abcam

ab235448

Anti-Acid phosphatase antibody [EPR21787]

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	EPR21787
Purification technique	Affinity purification Protein A
Concentration	0.505 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
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

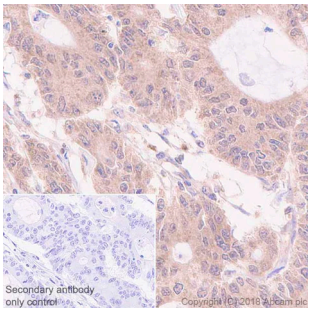
We do not recommend this combination. It is not covered by our product promise.

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.

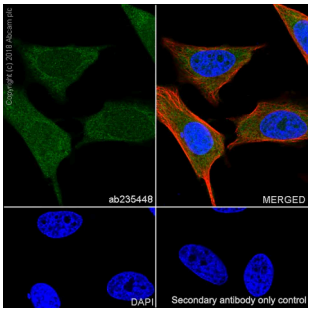
Full details and terms and conditions can be found here:
Terms & Conditions.

9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

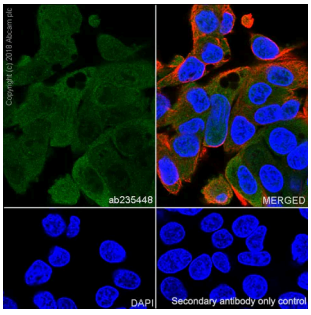
Immunohistochemical analysis of paraffin-embedded human colon cancer tissue labeling Acid phosphatase with ab235448 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining in human colon cancer (PMID: 25811796) is observed. Counterstained with hematoxylin.
Secondary 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).



Immunocytochemistry/ Immunofluorescence - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

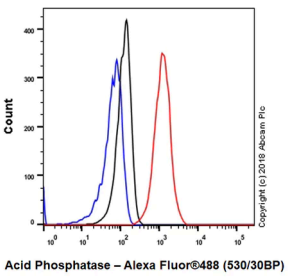
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Acid phosphatase with ab235448 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and nuclear staining in HeLa cell line (PMID 26159288). The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution.
Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

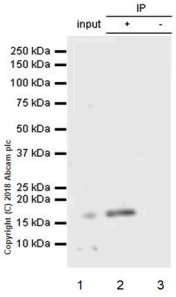
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HepG2 (Human liver hepatocellular carcinoma cell line) cells labeling Acid phosphatase with ab235448 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and nuclear staining in HepG2 cell line (PMID 26159288). The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution.
Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

Intracellular flow cytometric analysis of4% paraformaldehyde-fixed, 90% methanol-permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cell line labeling Acid phosphatase with ab235448 at 1/50 dilution (red) compared with a Isotype control details (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2000 dilution was used as the secondary antibody.



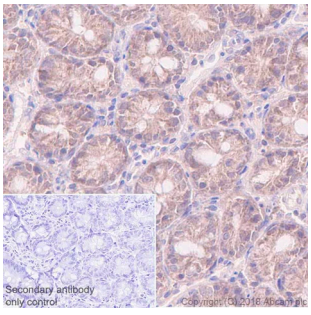
Immunoprecipitation - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

Acid phosphatase was immunoprecipitated from 0.35 mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab235448 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab235448 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
Lane 1: HeLa whole cell lysate lysate 10 µg (Input).
Lane 2: ab235448 IP in HeLa whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab235448 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Immunoprecipitation - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

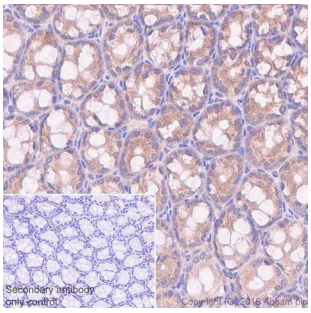
Observed band size: 18 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

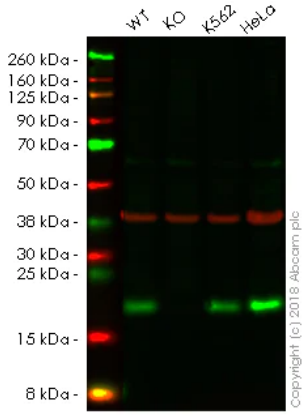
Immunohistochemical analysis of paraffin-embedded rat colon tissue labeling Acid phosphatase with ab235448 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining in rat colon (PMID: 25811796) is observed. Counterstained with hematoxylin. Secondary antibody only 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).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

Immunohistochemical analysis of paraffin-embedded mouse colon tissue labeling Acid phosphatase with ab235448 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Positive staining in mouse colon (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 [EPR21787] (ab235448)

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

Lanes 1 - 4: Merged signal (red and green). Green - ab235448 observed at 18 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab235448 was shown to specifically react with ACP1 (Acid phosphatase 1) in wild-type HEK 293 cells as signal was lost in ACP1 knockout cells. Wild-type and ACP1 knockout samples were subjected to SDS-PAGE. The membrane was blocked with 3% Milk. ab235448 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed 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 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Acid phosphatase antibody [EPR21787] (ab235448) at 1/1000 dilution

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

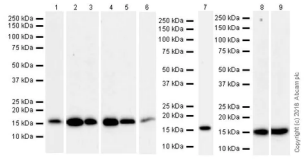
Lane 2:
Western blot - Human ACP1 (Acid phosphatase) knockout HEK-293 cell lysate (ab261668) at 20 µg

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



Western blot - Anti-Acid phosphatase antibody [EPR21787] (ab235448)

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

Blocking and dilution buffer: 5% NFDM/TBST.
Exposure times.

Lane 1: 37 seconds, **Lanes 2-9:** 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 [EPR21787] (ab235448) at 1/1000 dilution

Lane 1:
HepG2 (human liver hepatocellular carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
SH-SY5Y (human neuroblastoma cell line from bone marrow) whole cell lysate at 20 µg

Lane 3:
HCT 116 (human colorectal carcinoma cell line) whole cell lysate at 20 µg

Lane 4:
Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 5:
Human placenta lysate at 20 µg

Lane 6:
Human colon lysate at 20 µg

Lane 7:
HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 10 µg

Lane 8:
C6 (rat glioma cell line) whole cell lysate at 10 µg

Lane 9:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 10 µg

Secondary

Lanes 1 - 6:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Lanes 7 - 9:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

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'.