abcam

ab226049

Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR5777
Purification technique	Affinity purification Protein A
Concentration	1.012 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Rat
Dilution info	-

Notes	-

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information CBX5

Function

Component of heterochromatin that recognizes and binds histone H3 tails methylated at 'Lys-9' (H3K9me), leading to epigenetic repression (PubMed:40440427). In contrast, it is excluded from chromatin when 'Tyr-41' of histone H3 is phosphorylated (H3Y41ph) (PubMed:19783980). Also recognizes and binds histone H1.4 methylated at 'Lys-26' (H1.4K26me) (PubMed:16127177). Excluded from chromatin when histone H1.4 is Simultaneously methylated at Lys-26 (H1.4K26me) and phosphorylated at Ser-27 (H1.4S27Ph) (PubMed:16127177). May contribute to the association of heterochromatin with the inner nuclear membrane by interactions with the lamin-B receptor (LBR) (PubMed:19783980). Involved in the formation of kinetochore through interaction with the MIS12 complex subunit NSL1 (PubMed:19783980, PubMed:20231385). Required for the formation of the inner centromere (PubMed:20231385).

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

ab226049 is the carrier-free version of ab109028.

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	HP1 alpha also known as HP1a or HP1 protein is a well-studied member of the heterochromatin protein 1 family. It plays a mechanical role in chromatin organization and gene regulation by binding to histone H3 when it's methylated at lysine 9 (H3K9me). This protein has a molecular mass of approximately 22-25 kDa. HP1 alpha is commonly expressed in the nuclei of eukaryotic cells where it localizes to heterochromatin regions and influences chromatin compaction.

Biological function summary	Heterochromatin protein 1 alpha acts as a modulator of gene silencing. It is part of a larger protein complex that contains various chromatin modifiers responsible for maintaining the silent state of certain genes. By mediating these interactions HP1 alpha helps regulate transcription replication timing and DNA repair processes. This regulation is essential for the structural maintenance of heterochromatin and plays a part in chromosomal stability.
Pathways	HP1 alpha is integral in the epigenetic regulation pathway along with other well-known proteins including SUV39H1 and SUV39H2 which are histone methyltransferases. HP1 alpha also links to the DNA damage response pathway where it recruits repair factors to maintain genomic integrity. Through these pathways HP1 alpha interacts closely with proteins like BRCA1 emphasizing its role in cellular homeostasis and response to DNA damage.
Associated diseases and disorders	Researchers associate HP1 alpha with cancer and developmental disorders. Alterations in HP1 alpha expression or function can lead to disruptions in chromatin organization contributing to oncogenesis by affecting tumor suppressor genes. Furthermore HP1 alpha links to disorders like ICF syndrome through its relationship with the DNA methylation process where it interacts with proteins such as DNMT3B. Understanding these connections provides insights into therapeutic approaches targeting epigenetic modifications in disease contexts.

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

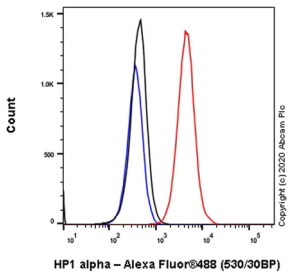
We do not recommend this combination. It is not covered by our product promise.

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.

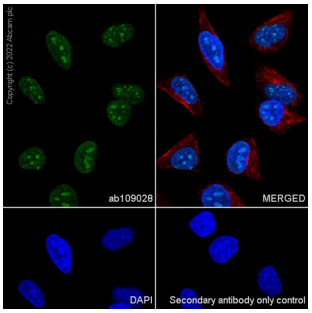
8 product images



Flow Cytometry (Intracellular) - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

HP1 alpha Flow Cytometry (Intracellular) staining using rabbit Anti-HP1 alpha antibody

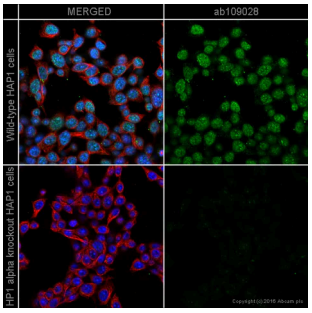
This data was developed using ab109028, the same antibody clone in a different buffer formulation. Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling HP1 alpha with Purified ab109028 at 1/30 dilution (10 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde 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-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

This data was developed using ab109028, the same antibody clone in a different buffer formulation.
ab109028 staining HP1 alpha in HeLa (human cervical adenocarcinoma epithelial cell). The cells were fixed with 100% methanol, permeabilized with 0.1% TritonX-100. The cells were then incubated with ab109028 at 1:100 dilution. Cells were then incubated with ab150088, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) preadsorbed at 1:1000 dilution (shown in green). ab195889, Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used as counterstain at 1:200 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).

Confocal image showing nuclear staining in HeLa cell line.

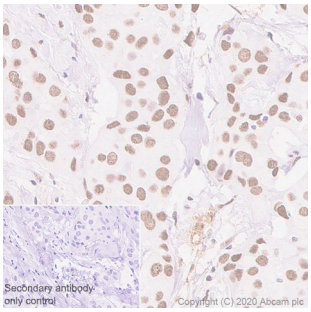


Immunocytochemistry/ Immunofluorescence - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

HP1 alpha Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-HP1 alpha antibody

ab109028 staining HP1 alpha in wild-type HAP1 cells (top panel) and HP1 alpha knockout HAP1 cells (bottom panel). The cells were fixed with 4% formaldehyde (10min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab109028 at 1/250 dilution and ab195889 at 1/250 dilution (shown in pseudo colour red) overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to Rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

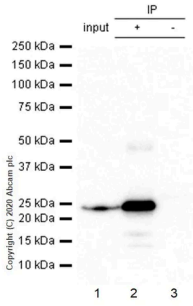
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109028).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

HP1 alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-HP1 alpha antibody

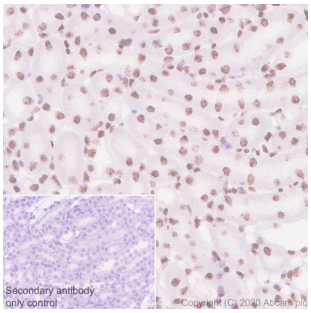
This data was developed using ab109028, the same antibody clone in a different buffer formulation.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast cancer tissue sections labeling HP1 alpha with Purified ab109028 at 1/1000 dilution (0.31 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunoprecipitation - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

Purified ab109028 at 1/30 dilution (2µg) immunoprecipitating HP1 alpha in MCF7 whole cell lysate.
Lane 1 (input): MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab109028 + MCF7 whole cell lysate.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab109028 in MCF7 whole cell lysate.
VeriBlot for IP Detection Reagent (HRP) (ab131366) (1/1000 dilution) was used for Western blotting.
Blocking Buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM/TBST.
Observed band size: 22 kDa
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109028).
All lanes:
Immunoprecipitation - Anti-HP1 alpha antibody [EPR5777] - Heterochromatin marker (ab109028)

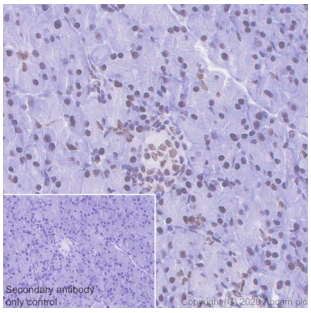
Predicted band size: 22 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

HP1 alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-HP1 alpha antibody

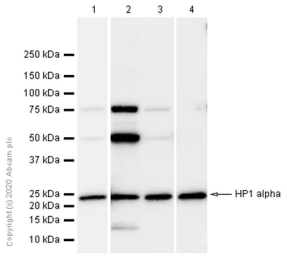
This data was developed using ab109028, the same antibody clone in a different buffer formulation.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse kidney tissue sections labeling HP1 alpha with Purified ab109028 at 1/1000 dilution (0.31 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

HP1 alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-HP1 alpha antibody

This data was developed using ab109028, the same antibody clone in a different buffer formulation.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat pancreas tissue sections labeling HP1 alpha with Purified ab109028 at 1/1000 dilution (0.31 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Western blot - Anti-HP1 alpha antibody [EPR5777] - BSA and Azide free (ab226049)

We are unsure how to define the extra bands.
Purified ab109028 at 1/30 dilution (2µg) immunoprecipitating HP1 alpha in MCF7 whole cell lysate.

All lanes:
Western blot - Anti-HP1 alpha antibody [EPR5777] - Heterochromatin marker (ab109028) at 1/1000 dilution

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

Lane 2:
SH-SY5Y (Human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
Mouse brain lysate at 20 µg

Lane 4:
Rat brain lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 22 kDa

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