abcam

ab263025

Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free

Recombinant | RabMAb | Advanced Validation

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	EPR22953-38
Purification technique	Affinity purification Protein A
Concentration	1.046 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

ChIP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information CHD4

Function	ATP-dependent chromatin-remodeling factor that binds and distorts nucleosomal DNA (PubMed:28977666, PubMed:32543371). Acts as a component of the histone deacetylase NuRD complex which participates in the remodeling of chromatin (PubMed:16428440, PubMed:17626165, PubMed:28977666, PubMed:9804427). Localizes to acetylated damaged chromatin in a ZMYND8-dependent manner, to promote transcriptional repression and double-strand break repair by homologous recombination (PubMed:25593309). Involved in neurogenesis (By similarity).

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

ab263025 is the carrier-free version of ab240640.

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	CHD4 also known as CDH4 is a protein that functions as part of the nucleosome remodeling and deacetylase (NuRD) complex. CHD4 has a molecular mass of approximately 218 kDa. The protein contains a chromo domain a helicase domain and two PHD-type zinc fingers. It is expressed ubiquitously in human tissues with higher expression levels seen in the spleen and fetal brain. This protein plays an essential role in DNA transcription regulation by modifying chromatin structure.
Biological function summary	CHD4 acts within the NuRD complex to mediate transcriptional repression. This complex combines chromatin remodeling with histone deacetylation to alter chromatin dynamics affecting gene expression. CHD4's involvement in the complex facilitates the static organization of chromatin therefore contributing to transcriptional silencing of specific gene sets. The protein's activity is often in response to environmental and developmental cues playing an integral role in cellular differentiation and proliferation processes.
Pathways	CHD4 connects closely with DNA damage repair and cell cycle regulation pathways. It participates actively in the DNA damage response pathway by facilitating the repair of double-strand breaks working alongside proteins such as ATM and ATR. CHD4 also influences the cell cycle by interacting with cyclins and cyclin-dependent kinases which maintain proper cell cycle progression and check points.
Associated diseases and disorders	CHD4 has been linked to various cancers and neurodevelopmental disorders. Alterations or mutations in CHD4 have associations with certain cancers like colorectal cancer where it affects cellular proliferation and migration. In neurodevelopmental disorders disrupted CHD4 function may lead to chromatin misregulation contributing to intellectual disabilities. CHD4’s interactions with proteins such as p53 in cancer and MeCP2 in neurological conditions highlight its connections in disease mechanisms.

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.

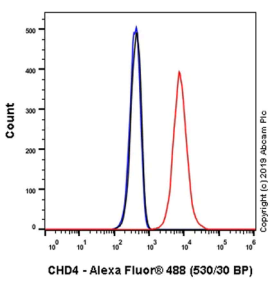
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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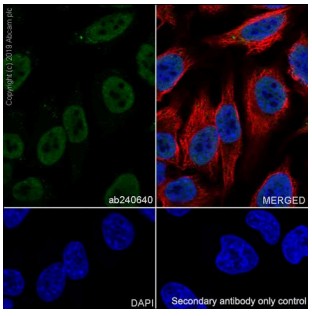
8 product images



Flow Cytometry (Intracellular) - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

CHD4 Flow Cytometry (Intracellular) staining using rabbit Anti-CHD4 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling CHD4 with ab240640 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). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab240640).

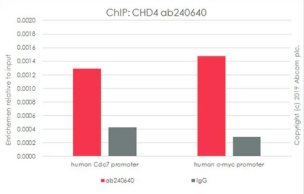


Immunocytochemistry/ Immunofluorescence - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

CHD4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-CHD4 antibody

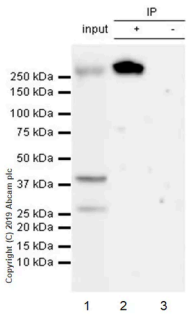
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labeling CHD4 with ab240640 at 1/500 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing strong nuclear staining and weak cytoplasmic staining in HeLa cell line is observed. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab240640).



ChIP - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

Chromatin was prepared from K-562 cells according to the Abcam Dual-X-ChIP protocol. Cells were fixed with 1.5 mM EGS for 30mins and then formaldehyde for 10min.
The ChIP was performed with 25 µg of chromatin, 5 µg of ab240640 (red), or 5 µg of rabbit normal IgG ab172730 (gray) and 20 µl of Protein A/G sepharose beads. The immunoprecipitated DNA was quantified by real time PCR (Taqman approach for active and inactive loci, Sybr green approach for heterochromatic loci).
Primers and probes are from paper PMID: 23505388.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab240640).



Immunoprecipitation - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

CHD4 was immunoprecipitated from 0.35 mg NCCIT (Human pluripotent embryonic carcinoma epithelial cell) whole cell lysate 10ug with ab240640 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab240640 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1/5000 dilution.
Lane 1: NCCIT whole cell lysate 10ug.

Lane 2: ab240640 IP in NCCIT whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab240640 in NCCIT whole cell lysate.

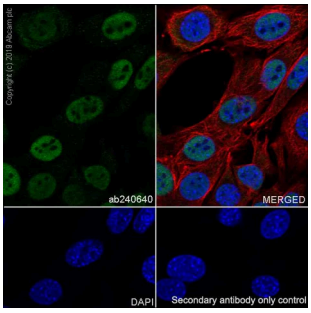
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 min.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab240640).

All lanes:
Immunoprecipitation - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

Predicted band size: 218 kDa

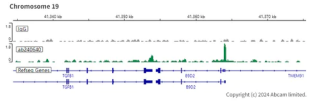


Immunocytochemistry/ Immunofluorescence - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

CHD4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-CHD4 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labeing CHD4 with ab240640 at 1/500 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing strong nuclear staining and weak cytoplasmic staining in NIH/3T3 cell line is observed. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The nuclear counterstain was DAPI (Blue).
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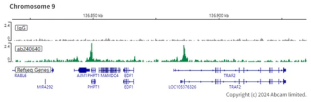
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ChIC/CUT&RUN sequencing - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

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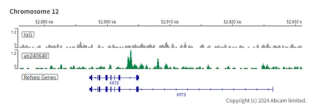
ChIC/CUT&RUN was performed using a pAG-MNase at a final concentration of 700 ng/mL, 2.5 x 10^5 K562 (human chronic myelogenous leukemia lymphoblast) cells and 5 µg of ab240640 [EPR22953-38]. The resulting DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 10 million reads. The negative IgG control ab172730 is also shown. The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods.



ChIC/CUT&RUN sequencing - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade - BSA and Azide free (ab263025)

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