abcam

ab249983

Anti-UBA5 antibody [EPR11729] - 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	EPR11729
Purification technique	Affinity purification Protein A
Concentration	1.01 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information UBA5

Function

E1-like enzyme which specifically catalyzes the first step in ufmylation (PubMed:15071506, PubMed:18442052, PubMed:20368332, PubMed:25219498, PubMed:26929408, PubMed:27545674, PubMed:27545681, PubMed:27653677, PubMed:30412706, PubMed:30626644, PubMed:34588452). Activates UFM1 by first adenylating its C-terminal glycine residue with ATP, and thereafter linking this residue to the side chain of a cysteine residue in E1, yielding a UFM1-E1 thioester and free AMP (PubMed:20368332, PubMed:26929408, PubMed:27653677, PubMed:30412706). Activates UFM1 via a trans-binding mechanism, in which UFM1 interacts with distinct sites in both subunits of the UBA5 homodimer (PubMed:27653677). Trans-binding also promotes stabilization of the UBA5 homodimer, and enhances ATP-binding (PubMed:29295865). Transfer of UFM1 from UBA5 to the E2-like enzyme UFC1 also takes place using a trans mechanism (PubMed:27653677, PubMed:34588452). Ufmylation plays a key role in various processes, such as ribosome recycling, response to DNA damage, interferon response or reticulophagy (also called ER-phagy) (PubMed:30412706, PubMed:32160526, PubMed:35394863). Ufmylation is essential for erythroid differentiation of both megakaryocytes and erythrocytes (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

ab249983 is the carrier-free version of ab177478.

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	UBA5 also known as Ubiquitin-like modifier-activating enzyme 5 is an E1 enzyme that plays a mechanical role in activating ubiquitin-fold modifier 1 (UFM1) for protein modification. It has a molecular mass of about 44 kDa and performs its function in the nucleus and cytoplasm within human cells. The expression of UBA5

	is not limited to specific tissues; instead it shows widespread expression across many tissues supporting an important role in various cellular processes.
Biological function summary	UBA5 is implicated in the UFM1 conjugation system. This process modifies specific proteins and affects protein stability interaction and degradation. UBA5 operates in complex with UFC1 an E2 enzyme enabling the transfer of UFM1 to target proteins. Its activity is essential for maintaining cellular homeostasis particularly in the endoplasmic reticulum stress response through protein modification and regulation tasks.
Pathways	The UBA5-UFM1 axis integrates into the cellular stress response pathway and the endoplasmic reticulum-associated degradation (ERAD) pathway. Through these pathways UBA5 collaborates with proteins like UFL1 further connecting these pathways by tagging proteins with UFM1 to mark them for degradation or functional modification. The coordination between UBA5 and UFL1 supports efficient protein quality control and maintains cellular equilibrium under stress conditions.
Associated diseases and disorders	The dysfunction or altered expression of UBA5 associates with neurodevelopmental disorders and some cancers. Changes in UBA5 activity can lead to imbalances in protein homeostasis contributing to pathogenic mechanisms in neurodevelopmental disorders where other proteins like EIF4A1 also play a role. In cancer alterations in UBA5 expression may influence tumor progression as seen in cases where UBA5 levels affect pathways that involve p53 an important tumor suppressor protein.

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

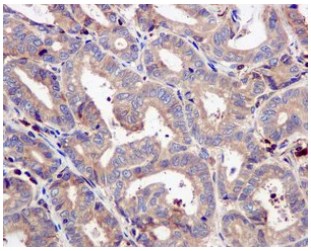
We do not recommend this combination. It is not covered by our product promise.

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

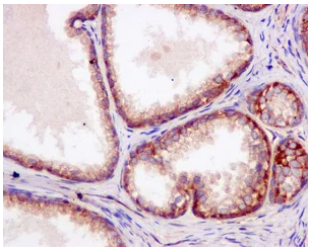


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UBA5 antibody [EPR11729] - BSA and Azide free (ab249983)

UBA5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-UBA5 antibody

This data was developed using ab177478, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin embedded Human prostate gastric carcinoma tissue labeling UBA5 with ab177478 at 1/50.

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

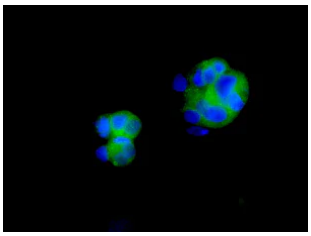


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UBA5 antibody [EPR11729] - BSA and Azide free (ab249983)

UBA5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-UBA5 antibody

This data was developed using ab177478, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin embedded Human prostate tissue labeling UBA5 with ab177478 at 1/50.

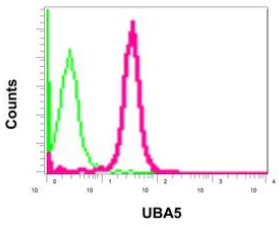
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-UBA5 antibody [EPR11729] - BSA and Azide free (ab249983)

UBA5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-UBA5 antibody

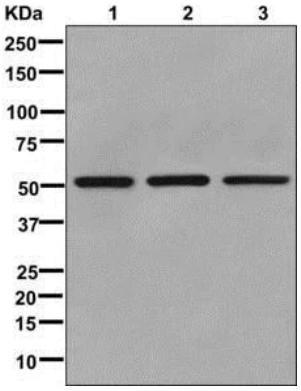
This data was developed using ab177478, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of Caco-2 cells labeling UBA5 with ab177478 at 1/50 (green) and DAPI staining (blue).



Flow Cytometry (Intracellular) - Anti-UBA5 antibody [EPR11729] - BSA and Azide free (ab249983)

UBA5 Flow Cytometry (Intracellular) staining using rabbit Anti-UBA5 antibody

This data was developed using ab177478, the same antibody clone in a different buffer formulation.
Intracellular flow cytometrical analysis of permeabilized Jurkat cells labeling UBA5 with ab177478 at 1/10 (red) or a rabbit IgG (negative) (green).



Western blot - Anti-UBA5 antibody [EPR11729] - BSA and Azide free (ab249983)

UBA5 Western blot staining using rabbit Anti-UBA5 antibody

This data was developed using ab177478, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-UBA5 antibody [EPR11729] (ab177478) at 1/1000 dilution

Lane 1:
Caco-2 cell lysate at 10 µg

Lane 2:
Jurkat cell lysate at 10 µg

Lane 3:
293T cell lysate at 10 µg

Secondary

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

Predicted band size: 45 kDa

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