-637 inhibits mitochondrial fission probably through preventing intramolecular interaction. Dephosphorylated on this site by PPP3CA which promotes mitochondrial fission. Phosphorylation on Ser-616 also promotes mitochondrial fission. Sumoylated on various lysine residues within the B domain. Desumoylated by SENP5 during G2/M transition of mitosis. Appears to be linked to its catalytic activity. S-nitrosylation increases DNM1L dimerization, mitochondrial fission and causes neuronal damage. Ubiquitination by MARCH5 affects mitochondrial morphology.

---

**Applications**

Our **Abpromise guarantee** covers the use of ab184247 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB</td>
<td>⭐⭐⭐⭐⭐</td>
<td>1/1000. Detects a band of approximately 83 kDa (predicted molecular weight: 83 kDa).</td>
</tr>
<tr>
<td>ICC/IF</td>
<td></td>
<td>1/250.</td>
</tr>
<tr>
<td>IP</td>
<td></td>
<td>1/30.</td>
</tr>
<tr>
<td>Flow Cyt</td>
<td></td>
<td>1/70.</td>
</tr>
<tr>
<td>IHC-P</td>
<td>⭐⭐⭐⭐⭐</td>
<td>1/1000. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. IHC is recommended for rat and mouse only.</td>
</tr>
</tbody>
</table>

---

**Target**

**Function**

Functions in mitochondrial and peroxisomal division. Mediates membrane fission through oligomerization into ring-like structures which wrap around the scission site to constrict and sever the mitochondrial membrane through a GTP hydrolysis-dependent mechanism. Required for normal brain development. Facilitates developmentally-regulated apoptosis during neural tube development. Required for a normal rate of cytochrome c release and caspase activation during apoptosis. Also required for mitochondrial fission during mitosis. May be involved in vesicle transport. Isoform 1 and isoform 4 inhibit peroxisomal division when overexpressed.

**Tissue specificity**

Ubiquitously expressed with highest levels found in skeletal muscles, heart, kidney and brain. Isoform 1 is brain-specific. Isoform 2 and isoform 3 are predominantly expressed in testis and skeletal muscles respectively. Isoform 4 is weakly expressed in brain, heart and kidney. Isoform 5 is dominantly expressed in liver, heart and kidney. Isoform 6 is expressed in neurons.

**Involvement in disease**

Note=May be associated with Alzheimer disease through beta-amyloid-induced increased S-nitrosylation of DNM1L, which triggers, directly or indirectly, excessive mitochondrial fission, synaptic loss and neuronal damage.

**Sequence similarities**

Belongs to the dynamin family. Contains 1 GED domain.

**Domain**

The GED domain folds back to interact, in cis, with the GTP-binding domain and middle domain, and interacts, in trans, with the GED domains of other DNM1L molecules, and is thus critical for activating GTPase activity and for DNM1L dimerization.

**Post-translational modifications**

Phosphorylation/dephosphorylation events on two sites near the GED domain regulate mitochondrial fission. Phosphorylation on Ser-637 inhibits mitochondrial fission probably through preventing intramolecular interaction. Dephosphorylated on this site by PPP3CA which promotes mitochondrial fission. Phosphorylation on Ser-616 also promotes mitochondrial fission. Sumoylated on various lysine residues within the B domain. Desumoylated by SENP5 during G2/M transition of mitosis. Appears to be linked to its catalytic activity. S-nitrosylation increases DNM1L dimerization, mitochondrial fission and causes neuronal damage. Ubiquitination by MARCH5 affects mitochondrial morphology.
**Cellular localization**

Cytoplasm > cytosol. Golgi apparatus. Endomembrane system. Mainly cytosolic. Translocated to the mitochondrial membrane through interaction with FIS1. Colocalized with MARCH5 at mitochondrial membrane. Localizes to mitochondria at sites of division. Associated with peroxisomal membranes, partly recruited there by PEX11B. May also be associated with endoplasmic reticulum tubules and cytoplasmic vesicles and found to be perinuclear. In some cell types, localizes to the Golgi complex.

**Images**

All lanes: Anti-DRP1 antibody [EPR19274] (ab184247) at 1/1000 dilution

- **Lane 1**: A549 (Human lung carcinoma cell line) whole cell lysate
- **Lane 2**: U-2 OS (Human bone osteosarcoma epithelial cell line) whole cell lysate
- **Lane 3**: HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate
- **Lane 4**: Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate
- **Lane 5**: HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate
- **Lane 6**: HCT 116 (Human colorectal carcinoma cell line) whole cell lysate

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes**: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

**Predicted band size**: 83 kDa

**Observed band size**: 83 kDa

Blocking/Dilution buffer: 5% NFDM/TBST.

Exposure time: Lane 1 and 2: 3 minutes; Lane 3: 30 seconds; Lane 4, 5 and 6: 8 seconds.

DRP1 can be SUMOylated, as described in the literature (PMID: 19638400).
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling DRP1 with ab184247 at 1/250 dilution, followed by Goat anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasm staining on HeLa cell line. The nuclear counter stain is DAPI (blue).

Tubulin is detected with Anti-alpha Tubulin antibody [EPR19274] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:
-ve control 1: ab184247 at 1/250 dilution followed by ab150120 at 1/1000 dilution.
-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

Flow cytometric analysis of 4% paraformaldehyde-fixed NIH/3T3 (Mouse embryonic fibroblast cell line) cells labeling DRP1 with ab184247 at 1/70 dilution (red) compared with a Rabbit IgG,monoclonal -Isotype Control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody.
Anti-DRP1 antibody [EPR19274] (ab184247) at 1/1000 dilution + Human fetal kidney lysate at 10 µg

Secondary
Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/100000 dilution

Predicted band size: 83 kDa
Observed band size: 83 kDa

Exposure time: 30 seconds

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes: Anti-DRP1 antibody [EPR19274] (ab184247) at 1/1000 dilution

Lane 1: Rat brain lysate
Lane 2: Rat heart lysate
Lane 3: Mouse brain lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 83 kDa
Observed band size: 83 kDa

Blocking/Dilution buffer: 5% NFDM/TBST.

Lane 1: 2 seconds; Lane 2: 8 seconds; Lane 3: 3 seconds.
**All lanes**: Anti-DRP1 antibody [EPR19274] (ab184247) at 1/1000 dilution

**Lane 1**: PC-12 (Rat adrenal gland pheochromocytoma cell line) whole cell lysate

**Lane 2**: NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes**: Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

**Predicted band size**: 83 kDa

**Observed band size**: 83 kDa

**Exposure time**: 3 minutes

Blocking/Dilution buffer: 5% NFDM/TBST.
Immunohistochemical analysis of paraffin-embedded Mouse cerebrum tissue labeling DRP1 with ab184247 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Cytoplasm staining on mouse cerebrum is observed. Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Immunohistochemical analysis of paraffin-embedded Rat cerebellum tissue labeling DRP1 with ab184247 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Cytoplasm staining on rat cerebellum is observed. Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embryonic fibroblast cell line) cells labeling DRP1 with ab184247 at 1/250 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasm staining on NIH/3T3 cell line. The nuclear counter stain is DAPI (blue).

Tubulin is detected with Anti-alpha Tubulin antibody [EPR19274] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:
-ve control 1: ab184247 at 1/250 dilution followed by ab150120 at 1/1000 dilution.
-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

DRP1 was immunoprecipitated from 1mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab184247 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab184247 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

Lane 1: HeLa whole cell lysate 10µg (Input).
Lane 2: ab184247 IP in HeLa whole cell lysate.
Lane 3: Rabbit IgG, monoclonal [EPR19274]-Isotype Control (ab172730) instead of ab184247 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 5 seconds.

Note: DRP1 can be SUMOylated, as described in the literature (PMID: 19638400).

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

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards
If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit https://www.abcam.com/abpromise or contact our technical team.

**Terms and conditions**

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors