abcam

ab290641

Anti-UBE3A antibody [EPR25059-12]

Recombinant | RabMAb | KO Validated | 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	EPR25059-12
Purification technique	Affinity purification Protein A
Concentration	0.515 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

IHC-Fr

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information UBE3A

Function	E3 ubiquitin-protein ligase which accepts ubiquitin from an E2 ubiquitin-conjugating enzyme in the form of a thioester and transfers it to its substrates (PubMed:10373495, PubMed:16772533, PubMed:19204938, PubMed:19233847, PubMed:19325566, PubMed:19591933, PubMed:22645313, PubMed:24273172, PubMed:24728990, PubMed:30020076). Several substrates have been identified including the BMAL1, ARC, LAMTOR1, RAD23A and RAD23B, MCM7 (which is involved in DNA replication), annexin A1, the PML tumor suppressor, and the cell cycle regulator CDKN1B (PubMed:10373495, PubMed:19204938, PubMed:19325566, PubMed:19591933, PubMed:22645313, PubMed:24728990, PubMed:30020076). Additionally, may function as a cellular quality control ubiquitin ligase by helping the degradation of the cytoplasmic misfolded proteins (PubMed:19233847). Finally, UBE3A also promotes its own degradation in vivo. Plays an important role in the regulation of the circadian clock: involved in the ubiquitination of the core clock component BMAL1, leading to its proteasomal degradation (PubMed:24728990). Acts as transcriptional coactivator of progesterone receptor PGR upon progesterone hormone activation (PubMed:16772533). Acts as a regulator of synaptic development by mediating ubiquitination and degradation of ARC (By similarity). Required for synaptic remodeling in neurons by mediating ubiquitination and degradation of LAMTOR1, thereby limiting mTORC1 signaling and activity-dependent synaptic remodeling (By similarity). Synergizes with WBP2 in enhancing PGR activity (PubMed:16772533). (Microbial infection) Catalyzes the high-risk human papilloma virus E6-mediated ubiquitination of p53/TP53, contributing to the neoplastic progression of cells infected by these viruses.

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	UBE3A also known as ubiquitin protein ligase E3A is an enzyme with a molecular mass of approximately 100 kDa. It plays a central role in the ubiquitination process by adding ubiquitin to specific substrate proteins. UBE3A is found in many tissues but has high expression levels in the brain especially in neurons. The proper function of UBE3A requires its interaction with the ubiquitin-conjugating enzyme E2 marking target proteins for proteasomal degradation or other cellular processes.
Biological function summary	The role of UBE3A is connected to protein homeostasis and turnover. It is part of the ubiquitin-proteasome system which regulates the degradation of damaged or unneeded proteins. UBE3A does not work alone; it functions as part of a larger E3 ligase complex. This complex selectively identifies and modifies proteins determining their fate within the cell. The precision of UBE3A in these processes is necessary for normal neural development and synaptic plasticity.
Pathways	UBE3A is involved in the synaptic transmission and neuronal signaling pathways. It interacts with proteins such as HERC2 and RAD18 which are involved in DNA damage response and repair. UBE3A's involvement in these pathways highlights its importance in maintaining neuronal health. This protein’s activity influences downstream signaling events affecting processes like synaptic function and neuronal communication.
Associated diseases and disorders	Disruptions in UBE3A activity link to Angelman syndrome and autism spectrum disorders. Angelman syndrome results from the loss of function of the maternal UBE3A gene leading to severe neurological impairments. UBE3A's relationship with proteins like MECP2 involved in gene regulation suggests a broader role in neurodevelopmental disorders. Research continues to explore how UBE3A and its interaction partners contribute to the underlying mechanisms of 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.

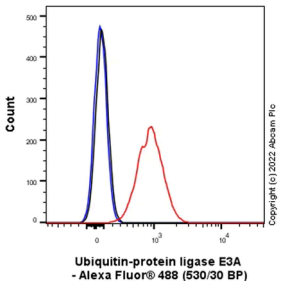
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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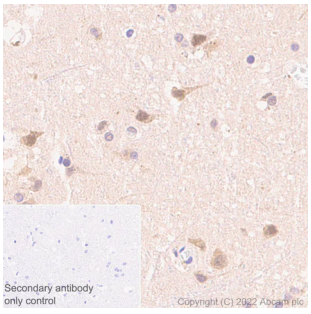
9 product images



Flow Cytometry (Intracellular) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Flow Cytometry (Intracellular) staining using rabbit Anti-UBE3A antibody

Flow cytometry analysis of 4% paraformaldehyde fixed and permeabilized with 90% methanol HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling UBE3A with ab290641 at 1/500 dilution (Red) compared with isotype control ab172730 (Black) and unlabelled control cells without incubation whith primary and secondary antibody (Blue).
ab150081 at 1/2000 dilution was used as secondary antibody.



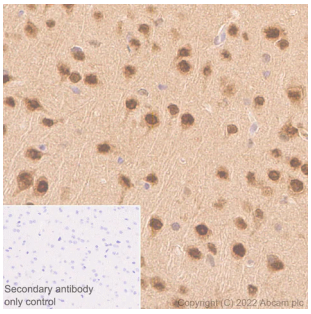
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-UBE3A antibody

Immunohistochemical analysis of paraffin-embedded human cerebrum tissue labeling UBE3A with ab290641 at 1/500 dilution for 30 mins at room temerature, followed by ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Positive staining can be found in human cerebrum.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is preabsorbed LeicaDS9800 (BOND™ Polymer Refine Detection).



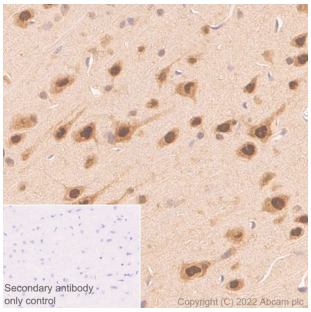
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-UBE3A antibody

Immunohistochemical analysis of paraffin-embedded mouse cerebrum tissue labeling UBE3A with ab290641 at 1/2000 dilution for 30 mins at room temerature, followed by ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Positive staining can be found in mouse cerebrum (PMID: 22787151).
The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is preabsorbed LeicaDS9800 (BOND™ Polymer Refine Detection).



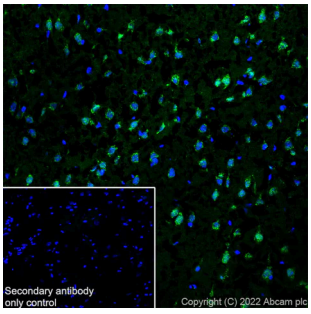
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-UBE3A antibody

Immunohistochemical analysis of paraffin-embedded rat cerebrum tissue labeling UBE3A with ab290641 at 1/2000 dilution for 30 mins at room temerature, followed by ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Positive staining can be found in rat cerebrum (PMID: 22787151).
The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used.

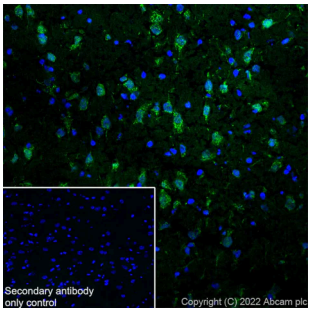
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is preabsorbed LeicaDS9800 (BOND™ Polymer Refine Detection).



Immunohistochemistry (Frozen sections) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Immunohistochemistry (Frozen sections) staining using rabbit Anti-UBE3A antibody

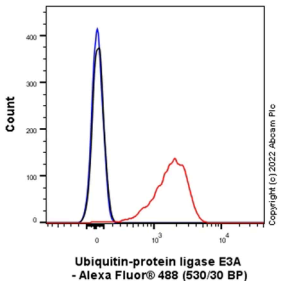
Immunohistochemical analysis of mouse cerebrum (fresh) frozen sections labelling UBE3A with ab290641 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed (ab150081) at 1/1000 dilution. Nuclear staining on mouse cerebrum is observed. Counter stained with DAPI.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed (ab150081) at 1/1000 dilution.



Immunohistochemistry (Frozen sections) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Immunohistochemistry (Frozen sections) staining using rabbit Anti-UBE3A antibody

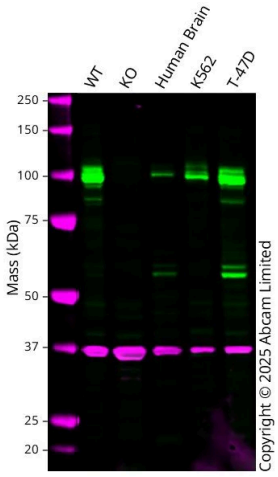
Immunohistochemical analysis of rat cerebrum (fresh) frozen sections labelling UBE3A with ab290641 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed (ab150081) at 1/1000 dilution. Nuclear staining on rat cerebrum is observed. Counter stained with DAPI.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed (ab150081) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Flow Cytometry (Intracellular) staining using rabbit Anti-UBE3A antibody

Flow cytometry analysis of 4% paraformaldehyde fixed and permeabilized with 90% methanol RAW 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) cells labelling UBE3A with ab290641 at 1/500 dilution (Red) compared with isotype control ab172730 (Black) and unlabelled control cells without incubation whith primary and secondary antibody (Blue). ab150081 at 1/2000 dilution was used as secondary antibody.



Western blot - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Western blot staining using rabbit Anti-UBE3A antibody

Western blot: Rabbit Monoclonal[EPR25059-12] to UBE3A ab290641 staining at 1/1000 dilution, shown in green; Mouse anti GAPDH (ab8245) loading control staining at 1/20,000 dilution, shown in magenta. A band was observed at 100 kDa in Wild-type U-87 MG cell lysates with a truncated band observed in UBE3A knockout U-87 MG ab306798 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc 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 800CW & Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-UBE3A antibody [EPR25059-12] (ab290641) at 1/1000 dilution

Lane 1:
Wild-type U-87 MG at 20 µg

Lane 2:
Western blot - Human UBE3A knockout U-87 MG cell line (ab306798) at 20 µg

Lane 2:
knockout U-87 MG at 20 µg

Lane 3:
Human Brain at 20 µg

Lane 4:
K562 at 20 µg

Lane 5:
T-47D at 20 µg

Secondary

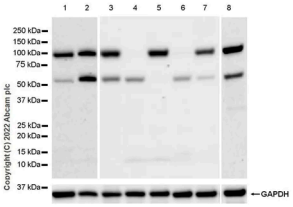
Lanes 1 - 5:
Goat anti-Rabbit 800CW at 1/20000 dilution

Lanes 1 - 5:
Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 101 kDa

Observed band size: 100 kDa, 36 kDa



Western blot - Anti-UBE3A antibody [EPR25059-12] (ab290641)

UBE3A Western blot staining using rabbit Anti-UBE3A antibody

Blocking and diluting buffers: 5% NFDM/TBST.
Exposure time:

Lane 1, 2, 8: 3 minutes
Lane 3-7: 26 seconds

Generation of the ~50kDa degraded fragment can be inhibited/reduced by MG-132 treatment (lanes 5 and 7).

All lanes:
Western blot - Anti-UBE3A antibody [EPR25059-12] (ab290641) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

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

Lane 4:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Lane 5:
PC-12 treated with 10 µM MG-132 for 4 hours, whole cell lysate at 20 µg

Lane 6:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

Lane 7:
RAW264. treated with 10 µM MG-132 for 4 hours, whole cell lysate at 20 µg

Lane 8:
Rat brain tissue lysate at 20 µg

Secondary

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

Predicted band size: 100 kDa

Observed band size: 100 kDa

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