abcam

ab243897

Anti-CTCF antibody [BLR041F]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.8 - 8.6 Preservative: 0.09% Sodium azide Constituents: 98% Borate buffered saline, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human CTCF aa 650 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P49711
Clone number	BLR041F
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Recombinant antibody was purified from cell culture supernatant.

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/100 - 1/500
Notes	-

Species	Human
Dilution info	1/100 - 1/500
Notes	-

ICC

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	-

Species	Mouse
Dilution info	1/100 - 1/500
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	Use 20µl/mg lysate.

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000

Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µL for 10^6 Cells
Notes	-

Species	Mouse
Dilution info	1 µL for 10^6 Cells
Notes	-

Target data

See full target information CTCF

Function

Chromatin binding factor that binds to DNA sequence specific sites and regulates the 3D structure of chromatin (PubMed:16949368, PubMed:18347100, PubMed:18654629, PubMed:19322193). Binds together strands of DNA, thus forming chromatin loops, and anchors DNA to cellular structures, such as the nuclear lamina (PubMed:18347100, PubMed:18654629, PubMed:19322193). Defines the boundaries between active and heterochromatic DNA via binding to chromatin insulators, thereby preventing interaction between promoter and nearby enhancers and silencers (PubMed:18347100, PubMed:18654629, PubMed:19322193). Participates in the allele-specific gene expression at the imprinted IGF2/H19 gene locus (PubMed:16107875, PubMed:16815976, PubMed:17827499). On the maternal allele, binding within the H19 imprinting control region (ICR) mediates maternally inherited higher-order chromatin conformation to restrict enhancer access to IGF2 (By similarity). Mediates interchromosomal association between IGF2/H19 and WSB1/NF1 and may direct distant DNA segments to a common transcription factory (By similarity). Regulates asynchronous replication of IGF2/H19 (By similarity). Plays a critical role in gene silencing over considerable distances in the genome (By similarity). Preferentially interacts with unmethylated DNA, preventing spreading of CpG methylation and maintaining methylation-free zones (PubMed:18413740). Inversely, binding to target sites is prevented by CpG methylation (PubMed:18413740). Plays an important role in chromatin remodeling (PubMed:18413740). Can dimerize when it is bound to different DNA sequences, mediating long-range chromatin looping

(PubMed:12191639). Causes local loss of histone acetylation and gain of histone methylation in the beta-globin locus, without affecting transcription (PubMed:12191639). When bound to chromatin, it provides an anchor point for nucleosomes positioning (PubMed:12191639). Seems to be essential for homologous X-chromosome pairing (By similarity). May participate with Tsix in establishing a regulatable epigenetic switch for X chromosome inactivation (PubMed:11743158). May play a role in preventing the propagation of stable methylation at the escape genes from X-inactivation (PubMed:11743158). Involved in sister chromatid cohesion (PubMed:12191639). Associates with both centromeres and chromosomal arms during metaphase and required for cohesin localization to CTCF sites (PubMed:18550811). Plays a role in the recruitment of CENPE to the pericentromeric/centromeric regions of the chromosome during mitosis (PubMed:26321640). Acts as a transcriptional repressor binding to promoters of vertebrate MYC gene and BAG1 gene (PubMed:18413740, PubMed:8649389, PubMed:9591631). Also binds to the PLK and PIM1 promoters (PubMed:12191639). Acts as a transcriptional activator of APP (PubMed:9407128). Regulates APOA1/C3/A4/A5 gene cluster and controls MHC class II gene expression (PubMed:18347100, PubMed:19322193). Plays an essential role in oocyte and preimplantation embryo development by activating or repressing transcription (By similarity). Seems to act as tumor suppressor (PubMed:12191639).

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	+4°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

REACH authorisation
Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.
It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

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Supplementary info

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

Activity summary	CTCF also known as the CCCTC-binding factor is a highly conserved zinc finger protein involved in transcriptional regulation and chromatin organization. It has a molecular weight of approximately 82 kDa. The CTCF protein plays a critical mechanical role in controlling the three-dimensional architecture of the genome by binding to specific DNA sequences and forming chromatin loops. It is widely expressed in various cell types across tissues where it acts as a transcriptional repressor and activator depending on the context. CTCF immunofluorescence techniques enable the visualization of its dynamic distribution and expression within the nucleus.
Biological function summary	The multipurpose CTCF protein acts in coordinating the spatial organization of the genome. It functions as an insulator by regulating the boundaries between different chromosomal domains and controlling gene expression. CTCF operates within various complexes interacting with cohesin a vital protein complex that facilitates loop formation and influences genome architecture. This interaction helps in maintaining the integrity of the genome structure and proper chromatin insulation which are essential for normal gene function.
Pathways	CTCF plays significant roles in epigenetic regulatory networks and transcriptional pathways. In the epigenetic landscape it influences gene expression through modulation of DNA methylation states at CpG islands interacting with proteins like DNA methyltransferases. In transcriptional pathways CTCF interacts with nuclear factor Y (NF-Y) which contributes to cell cycle regulation by modulating the expression of cell cycle genes. These pathways reflect CTCF's versatility in gene regulation and its influence on maintaining cellular homeostasis.
Associated diseases and disorders	CTCF disruptions have been implicated in cancer and intellectual disabilities. Mutations or altered expression of CTCF can lead to tumorigenesis as CTCF acts as a tumor suppressor by controlling oncogene and tumor suppressor gene expression. In intellectual disabilities CTCF mutations affect brain development by disrupting the expression of neuronal genes. The protein's interaction with cohesin has links to disorders such as Cornelia de Lange syndrome where cohesin complex dysfunction parallels the phenotypes seen with CTCF aberrations.

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.

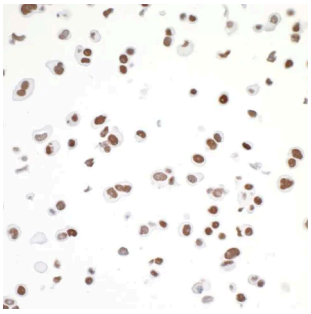
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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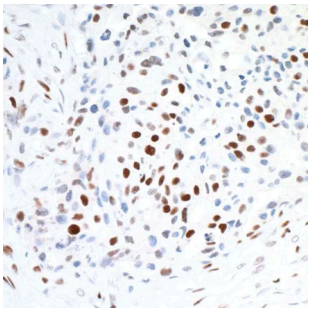
12 product images



Immunocytochemistry - Anti-CTCF antibody [BLR041F] (ab243897)

CTCF Immunocytochemistry staining using rabbit Anti-CTCF antibody

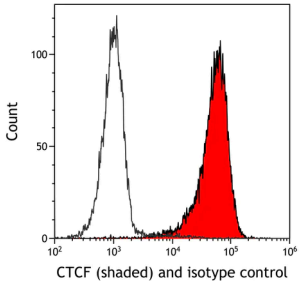
Formalin-fixed, paraffin-embedded MCF7 (human breast adenocarcinoma cell line) cells labeling CTCF using ab243897 at 1/100 dilution in ICC analysis. A HRP-conjugated goat-anti rabbit IgG was used as the secondary. DAB staining.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CTCF antibody [BLR041F] (ab243897)

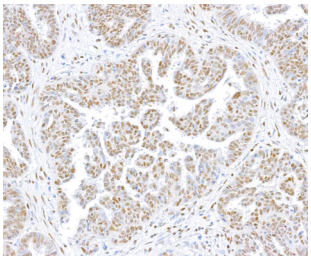
CTCF Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CTCF antibody

Formalin-fixed, paraffin-embedded human lung carcinoma tissue stained for CTCF using ab243897 at 1/100 dilution in immunohistochemical analysis. A HRP-conjugated goat anti-rabbit antibody was used as the secondary. DAB staining.



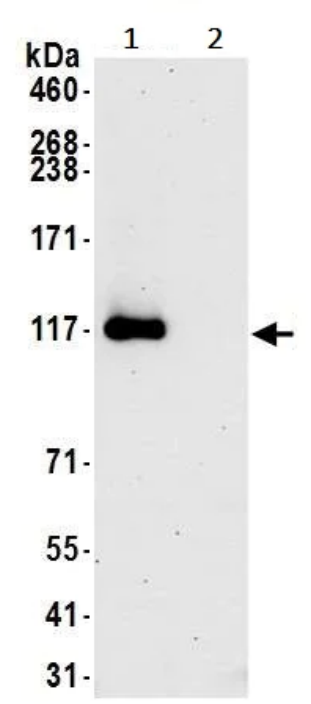
Flow Cytometry - Anti-CTCF antibody [BLR041F] (ab243897)

Flow cytometry overlay histogram of 4% formaldehyde fixed K562 cells permeabilized with 90% methanol labeling human CTCF with ab243897 at 1 µl per 1 x 10^6 cells. (shaded) compared with a Isotype control (unshaded). Secondary antibody details: Goat Anti-Rabbit IgG H&L (DyLight® 650) (ab96886).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CTCF antibody [BLR041F] (ab243897)

Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded human ovarian carcinoma labeling human CTCF with ab243897, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on human ovarian carcinoma is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



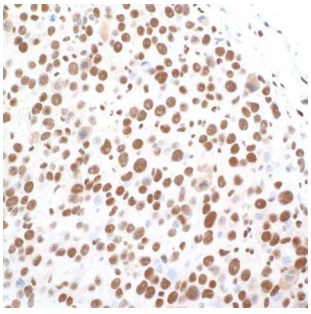
Immunoprecipitation - Anti-CTCF antibody [BLR041F] (ab243897)

CTCF was immunoprecipitated from 1.0 mg HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate with ab243897 at 20 µl per reaction Western blot was performed on the immunoprecipitate using ab243897 at 1/1000 dilution. Lane 1: ab243897 IP in HEK-293T whole cell lysate.
Lane 2: Control IgG in HEK-293T whole cell lysate.

Detection: Chemiluminescence with an exposure time of 30 seconds.

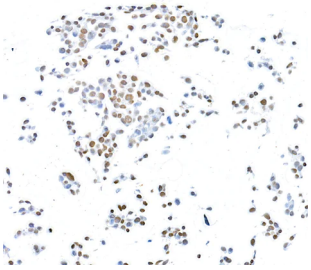
All lanes:
Immunoprecipitation - Anti-CTCF antibody [BLR041F] (ab243897)

Predicted band size: 83 kDa



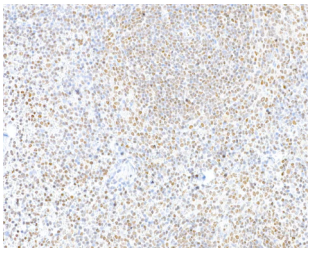
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CTCF antibody [BLR041F] (ab243897)

Formalin-fixed, paraffin-embedded mouse renal cell carcinoma tissue stained for CTCF using ab243897 at 1/100 dilution in immunohistochemical analysis. A HRP-conjugated goat anti-rabbit antibody was used as the secondary. DAB staining.



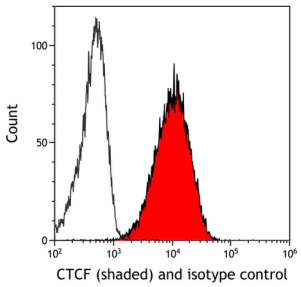
Immunocytochemistry - Anti-CTCF antibody [BLR041F] (ab243897)

Immunocytochemical analysis of Formalin-Fixed Paraffin-Embedded CT26 cells labeling mouse CTCF with ab243897 followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on CT26 cells is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



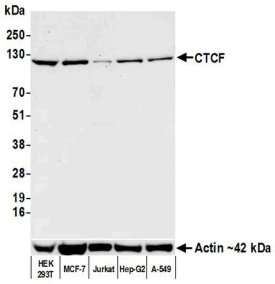
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CTCF antibody [BLR041F] (ab243897)

Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded mouse spleen labeling mouse CTCF with ab243897, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on mouse spleen is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Flow Cytometry - Anti-CTCF antibody [BLR041F] (ab243897)

Flow cytometry overlay histogram of 4% formaldehyde fixed A20 cells permeabilized with 90% methanol labeling mouse CTCF with ab243897 at 1 µl per 1 x 10^6 cells. (shaded) compared with a Isotype control (unshaded). Secondary antibody details: Goat Anti-Rabbit IgG H&L (DyLight® 650) (ab96886).



Western blot - Anti-CTCF antibody [BLR041F] (ab243897)

CTCF Western blot staining using rabbit Anti-CTCF antibody

All lanes:
Western blot - Anti-CTCF antibody [BLR041F] (ab243897) at 1/1000 dilution

Lane 1:
HEK293T whole cell lysate at 50 µg

Lane 2:
MCF-7 whole cell lysate at 50 µg

Lane 3:
Jurkat whole cell lysate at 50 µg

Lane 4:
Hep-G2 whole cell lysate at 50 µg

Lane 5:
A-549 whole cell lysate at 50 µg

Secondary

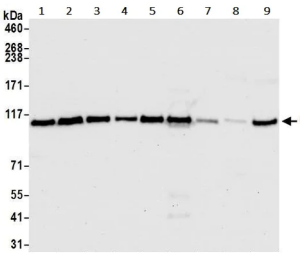
All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051)

Developed using the ECL technique.

Predicted band size: 83 kDa

Observed band size: 127 kDa

Exposure time: 3s



Western blot - Anti-CTCF antibody [BLR041F] (ab243897)

CTCF Western blot staining using rabbit Anti-CTCF antibody

Western blot analysis using ab243897 at 1/1000 dilution.
Lane 1: HEK-293T whole cell lysate (50 µg).

Lane 2: MCF7 whole cell lysate (50 µg).

Lane 3: HepG2 whole cell lysate (50 µg).

Lane 4: A549 whole cell lysate (50 µg).

Lane 5: SW 620 whole cell lysate (50 µg).

Lane 6: SK whole cell lysate (50 µg).

Lane 7: Jurkat whole cell lysate (50 µg).

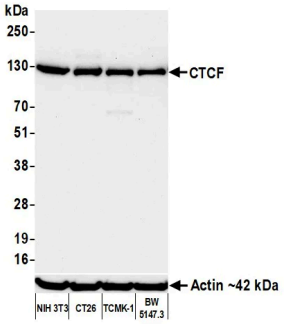
Lane 8: TCMK-1 whole cell lysate (50 µg).

Lane 9: NIH/3T3 whole cell lysate (50 µg).

A HRP-conjugated goat anti-rabbit IgG antibody was used as the secondary. Detection: chemiluminescence with an exposure time of 10 seconds.

All lanes:
Western blot - Anti-CTCF antibody [BLR041F] (ab243897)

Predicted band size: 83 kDa



Western blot - Anti-CTCF antibody [BLR041F] (ab243897)

CTCF Western blot staining using rabbit Anti-CTCF antibody

All lanes:
Western blot - Anti-CTCF antibody [BLR041F] (ab243897) at 1/1000 dilution

Lane 1:
NIH 3T3 whole cell lysate at 50 µg

Lane 2:
CT26 whole cell lysate at 50 µg

Lane 3:
TCMK-1 whole cell lysate at 50 µg

Lane 4:
BW5147.3 whole cell lysate at 50 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051)

Developed using the ECL technique.

Predicted band size: 82 kDa

Observed band size: 130 kDa

Exposure time: 30s

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