abcam

ab154170

Anti-USP5 antibody [EPR10454]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR10454
Purification technique	Affinity purification Protein A
Concentration	0.544 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	**For unpurified use at 1/50 - 1/100.**

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	**For unpurified use at 1/1000 - 1/10000.**

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/1000 - 1/10000.**

Species	Rat
Dilution info	1/1000
Notes	**For unpurified use at 1/1000 - 1/10000.**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	For unpurified use at 1/10 - 1/100. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information USP5

Function	Deubiquitinating enzyme that participates in a wide range of cellular processes by specifically cleaving isopeptide bonds between ubiquitin and substrate proteins or ubiquitin itself. Affects thereby important cellular signaling pathways such as NF-kappa-B, Wnt/beta-catenin, and cytokine production by regulating ubiquitin-dependent protein degradation. Participates in the activation of the Wnt signaling pathway by promoting FOXM1 deubiquitination and stabilization that induces the recruitment of beta-catenin to Wnt target gene promoter (PubMed:26912724). Regulates the assembly and disassembly of heat-induced stress granules by mediating the hydrolysis of unanchored ubiquitin chains (PubMed:29567855). Promotes lipopolysaccharide-induced apoptosis and inflammatory response by stabilizing the TXNIP protein (PubMed:37534934). Affects T-cell biology by stabilizing the inhibitory receptor on T-cells PDC1 (PubMed:37208329). Acts as a negative regulator of autophagy by regulating ULK1 at both protein and mRNA levels (PubMed:37607937). Acts also as a negative regulator of type I interferon production by simultaneously removing both 'Lys-48'-linked unanchored and 'Lys-63'-linked anchored polyubiquitin chains on the transcription factor IRF3 (PubMed:39761299). Modulates the stability of DNA mismatch repair protein MLH1 and counteracts the effect of the ubiquitin ligase UBR4 (PubMed:39032648). Upon activation by insulin, it gets phosphorylated through mTORC1-mediated phosphorylation to enhance YTHDF1 stability by removing 'Lys-11'-linked polyubiquitination (PubMed:39900921). May also deubiquitinate other substrates such as the calcium channel CACNA1H (By similarity).

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	The target USP5 also known as ubiquitin-specific protease 5 or isopeptidase T functions as a deubiquitinating enzyme. This protein has a mass of about 169 kDa and plays a critical role in removing ubiquitin moieties from ubiquitin-conjugated protein substrates. USP5 achieves this by cleaving at the ubiquitin C-terminal glycine which releases free ubiquitin and recycles it for future use. Expression of USP5 occurs broadly throughout different tissues indicating its general importance in cellular processes.
Biological function summary	This enzyme helps maintain ubiquitin homeostasis by disassembling unanchored polyubiquitin chains. USP5 is not known to be part of a larger complex but it interacts with components of the ubiquitin-proteasome system contributing to protein quality control. By processing unanchored ubiquitin chains USP5 ensures a sufficient supply of ubiquitin preventing potential cellular stress due to ubiquitin depletion.
Pathways	USP5 integrates into the ubiquitin-proteasome pathway and proteostasis network. It collaborates with other deubiquitinating enzymes like USP14 and UCHL5 modulating the degradation of polyubiquitinated proteins. These pathways play essential roles in regulating protein turnover and disruptions in these processes can impact cell cycle and apoptosis highlighting the importance of USP5 in maintaining cellular homeostasis.
Associated diseases and disorders	Experimental findings suggest USP5 involvement in several cancers and neurodegenerative diseases such as Alzheimer's disease. In cancer altered USP5 activity can disrupt the balance between protein synthesis and degradation promoting tumor progression. In Alzheimer's its role in ubiquitin homeostasis implicates it in the management of protein aggregates that characterize the disorder. USP5's relationship with other proteins like p53 in cancer and tau in Alzheimer's provides critical insights into its potential as a therapeutic target.

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.

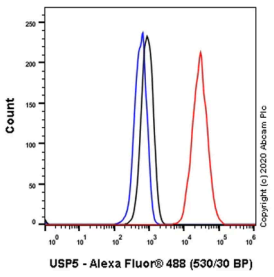
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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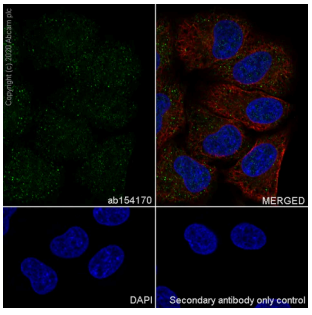
6 product images



Flow Cytometry (Intracellular) - Anti-USP5 antibody [EPR10454] (ab154170)

USP5 Flow Cytometry (Intracellular) staining using rabbit Anti-USP5 antibody

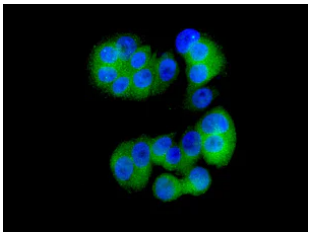
Intracellular Flow Cytometry analysis of MCF7 (Human breast adenocarcinoma epithelial cell) cells labeling USP5with purified ab154170 at 1/50 dilution (10µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-USP5 antibody [EPR10454] (ab154170)

USP5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-USP5 antibody

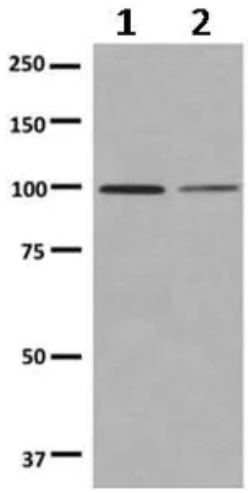
Immunocytochemistry/ Immunofluorescence analysis of A549 (Human lung carcinoma epithelial cell) cells labeling USP5 with purified ab154170 at 1/50 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% TritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunocytochemistry/ Immunofluorescence - Anti-USP5 antibody [EPR10454] (ab154170)

USP5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-USP5 antibody

Immunofluorescent analysis of MCF7 cells labeling USP5 with unpurified ab154170 at 1/50 dilution.



Western blot - Anti-USP5 antibody [EPR10454] (ab154170)

All lanes:
Western blot - Anti-USP5 antibody [EPR10454] (ab154170) at 1/1000 dilution

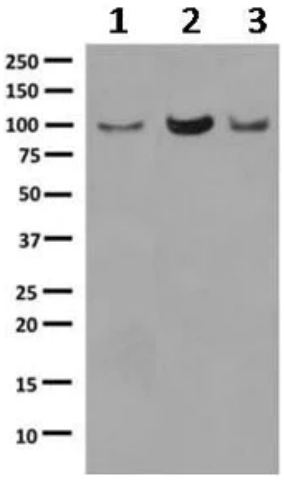
Lane 1:
MCF7 cell lysate at 10 µg

Lane 2:
A549 cell lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 96 kDa



Western blot - Anti-USP5 antibody [EPR10454] (ab154170)

All lanes:
Western blot - Anti-USP5 antibody [EPR10454] (ab154170) at 1/1000 dilution

Lane 1:
Mouse brain lysates at 10 µg

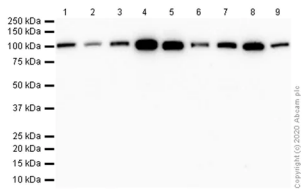
Lane 2:
Rat brain lysates at 10 µg

Lane 3:
Rat heart lysates at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 96 kDa



Western blot - Anti-USP5 antibody [EPR10454] (ab154170)

All lanes:
Western blot - Anti-USP5 antibody [EPR10454] (ab154170) at 1/1000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
A549 (Human lung carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
Human brain lysate at 20 µg

Lane 4:
Mouse brain lysate at 20 µg

Lane 5:
Rat brain lysate at 20 µg

Lane 6:
Mouse heart lysate at 20 µg

Lane 7:
Rat heart lysate at 20 µg

Lane 8:
Mouse kidney lysate at 20 µg

Lane 9:
Rat kidney lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 96 kDa

Observed band size: 96 kDa

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