abcam

ab109506

# Anti-Peroxiredoxin 1/PAG antibody [EPR5434]

Recombinant | RabMAb | KO Validated | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Preservative: 0.05% Sodium azide Constituents: 50% Tissue culture supernatant, 40% Glycerol (glycerin, glycerine), 9.85% Tris glycine, 0.1% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | EPR5434 |
| **Purification technique** | Affinity purification Protein A |
| **Specificity** | Corresponding to residues in Human Peroxiredoxin 1/PAG |
| **Concentration** | 0.101 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### WB

#### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/10000 - 1/50000 |
| **Notes** | - |

### Predicted

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IHC-P

### Not recommended

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | Heat up to 98 degrees C, below boiling, and then let cool for 10-20 min. |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Predicted

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/100 |
| **Notes** | - |

### Predicted

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Predicted

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information PRDX1

| | |
|---|---|
| **Function** | Thiol-specific peroxidase that catalyzes the reduction of hydrogen peroxide and organic hydroperoxides to water and alcohols, respectively. Plays a role in cell protection against oxidative stress by detoxifying peroxides and as sensor of hydrogen peroxide-mediated signaling events. Might participate in the signaling cascades of growth factors and tumor necrosis factor-alpha by regulating the intracellular concentrations of H(2)O(2) (PubMed:9497357). Reduces an intramolecular disulfide bond in GDPD5 that gates the ability to GDPD5 to drive postmitotic motor neuron differentiation (By similarity). |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Conditional Ambient |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Storage information** | Stable for 12 months at -20°C |

## Notes

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**What are the advantages of a recombinant monoclonal antibody?**
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 batch production

For more information, read more on recombinant antibodies.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | Peroxiredoxin 1 also known as PAG plays an important role as an antioxidant enzyme. It is part of the peroxiredoxin family with a molecular mass of around 22 kDa. This protein helps reduce hydrogen peroxide and organic hydroperoxides to water and corresponding alcohols using reducing equivalents provided by thiol-containing donor molecules. Peroxiredoxin 1/PAG expresses widely in human tissues and cells including liver and erythrocytes reflecting its involvement in cellular redox regulation. |

| | |
|---|---|
| **Biological function summary** | Peroxiredoxin 1 helps maintain cellular homeostasis by protecting cells from oxidative stress. It forms homodimers or interacts with other proteins to propagate cellular responses to changes in redox state. As an important member of the antioxidant defense mechanism it contributes to cellular signaling through modulation of hydrogen peroxide signaling pathways. The protein also plays a role in cell proliferation and apoptosis making it significant for cellular health and disease prevention. |
| **Pathways** | Peroxiredoxin 1 participates in critical processes such as the MAPK signaling and TGF-beta pathways. It interacts with MAPK-related proteins influencing cell survival and growth. Peroxiredoxin 1 indirectly modulates downstream signaling molecules that contribute to cellular responses. In these pathways the protein's antioxidant properties allow regulation of reactive oxygen species levels which directly affect cellular signaling cascades. |
| **Associated diseases and disorders** | Peroxiredoxin 1 is relevant to cancer and neurodegenerative disorders. Overexpression or misregulation of this protein has been linked to various cancers where it potentially interacts with oncogenic proteins like c-Myc to promote tumor progression. Additionally abnormal levels of Peroxiredoxin 1 associate with neurodegenerative diseases as oxidative stress is a common factor in their pathology. These connections suggest the protein as a promising target in therapeutic interventions for these diseases. |

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

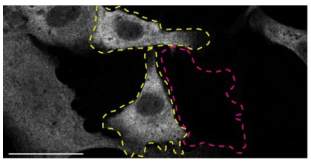
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

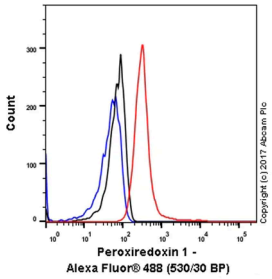
## 9 product images



### Immunocytochemistry/ Immunofluorescence - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

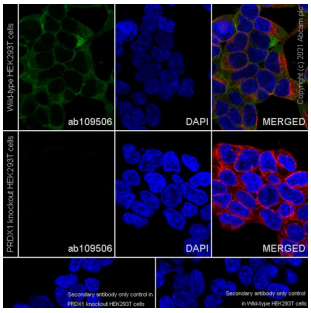
ab109506 was shown to react with PRDX1 in wild-type U-2 OS cells in Immunocytochemistry with loss of signal observed in a PRDX1 knockout cell line. Wild-type and knockout cells were mixed and pelleted at a 1:1 ratio on coverslips. The cells were fixed with then permeabilized with and then blocked with 1/10000. The cells were then incubated with ab109506 at 1/250. 1/5000 would be better dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a secondary antibody to (Alexa Fluor® 555) at 0.5 µg/ml. Acquisition of the green (wild-type), red (antibody staining) and far-red (knockout) channels was performed. Representative grayscale images of the red channel are shown. Wild-type and knockout cells are outlined with yellow and magenta dashed line, respectively. Schematic representation of the mosaic strategy used is shown on the bottom-right panel. Image was acquired with a Zeiss(LSM-880). These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.




### Flow Cytometry (Intracellular) - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Flow Cytometry (Intracellular) staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

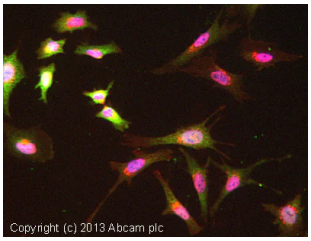
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling Peroxiredoxin 1/PAG with unpurified ab109506 at 1/20 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.




## Immunocytochemistry/ Immunofluorescence - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

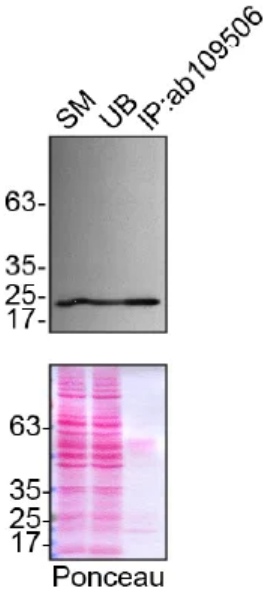
Peroxiredoxin 1/PAG (PRDX1) staining observed in wild-type HEK293T cells and PRDX1 knockout HEK293T cells (ab266842). The cells were fixed with 100% methanol then permeabilized with 0.1% Triton X-100. The cells were then incubated with ab109506 at 1/50 dilution and followed by secondary antibody ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution (shown in green). ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain at 1/200 dilution (shown in red). Nuclear DNA was labelled in blue with DAPI.
Confocal image showing cytoplasmic staining in wild-type HEK-293Tcell line, and no staining in PRDX1 knockout HEK-293T cell line.




## Immunocytochemistry/ Immunofluorescence - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

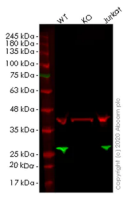
ICC/IF image of ab109506 stained HeLa cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab109506, 1/100 dilution) overnight at +4°C. The secondary antibody (green) was ab96899, DyLight® 488 goat anti-rabbit IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.




## Immunoprecipitation - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Immunoprecipitation of PRDX1 in U-2 OS cells. Lysates were prepared and immunoprecipitation was performed using 1.0 µg of ab109506 pre-coupled to prot.A-Sepharose beads. Samples were washed and processed for western blot with Peroxiredoxin 1 Antibody at 1/10000. SM=10% starting material; UB=10% unbound fraction; IP=immunoprecipitate. These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Immunoprecipitation - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Predicted band size: 22 kDa



## Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Western blot staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

**Lanes 1-3:** Merged signal (red and green). Green - ab109506 observed at 26 kDa. Red - loading control ab8245 observed at 36 kDa.
ab109506 Anti-Peroxiredoxin 1/PAG antibody [EPR5434] was shown to specifically react with Peroxiredoxin 1/PAG in wild-type HEK293T cells. Loss of signal was observed when knockout cell line ab266842 (knockout cell lysate ab257040) was used. Wild-type and Peroxiredoxin 1/PAG knockout samples were subjected to SDS-PAGE. ab109506 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506) at 1/1000 dilution

Lane 1:
Wild-type HEK293T cell lysate at 20 µg

Lane 2:
PRDX1 knockout HEK293T cell lysate at 20 µg

Lane 2:
Western blot - Human PRDX1 (Peroxiredoxin 1/PAG) knockout HEK-293T cell line (ab266842)

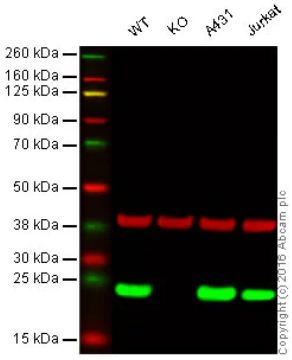
Lane 3:
Jurkat cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 22 kDa

Observed band size: 26 kDa



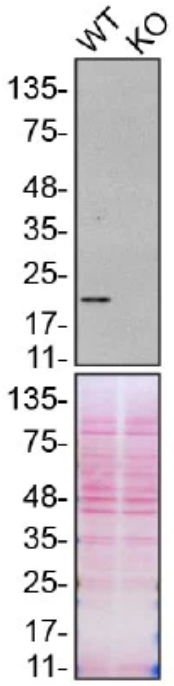

## Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Western blot staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

**Lane 1**: Wild-type HAP1 cell lysate (20 µg)
**Lane 2**: Peroxiredoxin 1/PAG knockout HAP1 cell lysate (20 µg)
**Lane 3**: A431 cell lysate (20 µg)
**Lane 4**: Jurkat cell lysate (20 µg)
**Lanes 1 - 4**: Merged signal (red and green). Green - ab109506 observed at 23 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab109506 was shown to specifically react with Peroxiredoxin 1/PAG when Peroxiredoxin 1/PAG knockout samples were used. Wild-type and Peroxiredoxin 1/PAG knockout samples were subjected to SDS-PAGE. ab109506 and ab8245 (loading control to GAPDH) were both diluted 1/10 000 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 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Predicted band size: 22 kDa




## Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

Peroxiredoxin 1/PAG Western blot staining using rabbit Anti-Peroxiredoxin 1/PAG antibody

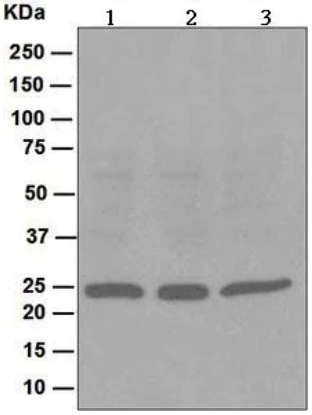
ab109506 was shown to react with PRDX1 in wild-type U-2 OS cells in Western blot with loss of signal observed in a PRDX1 knockout cell line. Wild-type U-2 OS and PRDX1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab109506 overnight at 4 °C at a 1/5000 dilution. Blots were incubated with goat anti-rabbit HRP secondary antibodies at 0.2ug/mL before imaging. These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506) at 1/5000 dilution

Lane 1:
Wild-type U-2 OS cell lysate at 20 µg

Lane 2:
PRDX1 knockout U-2 OS cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 22 kDa




## Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506)

All lanes:
Western blot - Anti-Peroxiredoxin 1/PAG antibody [EPR5434] (ab109506) at 1/10000 dilution

Lane 1:
293T cell lysate at 10 µg

Lane 2:
K562 cell lysate at 10 µg

Lane 3:
U87-MG cell lysate at 10 µg

Secondary

All lanes:
Standard HRP labelled goat anti-rabbit at 1/2000 dilution

Predicted band size: 22 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.