abcam

ab251149

Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free

Recombinant | RabMAb

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	EPR15943

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Rat, Human, Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information USP14

Function Proteasome-associated deubiquitinase which releases ubiquitin from the proteasome targeted ubiquitinated proteins (PubMed:35145029). Ensures the regeneration of ubiquitin at the proteasome (PubMed:18162577, PubMed:28396413). Is a reversibly associated subunit of the proteasome and a large fraction of proteasome-free protein exists within the cell (PubMed:18162577). Required for the degradation of the chemokine receptor CXCR4 which is critical for CXCL12-induced cell chemotaxis (PubMed:19106094). Also serves as a physiological inhibitor of endoplasmic reticulum-associated degradation (ERAD) under the non-stressed condition by inhibiting the degradation of unfolded endoplasmic reticulum proteins via interaction with ERN1 (PubMed:19135427).

Indispensable for synaptic development and function at neuromuscular junctions (NMJs) (By similarity). Plays a role in the innate immune defense against viruses by stabilizing the viral DNA sensor CGAS and thus inhibiting its autophagic degradation (PubMed:27666593). Inhibits OPTN-mediated selective autophagic degradation of KDM4D and thereby negatively regulates H3K9me2 and H3K9me3 (PubMed:35145029).

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

ab251149 is the carrier-free version of ab192618.

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	USP14 also known as Ubiquitin Specific Peptidase 14 is a deubiquitinating enzyme that plays a mechanical role in the ubiquitin-proteasome system. This enzyme has a molecular mass around 56 kDa and is essential for proteasome-mediated degradation activities. It is broadly expressed across many tissues but shows significant presence in the nervous system. Often people refer to USP14 as TGT in the context of certain studies or databases.
Biological function summary	USP14 functions in regulating protein turnover by removing ubiquitin from substrate proteins impacting their stability and degradation. USP14 is part of a larger protein complex associated with the proteasome specifically binding to the 19S regulatory particle. It is important in maintaining cellular protein homeostasis by editing ubiquitin chains on target proteins prior to degradation.
Pathways	USP14 participates in ubiquitin-proteasome pathways and ER-associated degradation pathway. In these processes it works closely with other proteasome proteins such as Rpn11 which also removes ubiquitin from proteins. The regulation of these pathways by USP14 directly affects protein quality control in cells influencing processes like cell cycle and stress response.
Associated diseases and disorders	USP14 has associations with neurodegenerative diseases such as Alzheimer's and Parkinson’s. It affects disease progression by modulating levels of proteins that aggregate in these conditions. Connections between USP14 and proteins such as tau and α-synuclein highlight its contribution to the pathological features seen in these disorders. Further research into USP14's role may help to uncover new therapeutic strategies 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

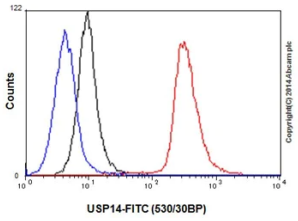
We do not recommend this combination. It is not covered by our product promise.

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.

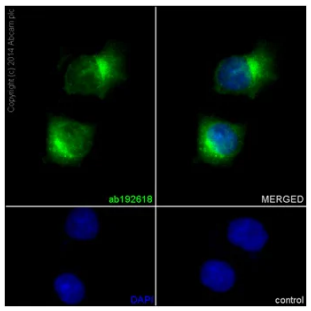
5 product images



Flow Cytometry (Intracellular) - Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free (ab251149)

USP14/TGT Flow Cytometry (Intracellular) staining using rabbit Anti-USP14/TGT antibody

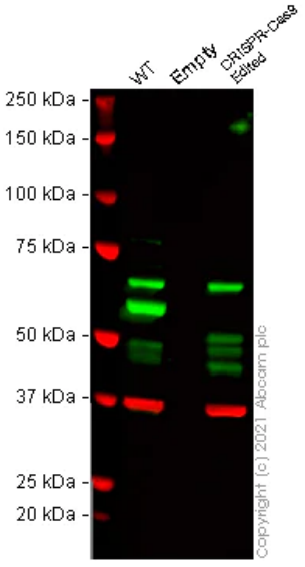
This data was developed using ab192618, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of Jurkat cells (2% paraformaldehyde-fixed) labeling USP14/TGT with ab192618 at 1/70 dilution (red) or a rabbit IgG (negative) (black), unlabeled cells (blue) followed by Goat anti rabbit IgG (FITC) secondary at 1/150 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free (ab251149)

USP14/TGT Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-USP14/TGT antibody

This data was developed using ab192618, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of HeLa cells (4% Paraformaldehyde-fixed, 0.1% tritonX-100 permeabilized) labeling USP14/TGT with ab192618 at 1/70 dilution (5 µg/ml). A Goat anti rabbit IgG (Alexa Fluor488) at 1/400 dilution (ab150077) was used as secondary antibody. Counterstain: DAPI.



Western blot - Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free (ab251149)

USP14/TGT Western blot staining using rabbit Anti-USP14/TGT antibody

False colour image of Western blot: Anti-USP14/TGT antibody [EPR15943] - C-terminal 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, ab192618 was shown to bind specifically to USP14/TGT. A band was observed at 63 kDa in wild-type HeLa cell lysates with no signal observed at this size in USP14 CRISPR-Cas9 edited cell line ab266854 (CRISPR-Cas9 edited cell lysate ab257787). The band observed in the CRISPR-Cas9 edited lysate lane below 63 kDa is likely to represent a truncated form of USP14/TGT. This has not been investigated further and the functional properties of the gene product have not been determined. To generate this image, wild-type and USP14 CRISPR-Cas9 edited HeLa cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % milk in TBS-0.1 % Tween® 20 (TBS-T) 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-USP14/TGT antibody [EPR15943] - C-terminal (ab192618) at 1/1000 dilution

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

Lane 2:
USP14 CRISPR-Cas9 edited HeLa cell lysate at 20 µg

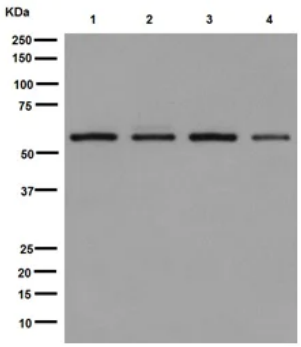
Lane 2:
Western blot - Human USP14 (TGT) knockout HeLa cell line (ab266854)

Lane 3:
USP14 knockout HeLa cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 56 kDa

Observed band size: 63 kDa



Western blot - Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free (ab251149)

This data was developed using ab192618, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-USP14/TGT antibody [EPR15943] - C-terminal (ab192618) at 1/2000 dilution

Lane 1:
HeLa cell lysate at 20 µg

Lane 2:
293T cell lysate at 20 µg

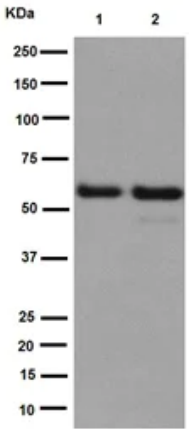
Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
HCT-116 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugate at 1/1000 dilution

Predicted band size: 56 kDa



Western blot - Anti-USP14/TGT antibody [EPR15943] - BSA and Azide free (ab251149)

USP14/TGT Western blot staining using rabbit Anti-USP14/TGT antibody

This data was developed using ab192618, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-USP14/TGT antibody [EPR15943] - C-terminal (ab192618) at 1/2000 dilution

Lane 1:
C6 cell lysate at 10 µg

Lane 2:
RAW 264.7 cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugate at 1/1000 dilution

Predicted band size: 56 kDa

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