abcam

ab223341

# Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free

Recombinant | RabMAb | KO Validated

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Constituents: PBS |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Carrier free** | Yes |
| **Clone number** | EPR4352(2) |
| **Purification technique** | Affinity purification Protein A |
| **Dissociation constant** | 1.13 x $10^{-10}$ M |
| **Concentration** | 1.003 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## ICC/IF

**Not recommended**

| | |
|---|---|
| **Species** | Human |

| | |
|---|---|
| **Dilution info** | - |
| **Notes** | - |

## WB

**Tested**

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

## IHC-P

**Not recommended**

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

## Flow Cyt (Intra)

**Tested**

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

# Target data

See full target information USP22

**Function**

Deubiquitinase that plays a role in several cellular processes including transcriptional regulation, cell cycle progression or innate immunity. As part of the transcription regulatory histone acetylation (HAT) complex SAGA, catalyzes the deubiquitination of both histones H2A and H2B, thereby acting as a transcriptional coactivator (PubMed:18206972, PubMed:18206973, PubMed:18469533). Recruited to specific gene promoters by activators such as MYC, where it is required for transcription. Facilitates cell-cycle progression by stabilizing CCNB1 and antagonizing its proteasome-mediated degradation in a cell cycle-specific manner (PubMed:27030811). Modulates cell cycle progression and apoptosis also by antagonizing TP53 transcriptional activation through deacetylase SIRT1

stabilization (PubMed:22542455). Plays multiple roles in immunity and inflammation. Participates in antiviral response by deubiquitinating the importin KPNA2, leading to IRF3 nuclear translocation and subsequent type I interferon production (PubMed:32130408). Acts as a central regulator of type III IFN signaling by negatively regulating STING1 activation and ubiquitination (PubMed:35933402). Inhibits NLRP3 inflammasome activation by promoting NLRP3 degradation through ATG5-dependent autophagy (By similarity). Deubiquitinates CD274 to induce its stabilization and thereby participates in maintenance of immune tolerance to self (PubMed:31399419). Controls necroptotic cell death by regulating RIPK3 phosphorylation and ubiquitination (PubMed:33369872). During bacterial infection, promotes pro-inflammatory response by targeting TRAF6 and removing its 'Lys-48'-linked polyubiquitination (By similarity).

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |
| **Storage information** | Do Not Freeze |

## Notes

ab223341 is the carrier-free version of ab109435.

**Species reactivity**

Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

**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.

**Conjugation ready**

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. 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.

**Compatibility**
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.

## Supplementary info

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

| | |
|---|---|
| **Activity summary** | USP22 also known as ubiquitin-specific protease 22 is an enzyme belonging to the class of deubiquitinating enzymes (DUBs). It is characterized by the ability to remove ubiquitin moieties from target proteins which can alter their stability and function. Carrying an approximate mass of 59 kDa USP22 localizes mainly in the nucleus. Expression of USP22 is widespread across a range of tissues with higher levels identified in tissues exhibiting high proliferative capacity. |
| **Biological function summary** | Removal of ubiquitin by USP22 regulates gene expression by modulating histone modifications. USP22 acts as a part of the Spt-Ada-Gcn5 acetyltransferase (SAGA) complex which plays a significant role in transcriptional regulation. Through its deubiquitinating activity USP22 alters the ubiquitination status of histone proteins thereby impacting chromatin dynamics and gene transcription. |
| **Pathways** | USP22 takes part in critical pathways like the ubiquitin-proteasome system and chromosome structure modulation. Within these processes USP22 closely interacts with proteins such as SAGA complex members and histone H2B. Its activity within this system highlights roles in transcriptional control and cellular growth important for maintaining cellular homeostasis and regulating cell cycle progression. |
| **Associated diseases and disorders** | USP22 shows strong implications in several types of cancer including colorectal and prostate cancer. Abnormal expression levels can alter the transcriptional landscape contributing to tumor progression and metastasis. Further USP22 links to other proteins like MYC in the cancer context highlighting its importance in oncogenic pathways. This connection suggests that targeting USP22 might offer therapeutic potential in treating cancers where its expression is dysregulated. |

## 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.

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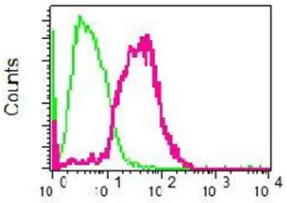
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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## 5 product images

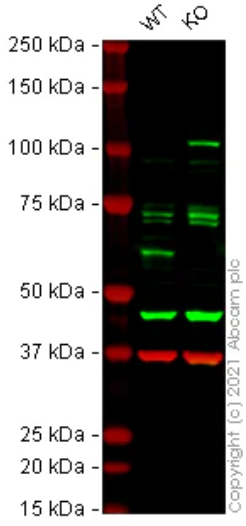



### Flow Cytometry (Intracellular) - Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free (ab223341)

USP22 Flow Cytometry (Intracellular) staining using rabbit Anti-USP22 antibody

This data was developed using ab109435, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of permeabilized HeLa cells using 1/10 ab109435 (red) or a rabbit IgG (negative) (green).

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### Western blot - Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free (ab223341)

USP22 Western blot staining using rabbit Anti-USP22 antibody

False colour image of Western blot: Anti-USP22 antibody [EPR4352(2)] staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab109435 was shown to bind specifically to USP22. A band was observed at 59 kDa in wild-type HeLa cell lysates with no signal observed at this size in usp22 knockout cell line ab264888 (knockout cell lysate ab257789). To generate this image, wild-type and usp22 knockout HeLa cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution before incubation with primary antibodies overnight at 4°C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged.Secondary antibodies used were Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-USP22 antibody [EPR4352(2)] (ab109435) at 1/1000 dilution

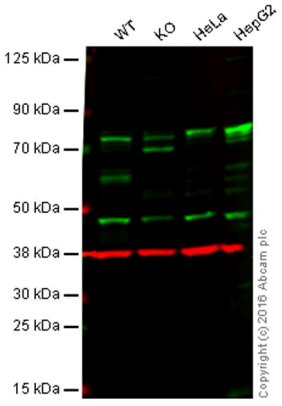
Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human USP22 knockout HeLa cell lysate (ab257789) at 20 µg

Performed under reducing conditions.

Predicted band size: 60 kDa

Observed band size: 59 kDa




## Western blot - Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free (ab223341)

USP22 Western blot staining using rabbit Anti-USP22 antibody

This data was developed using ab109435, the same antibody clone in a different buffer formulation.
**Lane 1:** Wild-type HAP1 cell lysate (20 µg)

**Lane 2:** USP22 knockout HAP1 cell lysate (20 µg)

**Lane 3:** HeLa cell lysate (20 µg)

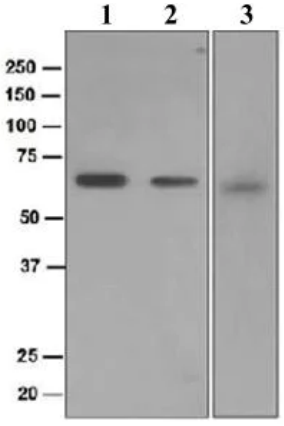
**Lane 4:** HepG2 cell lysate (20 µg)

**Lanes 1 - 4:** Merged signal (red and green). Green - ab109435 observed at 60 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab109435 was shown to specifically react with USP22 in wild-type cells along with additional cross-reactive bands. The band was not seen in USP22 knockout HAP1 cells. Wild-type and USP22 knockout samples were subjected to SDS-PAGE. ab109435 and ab8245 (loading control to GAPDH) were diluted at 1/1000 and 1/10000 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 1/10000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-USP22 antibody [EPR4352(2)] (ab109435)

Predicted band size: 60 kDa




## Western blot - Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free (ab223341)

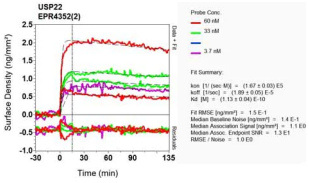
This data was developed using ab109435, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-USP22 antibody [EPR4352(2)] (ab109435) at 1/1000 dilution

Lane 1:
HeLa cell lysate at 10 µg

Lane 2:
Human placenta lysate at 10 µg

Lane 3:
HT-1376 lysate at 10 µg

Predicted band size: 60 kDa




# OI-RD Scanning - Anti-USP22 antibody [EPR4352(2)] - BSA and Azide free (ab223341)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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