abcam

# ab314543

# Anti-USP48 antibody [EPR26175-11]

Recombinant | RabMAb | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | EPR26175-11 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.522 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |

| | |
|---|---|
| **Dilution info** | 1/1000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/1000 |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/1000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/1000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | Use at an assay dependent concentration. |

| | |
|---|---|
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/50 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## IP

### Not recommended

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

# Target data

See full target information USP48

| | |
|---|---|
| **Function** | Deubiquitinase that recognizes and hydrolyzes the peptide bond at the C-terminal Gly of ubiquitin. Involved in the processing of polyubiquitin precursors as well as that of ubiquitinated proteins (PubMed:16214042, PubMed:34059922). Plays a role in the regulation of NF-kappa-B activation by TNF receptor superfamily via its interactions with RELA and TRAF2. May also play a regulatory role at postsynaptic sites. Plays an important role in cell cycle progression by deubiquitinating Aurora B/AURKB and thereby extending its stability (PubMed:34445214). In the context of H.pylori infection, stabilizes nuclear RELA through deubiquitination, thereby promoting the transcriptional activity of RELA to prolong TNFAIP3 de novo synthesis. Consequently, TNFAIP3 suppresses caspase activity and apoptotic cell death (PubMed:35913642). Also functions in the modulation of the ciliary and synaptic transport as well as cytoskeleton organization, which are key for photoreceptor function and homeostasis. To achieve this, stabilizes the levels of the retinal degeneration-associated proteins ARL3 and UNC119 using distinct |

mechanisms (PubMed:36293380). Plays a positive role in pyroptosis by stabilizing gasdermin E/GSDME through removal of its 'Lys-48'-linked ubiquitination (PubMed:36607699).

## Storage

| | |
|---|---|
| **Shipped at conditions** | Conditional Ambient |
| **Appropriate short-term storage duration** | 1-2 weeks |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Avoid freeze / thaw cycle |

## 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** | USP48 also known as Ubiquitin Specific Peptidase 48 acts as a deubiquitinating enzyme. It specifically removes ubiquitin from target proteins influencing protein stability and function. USP48 has a molecular mass of approximately 130 kDa. This enzyme expresses in various tissues with significant levels observed in the brain and immune cells. Researchers recognize its involvement in protein homeostasis through regulation of protein degradation pathways. |

| | |
|---|---|
| **Biological function summary** | Protein deubiquitination by USP48 affects cellular processes such as DNA repair transcription regulation and signal transduction. USP48 does not function as part of a stable complex but it associates transiently with substrates and other molecular partners during its activity. It has a role in maintaining genomic stability by modulating transcription factors and repair proteins through deubiquitination. |
| **Pathways** | One can find USP48 participating in the NF-kB signaling pathway. It stabilizes RelA an important NF-kB subunit by removing ubiquitin which influences the transcription of genes involved in immune response and inflammation. USP48 also interacts with proteins such as OTUB1 in these pathways contributing to the balance of protein ubiquitination and deubiquitination within the cell. |
| **Associated diseases and disorders** | Research connections exist between USP48 and several cancers including glioblastoma due to its regulation of pathways that control cell survival and proliferation. USP48's interactions with NF-kB impact glioblastoma progression by altering the expression of genes that promote cell growth. Defective USP48 activity also associates with neurodegenerative disorders where its modulation of protein stability could contribute to neuron degeneration through inadequate DNA repair mechanisms. |

## 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**

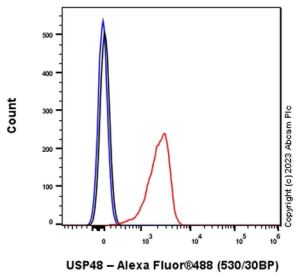
We do not recommend this combination. It is not covered by our product promise.

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.

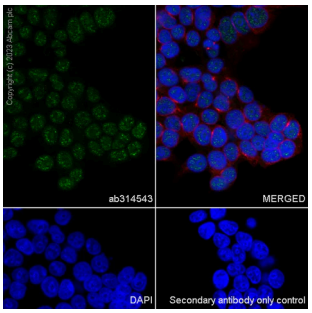
Full details and terms and conditions can be found here:
Terms & Conditions.

## 10 product images



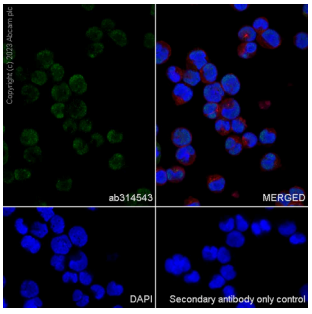

## Flow Cytometry (Intracellular) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized 293T (human embryonic kidney epithelial cell) cells labelling USP48 with ab314543 at 1/500 dilution (0.1 ug, Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



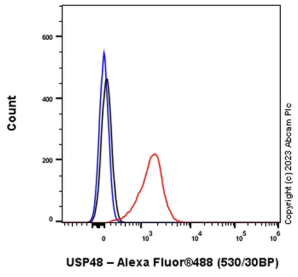

## Immunocytochemistry/ Immunofluorescence - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized 293T (human embryonic kidney epithelial cell) cells labelling USP48 with ab314543 at 1/50 (10.44 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2ug/ml) dilution (Green). Confocal image showing nuclear staining in 293T cells. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5ug/ml) dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2ug/ml) dilution.



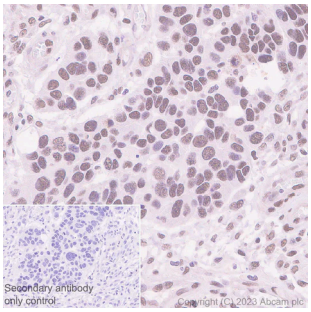

## Immunocytochemistry/ Immunofluorescence - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunofluorescent analysis of 80% Methanol-fixed, 0.1% TritonX-100 permeabilized K-562 (human chronic myelogenous leukemia lymphoblast) cells labelling USP48 with ab314543 at 1/50 (10.44 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1001 (2ug/ml) dilution (Green). Confocal image showing nuclear staining in K-562 cells. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5ug/ml) dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1001 (2ug/ml) dilution.



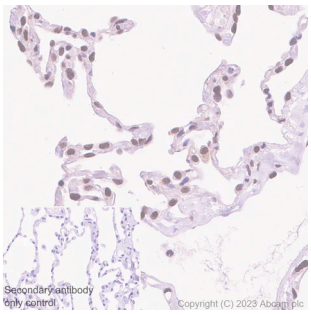

## Flow Cytometry (Intracellular) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized K-562 (human chronic myelogenous leukemia lymphoblast) cells labelling USP48 with ab314543 at 1/500 dilution (0.1 ug, Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



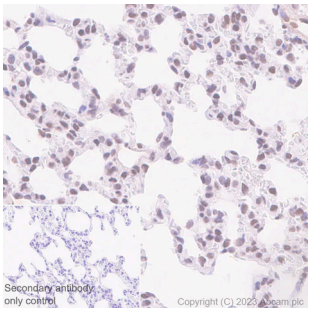

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunohistochemical analysis of paraffin-embedded human gastric carcinoma tissue labeling USP48 with ab314543 at 1/500 (1.044 ug/ml) followed by a ready to use rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on human gastric carcinoma. The section was incubated with ab314543 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



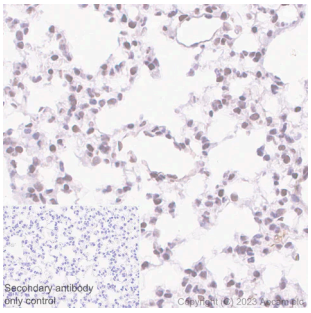

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunohistochemical analysis of paraffin-embedded human lung tissue labeling USP48 with ab314543 at 1/500 (1.044 ug/ml) followed by a ready to use rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on human lung. The section was incubated with ab314543 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



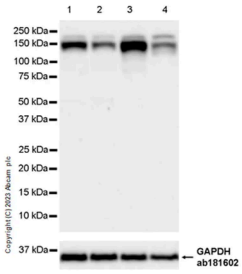

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunohistochemical analysis of paraffin-embedded rat lung tissue labeling USP48 with ab314543 at 1/1000 (0.522 ug/ml) followed by a ready to use rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on rat lung. The section was incubated with ab314543 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-USP48 antibody [EPR26175-11] (ab314543)

Immunohistochemical analysis of paraffin-embedded mouse lung tissue labeling USP48 with ab314543 at 1/1000 (0.522 ug/ml) followed by a ready to use rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on mouse lung. The section was incubated with ab314543 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.




## Western blot - Anti-USP48 antibody [EPR26175-11] (ab314543)

Blocking and diluting buffer and concentration: 5% NFDM/TBST The molecular weight observed is consistent with what has been described in the literature (PMID: 28233861; PMID: 34445214). In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.
All lanes:
Western blot - Anti-USP48 antibody [EPR26175-11] (ab314543) at 1/1000 dilution

Lane 1:
293T (human embryonic kidney epithelial cell) transfected with scrambled siRNA control whole cell lysate at 20 µg

Lane 2:
293T transfected with siRNA specifically targeti USP48 whole cell lysate at 20 µg

Lane 3:
K-562 (human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

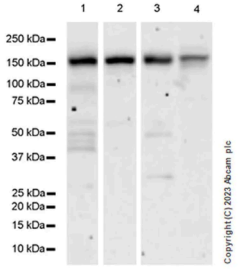
Lane 4:
THP-1 (human monocytic leukemia monocyte) whole cell lysate at 20 µg

Secondary

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

Observed band size: 145 kDa, 160 kDa

Exposure time: 92s




## Western blot - Anti-USP48 antibody [EPR26175-11] (ab314543)

Blocking and diluting buffer and concentration: 5% NFDM/TBST
All lanes:
Western blot - Anti-USP48 antibody [EPR26175-11] (ab314543) at 1/1000 dilution

Lane 1:
Human hippocampus tissue lysate at 20 µg

Lane 2:
Mouse brain tissue lysate at 20 µg

Lane 3:
Rat brain tissue lysate at 20 µg

Lane 4:
Rat lung tissue lysate at 20 µg

Secondary

Lanes 1 - 4:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/2000 dilution

Lanes 1 - 4:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/100000 dilution

Observed band size: 145 kDa

Exposure time: 180s

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