abcam

ab235449

Anti-Acid phosphatase antibody [EPR21791]

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	EPR21791
Purification technique	Affinity purification Protein A
Concentration	0.64 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/600
Notes	-

Target data

See full target information ACP1

Function	Acts on tyrosine phosphorylated proteins, low-MW aryl phosphates and natural and synthetic acyl phosphates with differences in substrate specificity between isoform 1 and isoform 2. Isoform 3. Does not possess phosphatase activity.

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	Acid phosphatase also known as tartrate-resistant acid phosphatase (TRAP) or prostatic acid phosphatase (PAP) is an enzyme that catalyzes the hydrolysis of phosphate esters in an acidic environment. It has a molecular mass of approximately 50 kDa and is expressed in various human tissues including the prostate bone liver and spleen. Within the prostate it breaks down and releases phosphate from different compounds and it plays a role in bone resorption by osteoclasts.
Biological function summary	This enzyme contributes to multiple cellular processes including the regulation of bone metabolism and prostate health. Acid phosphatase when acting as TRAP is often found within osteoclast lysosomes where it degrades bone matrix components. It does not form part of a complex but functions independently to modulate these processes. Prostatic acid phosphatase in seminal fluid has additional roles particularly in prostate tissue affecting cellular proliferation and motility.
Pathways	Acid phosphatase participates in both bone resorption and lysosomal degradation pathways. In bone metabolism it works alongside proteins such as cathepsin K assisting in the breakdown of matrix constituents during bone remodeling. In lysosomal pathways it complements activities of enzymes like lysosomal acid

	lipase helping in recycling cellular materials. These interactions underline its involvement in maintaining cellular homeostasis through these critical biological pathways.
Associated diseases and disorders	Acid phosphatase relates significantly to prostate cancer and bone disorders like osteoporosis. Elevated levels of prostatic acid phosphatase in serum serve as a marker for prostate cancer linking it to androgen receptor pathways critical in disease progression. In bone disorders TRAP's role in osteoclast function connects it to conditions such as osteoporosis where its interaction with integrin receptor influences bone density regulation. Understanding these connections can aid in developing diagnostic and 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

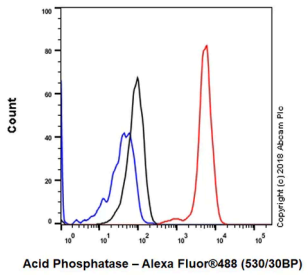
We do not recommend this combination. It is not covered by our product promise.

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.

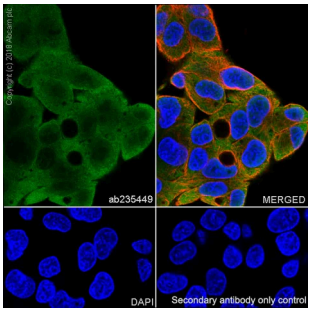
7 product images



Flow Cytometry (Intracellular) - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

Acid phosphatase Flow Cytometry (Intracellular) staining using rabbit Anti-Acid phosphatase antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanolpermeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cell line labeling Acid Phosphatase with ab235449 at 1/600 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730, Black) isotype control, and an unlabeled control (Cells without incubation with primary antibody and secondary antibody, Blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.

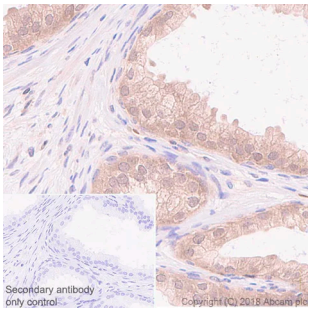


Immunocytochemistry/ Immunofluorescence - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

Acid phosphatase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Acid phosphatase antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling Acid Phosphatase with ab235449 at 1/100 dilution, followed by ab150077 Alexa-Fluor® 488 Goat anti-Rabbit secondary at 1/1000 dilution (Green). Confocal image showing cytoplasmic and nuclear staining in HepG2 cell line (PMID 26159288) is observed. Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) was used as the counterstain (Red). The nuclear counterstain is DAPI (Blue).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Alexa-Fluor® 488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution.

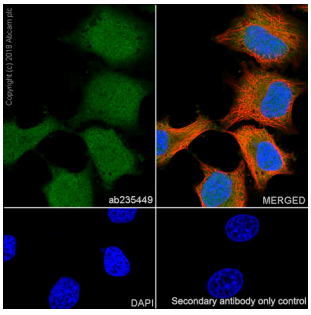


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

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

Immunohistochemical analysis of paraffin-embedded human prostatic hyperplasia tissue labeling Acid Phosphatase with ab235449 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining in human prostatic hyperplasia (PMID: 26159288) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP)ready to use.

Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



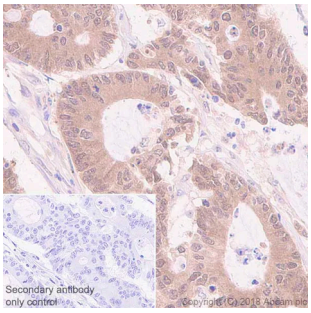
Immunocytochemistry/ Immunofluorescence - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

Acid phosphatase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Acid phosphatase antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Acid Phosphatase with ab235449 at

1/100 dilution, followed by ab150077 Alexa-Fluor®488 Goat anti-Rabbit secondary at 1/1000 dilution (Green). Confocal image showing cytoplasmic and nuclear staining in HeLa cell line (PMID 26159288) is observed. Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) was used as the counterstain (Red). The nuclear counterstain is DAPI (Blue).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Alexa-Fluor®488 Goat anti-Rabbit secondary (ab150077) at 1/1000 dilution.

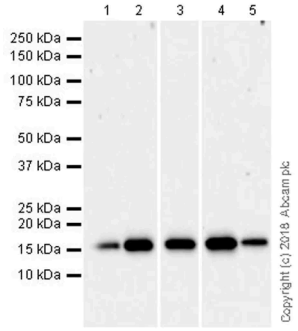


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

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

Immunohistochemical analysis of paraffin-embedded human colon cancer tissue labeling Acid Phosphatase with ab235449 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining in human colon cancer (PMID: 25811796) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP)ready to use.

Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Western blot - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

Acid phosphatase Western blot staining using rabbit Anti-Acid phosphatase antibody

Blocking/Diluting buffer and concentration: 5% NFDM/TBST
Exposure time: 3 minutes.
The molecular mass observed is consistent with what has been described in the literature (PMID: 25811796).

All lanes:
Western blot - Anti-Acid phosphatase antibody [EPR21791] (ab235449) at 1/1000 dilution

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

Lane 2:
HepG2 (human hepatocellular carcinoma epithelial cell), whole cell lysate at 20 µg

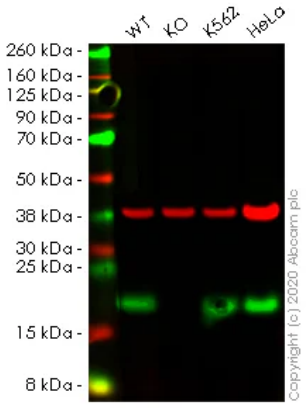
Lane 3:
HCT116 (human colorectal carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 4:
Jurkat (human T cell leukemia T lymphocyte), whole cell lysate at 20 µg

Lane 5:
Human placenta tissue lysate at 20 µg

Secondary

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



Western blot - Anti-Acid phosphatase antibody [EPR21791] (ab235449)

Acid phosphatase Western blot staining using rabbit Anti-Acid phosphatase antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab235449 observed at 18 kDa. Red - loading control ab8245 (Mouse anti-GAPDH antibody [6C5]) observed at 37kDa.
ab235449 was shown to react with Acid phosphatase in wild-type HEK-293 cells in western blot with loss of signal observed in ACP1 knockout sample. Wild-type and ACP1 knockout HEK-293 cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab235449 and ab8245 (Mouse anti-GAPDH antibody [6C5]) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Acid phosphatase antibody [EPR21791] (ab235449) at 1/1000 dilution

Lane 1:
Wild-type HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
Western blot - Human ACP1 (Acid phosphatase) knockout HEK-293 cell lysate (ab261668) at 20 µg

Lane 3:
K562 (Human chronic myelogenous leukemia lymphoblast cell line) whole cell lysate at 20 µg

Lane 4:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 18 kDa

Observed band size: 18 kDa

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