abcam

ab317723

Anti-CBX1 / HP1 beta antibody [RAB-C145]

Recombinant

Key facts

Isotype	Unknown
Host species	Human
Storage buffer	pH: 7.2 Preservative: 0.02% Proclin 300 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human CBX1 aa 1-100. The exact immunogen used to generate this antibody is proprietary information. Database link P83916
Clone number	RAB-C145
Purification technique	Affinity purification
Specificity	This antibody recognizes CBX1 (Chromobox protein homolog 1). It binds to a folded domain, amino acids 20-73.
Light chain type	kappa
Purification notes	Purified by Immobilized Metal Affinity Chromatography.

Reactivity data

Flow Cyt

Tested

Species	Human

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information CBX1

Function	Component of heterochromatin, which recognizes and binds histone H3 tails methylated at 'Lys-9', leading to epigenetic repression (By similarity). 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). Interaction with lamin B receptor (LBR) can contribute to the association of the heterochromatin with the inner nuclear membrane (By similarity).

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CBX1 also known as HP1 beta is a chromatin-associated protein that plays an important role in chromatin organization and epigenetic regulation. This protein has a mass of approximately 22 kDa and localizes within the nucleus where it participates in heterochromatin formation. CBX1 recognizes and binds to histone H3 when it is methylated at lysine 9 (H3K9me3) a modification integral to forming tightly packed DNA regions. Expression of CBX1 occurs widely in many tissue types reflecting its fundamental role in genomic maintenance and cell cycle regulation.
Biological function summary	The CBX1 protein acts as an integral component of the chromatin remodeling complex. By binding to methylated histones CBX1 helps stabilize chromatin architecture and repress transcription of genes within heterochromatic regions. This function is essential for maintaining gene silencing which is critical for processes like development and differentiation. CBX1 collaborates with other HP1 isoforms such as HP1 alpha and HP1 gamma as part of the family of heterochromatin proteins that contribute collectively to chromatin dynamics and gene expression control.
Pathways	CBX1 plays a part in the epigenetic transcriptional repression and cell cycle regulation pathways. It associates with SUV39H1 a methyltransferase to recognize and bind the H3K9me3 mark adding stability to the methylation signal and contributing to gene silencing. Additionally CBX1 interacts with other proteins like DNMT1 a DNA methyltransferase reinforcing its role in sustaining repressive chromatin states and preserving genome integrity during DNA replication.
Associated diseases and disorders	CBX1 holds a significant association with cancer and neurological disorders. Aberrant expression or mutations in CBX1 can lead to disrupted chromatin states influencing oncogene activation or tumor suppressor gene silencing which are common events in cancer development. Furthermore altered CBX1 function links to neurological disorders where inappropriate chromatin remodeling contributes to disease pathology. Changes in the expression and interaction with other proteins including HP1 alpha highlight its potential role in disease mechanisms making CBX1 a relevant target for therapeutic research.

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

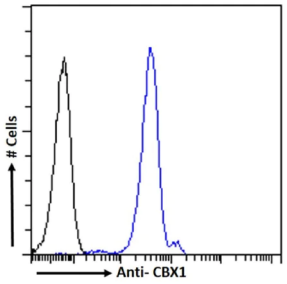
We do not recommend this combination. It is not covered by our product promise.

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.

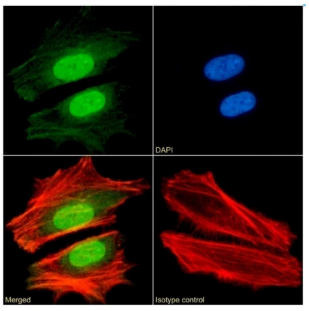
Full details and terms and conditions can be found here:
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3 product images



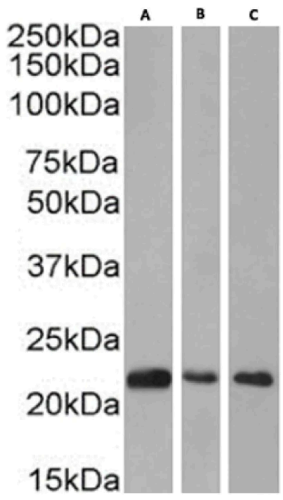
Flow Cytometry - Anti-CBX1 / HP1 beta antibody [RAB-C145] (ab317723)

HeLa cells were fixed using 2% PFA and stained with anti-unknown specificity antibody (isotype control, black line) or the rabbit IgG1 version of ab317723 (blue line) at a dilution of 1:100 for 1h at RT. After washing, the bound antibody was detected using a goat anti-rabbit IgG AlexaFluor® 488 antibody at a dilution of 1:1000.



Immunocytochemistry/ Immunofluorescence - Anti-CBX1 / HP1 beta antibody [RAB-C145] (ab317723)

Immunofluorescence analysis of paraformaldehyde fixed HeLa cells stained with the chimeric rabbit IgG version of ab317723 at 10 ug/ml for 1h followed by Alexa Fluor® 488 secondary antibody (2 ug/ml), showing membrane staining. The nuclear stain is DAPI (blue) and the actin stain is phalloidin (red). Panels show from left-right, top-bottom primary antibody/secondary, DAPI, merged channels and an isotype control. The isotype control was an unknown specificity antibody followed by staining with Alexa Fluor® 488 secondary antibody.



Western blot - Anti-CBX1 / HP1 beta antibody [RAB-C145] (ab317723)

Chimeric rabbit version of ab317723 was used for this WB. A primary incubation of 1h was used and protein was detected by chemiluminescence.
Lanes 1 - 2:
Western blot - Anti-CBX1 / HP1 beta antibody [RAB-C145] (ab317723) at 0.3 µg/mL

Lane 1:
Western blot - Anti-CBX1 / HP1 beta antibody [RAB-C145] (ab317723) at 0.1 µg/mL

Lane 1:
Nuclear lysates of HeLa (35ug protein in RIPA buffer)

Lane 2:
Nuclear lysates of HEK293 (35ug protein in RIPA buffer)

Lane 3:
Nuclear lysates of MCF7 (35ug protein in RIPA buffer)

Secondary

All lanes:
Anti-rabbit secondary antibody

Predicted band size: 21 kDa

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