abcam

ab240640

Anti-CHD4 antibody [EPR22953-38] - ChIP Grade

Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640) is a rabbit monoclonal antibody detecting CHD4 in **Western Blot, Flow Cytometry (Intra), IP, ICC/IF, ChIP**. Suitable for **Human, Mouse**.

- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | Advanced Validation | 20ul selling size

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	EPR22953-38
Purification technique	Affinity purification Protein A
Concentration	0.622 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
Dilution info	Use at an assay dependent concentration.
Notes	-

ChIP

Tested

Species	Human
Dilution info	5 µg for 25 µg chromatin
Notes	-

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	-

IHC-P

Not recommended

Species	Mouse, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/600
Notes	-

Expected

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

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	5 µg

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	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

What is this antibody validated in?
Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunocytochemistry/immunofluorescence (ICC/IF), ChIP in Human, Mouse samples.

What is the molecular weight of CHD4?
Anti-CHD4 [EPR22953-38] - ChIP Grade (ab240640) specifically detects a band for CHD4 (UniProt: Q14839) at a molecular weight of 218kDa.

Other related products
We have a range of other formats of antibody clone [EPR22953-38] also available for your convenience: ab240640, Carrier free - ab263025

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

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

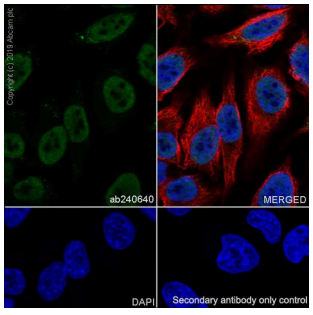
We do not recommend this combination. It is not covered by our product promise.

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.

9 product images

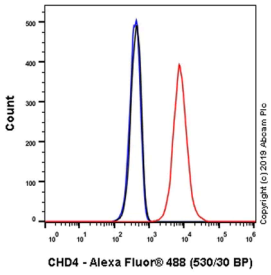


Immunocytochemistry/ Immunofluorescence - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

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).

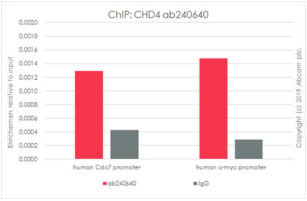
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

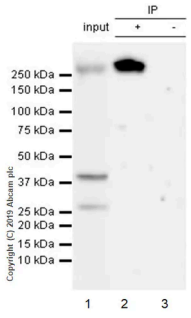
CHD4 Flow Cytometry (Intracellular) staining using rabbit Anti-CHD4 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling 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.



ChIP - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

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.



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

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.

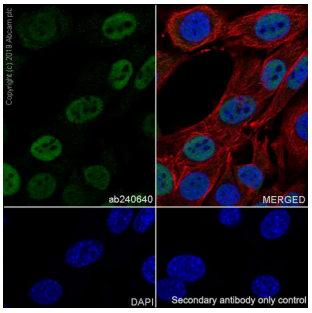
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab240640 in NCCIT whole cell lysate.

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

Exposure time: 3 min.

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

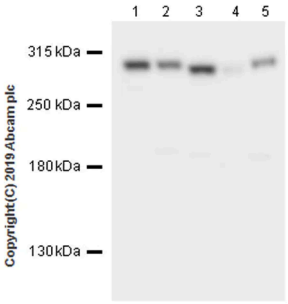
Predicted band size: 218 kDa



Immunocytochemistry/ Immunofluorescence - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

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 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 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).
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.



Western blot - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

CHD4 Western blot staining using rabbit Anti-CHD4 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: PMID: 28572115) .

Exposure time: 1 second.

All lanes:
Western blot - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640) at 1/1000 dilution

Lane 1:
NCCIT (human pluripotent embryonic carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 2:
K562 (human chronic myelogenous leukemia lymphoblast), whole cell lysate at 20 µg

Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Lane 4:
HEK-293 (human embryonic kidney epithelial cell), whole cell lysate at 20 µg

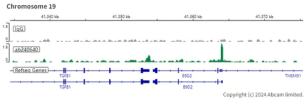
Lane 5:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate at 20 µg

Secondary

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

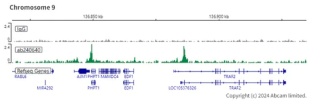
Predicted band size: 218 kDa

Observed band size: 280 kDa



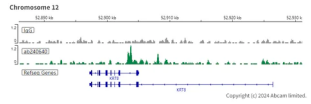
ChIC/CUT&RUN sequencing - Anti-CHD4 antibody [EPR22953-38] - ChIP Grade (ab240640)

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.



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