abcam

ab109264

Anti-USP13 antibody [EPR4348]

Recombinant | RabMAb | KO Validated

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	EPR4348
Purification technique	Affinity purification Protein A
Concentration	1.118 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Expected

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

IHC-P

Not recommended

Species	Mouse, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	10 µg/mL
Notes	-

Species	Human
Dilution info	10 µg/mL
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/940 - 1/9400
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse

Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information USP13

Function	Deubiquitinase that mediates deubiquitination of target proteins such as BECN1, MITF, SKP2 and USP10 and is involved in various processes such as autophagy, endoplasmic reticulum-associated degradation (ERAD), cell cycle progression or DNA damage response (PubMed:21571647, PubMed:32772043, PubMed:33592542). Component of a regulatory loop that controls autophagy and p53/TP53 levels: mediates deubiquitination of BECN1, a key regulator of autophagy, leading to stabilize the PIK3C3/VPS34-containing complexes. Alternatively, forms with NEDD4 a deubiquitination complex, which subsequently stabilizes VPS34 to promote autophagy (PubMed:32101753). Also deubiquitinates USP10, an essential regulator of p53/TP53 stability. In turn, PIK3C3/VPS34-containing complexes regulate USP13 stability, suggesting the existence of a regulatory system by which PIK3C3/VPS34-containing complexes regulate p53/TP53 protein levels via USP10 and USP13. Recruited by nuclear UFD1 and mediates deubiquitination of SKP2, thereby regulating endoplasmic reticulum-associated degradation (ERAD). Also regulates ERAD through the deubiquitination of UBL4A a component of the BAG6/BAT3 complex. Mediates stabilization of SIAH2 independently of deubiquitinase activity: binds ubiquitinated SIAH2 and acts by impairing SIAH2 autoubiquitination. Regulates the cell cycle progression by stabilizing cell cycle proteins such as SKP2 and AURKB (PubMed:32772043). In addition, plays an important role in maintaining genomic stability and in DNA replication checkpoint activation via regulation of RAP80 and TOPBP1 (PubMed:33592542). Deubiquitinates the multifunctional protein HMGB1 and subsequently drives its nucleocytoplasmic localization and its secretion (PubMed:36585612). Positively regulates type I and type II interferon signalings by deubiquitinating STAT1 but negatively regulates antiviral response by deubiquitinating STING1 (PubMed:23940278, PubMed:28534493).

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.

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

Supplementary info

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

Activity summary	USP13 also known as Ubiquitin Specific Protease 13 functions as a deubiquitinating enzyme. It is important in removing ubiquitin molecules from protein substrates which prevents them from being degraded by the proteasome system. USP13 has a molecular mass of approximately 97 kDa and shows expression in several tissues including brain heart and kidney. This indicates its diverse role in human physiology.
Biological function summary	USP13 participates in maintaining protein homeostasis and modulates protein stability. It forms complexes with specific substrate proteins to execute its function efficiently. Through deubiquitinating actions it regulates the levels of proteins involved in cellular signaling apoptosis and cell cycle control. The enzyme influences processes that are important for cell survival and adaptation to stress.
Pathways	USP13 plays significant roles within the ubiquitin-proteasome system and the mitophagy pathway. It cooperates with proteins like Parkin in mitochondrial quality control by stabilizing target proteins necessary for mitophagy. Through interaction with key players in these pathways USP13 ensures the maintenance of cellular health and proper degradation of damaged or misfolded proteins.
Associated diseases and disorders	USP13 has associations with cancer and neurodegenerative diseases. Overexpression of USP13 might contribute to tumor progression by inhibiting degradation of oncoproteins. It also shows connections to disorders like Parkinson's disease where it interacts with proteins such as Parkin and PINK1 which are important for mitochondrial function. These interactions highlight USP13's potential as a target for therapeutic interventions.

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

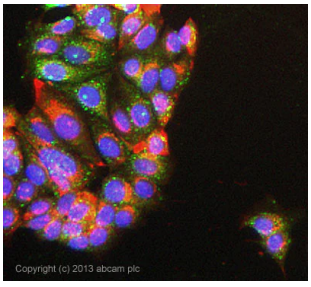
We do not recommend this combination. It is not covered by our product promise.

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:
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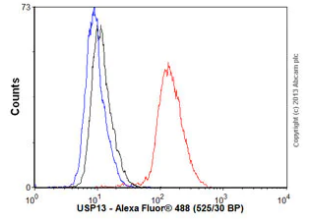
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-USP13 antibody [EPR4348] (ab109264)

USP13 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-USP13 antibody

ICC/IF image of ab109264 stained MCF-7 cells. The cells were 100% methanol fixed (5 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 ab109264 at 10µg/ml overnight at +4°C. The secondary antibody (green) was DyLight® 488 goat anti- rabbit (ab96899) 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.

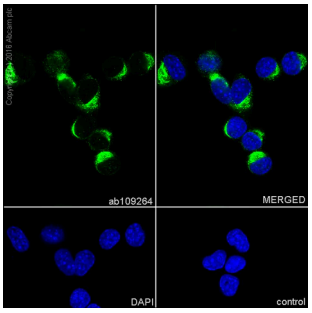


Flow Cytometry (Intracellular) - Anti-USP13 antibody [EPR4348] (ab109264)

USP13 Flow Cytometry (Intracellular) staining using rabbit Anti-USP13 antibody

Overlay histogram showing SHSY-5Y cells stained with ab109264 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab109264 1/9400 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG

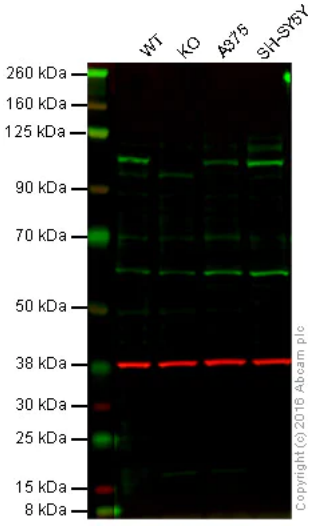
(monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in SHSY-5Y cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-USP13 antibody [EPR4348] (ab109264)

USP13 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-USP13 antibody

Immunocytochemistry/Immunofluorescence analysis of Neuro-2a (Mouse neuroblastoma cell line) labeling USP13 with Purified ab109264 at 1/500 dilution (5 µg/ml). Cells were fixed with 100% methanol. ab150077 Goat anti rabbit IgG(Alexa Fluor® 488) at 1/1000 dilution was used as the secondary antibody. Nuclei were counterstained with DAPI. PBS was used instead of the primary antibody as the negative control.



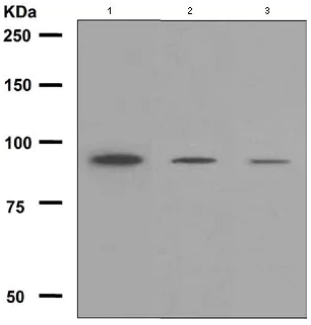
Western blot - Anti-USP13 antibody [EPR4348] (ab109264)

USP13 Western blot staining using rabbit Anti-USP13 antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: USP13 knockout HAP1 cell lysate (20 µg)
Lane 3: A375 cell lysate (20 µg)
Lane 4: SH-SY5Y cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab109264 observed at 100 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab109264 was shown to recognize USP13 when USP13 knockout samples were used, along with additional cross-reactive bands. Wild-type and USP13 knockout samples were subjected to SDS-PAGE. ab109264 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/10 000 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 hour at room temperature before imaging.

All lanes:
Western blot - Anti-USP13 antibody [EPR4348] (ab109264)

Predicted band size: 97 kDa



Western blot - Anti-USP13 antibody [EPR4348] (ab109264)

All lanes:
Western blot - Anti-USP13 antibody [EPR4348] (ab109264) at 1/1000 dilution

Lane 1:
SH SY5Y cell lysate at 10 µg

Lane 2:
HepG2 cell lysate at 10 µg

Lane 3:
A375 cell lysate at 10 µg

Predicted band size: 97 kDa

Observed band size: 97 kDa

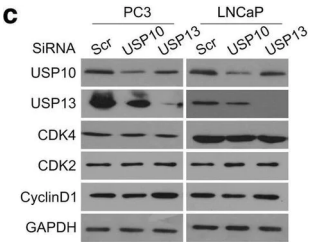


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Western blot - Anti-USP13 antibody [EPR4348] (ab109264)

USP13 Western blot staining using rabbit Anti-USP13 antibody

USP13 western blot using anti-USP13 antibody [EPR4348] ab109264. Publication image and figure legend from Liao, Y., Guo, Z., et al., 2019, J Exp Clin Cancer Res, PubMed 30975171.

ab109264 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab109264 please see the product overview.

Spautin-1 induces G0/G1 phase arrest via down-regulating Cyclin D1 in PCa cells. a Fluorescence-activated cell sorting analysis (FACS) was performed to analyze cell cycle distributions of PCa cells exposed to Spautin-1 or SKP2-C25 for 24 h. A summary of cell cycle distributions was shown from three independent experiments. b Western blot analysis was performed to detect the expression of CDK4, CDK2, Cyclin D1, P15 and P21 in PCa cells exposed to various doses of Spautin-1 (0, 5, 10, 20 μM) for 24 h (left), or Spautin-1 (10 μM) at various lengths of time (Right). c Western blot analysis was performed to detect the expression of CDK4, CDK2, Cyclin D1, USP10 and USP13 in PCa cells exposed to USP10 siRNA or USP13 siRNA for 48 h. d FACS was performed to analyze cell cycle distributions of PCa cells exposed to USP10 siRNA or USP13 siRNA for 48 h. e 22Rv1 and PC3 cells were transfected with HA-Cyclin D1 and/or FLAG-CDK2 for 48 h. Cell viability analysis was performed on the above cells exposed to Spautin-1 for 24 h. #p<0.05. f Western blot of CDK2 and Cyclin D1 to verified the overexpression in PC3 cells. Sp-1: Spautin-1

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