abcam

ab240639

Anti-RUNX1 / AML1 antibody [EPR23044-100]

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	EPR23044-100
Purification technique	Affinity purification Protein A
Concentration	0.55 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	5 µg
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

ChIP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information RUNX1

Function	Forms the heterodimeric complex core-binding factor (CBF) with CBFB. RUNX members modulate the transcription of their target genes through recognizing the core consensus binding sequence 5'-TGTGGT-3', or very rarely, 5'-TGCGGT-3', within their regulatory regions via their runt domain, while CBFB is a non-DNA-binding regulatory subunit that allosterically enhances the sequence-specific DNA-binding capacity of RUNX. The heterodimers bind to the core site of a number of enhancers and promoters, including murine leukemia virus, polyomavirus enhancer, T-cell receptor enhancers, LCK, IL3 and GM-CSF promoters (Probable). Essential for the development of normal hematopoiesis (PubMed:17431401). Acts synergistically with ELF4 to transactivate the IL-3 promoter and with ELF2 to transactivate the BLK promoter (PubMed:10207087, PubMed:14970218). Inhibits KAT6B-dependent transcriptional activation (By similarity). Involved in lineage commitment of immature T cell precursors. CBF complexes repress ZBTB7B transcription factor during cytotoxic (CD8+) T cell development. They bind to RUNX-binding sequence within the ZBTB7B locus acting as transcriptional silencer and allowing for cytotoxic T cell differentiation. CBF complexes binding to the transcriptional silencer is essential for recruitment of nuclear protein complexes that catalyze epigenetic modifications to establish epigenetic ZBTB7B silencing (By similarity). Controls the anergy and suppressive function of regulatory T-cells (Treg) by associating with FOXP3. Activates the expression of IL2 and IFNG and down-regulates the expression of TNFRSF18, IL2RA and CTLA4, in conventional T-cells (PubMed:17377532). Positively regulates the expression of RORC in T-helper 17 cells (By similarity). Isoform AML-1G shows higher binding activities for target genes and binds TCR-beta-E2 and RAG-1 target site with threefold higher affinity than other isoforms. It is less effective in the context of neutrophil terminal differentiation. Isoform AML-1L interferes with the transactivation activity of RUNX1.

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

Supplementary info

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

Activity summary	RUNX1 also known as AML1 is a transcription factor with a molecular weight of approximately 48 kDa. It belongs to the Runt-related transcription factor family and plays a critical role in hematopoiesis. RUNX1 is expressed in hematopoietic stem cells and various other tissues where it regulates the expression of genes involved in the differentiation and proliferation of blood cells. It exerts its function by binding to specific DNA sequences thereby controlling the transcriptional activity necessary for normal hematopoietic development.
Biological function summary	RUNX1 is essential in the formation of blood cells and is part of the core-binding factor (CBF) complex. This complex is a heterodimer comprising RUNX1 and the CBFβ subunit. The interaction between RUNX1 and CBFβ stabilizes the DNA binding capability of RUNX1 facilitating the activation of target gene transcription. The proper functioning of RUNX1 is necessary for the maintenance of normal lineage specification of hematopoietic progenitors affecting both myeloid and lymphoid cell lineages.
Pathways	RUNX1 plays a significant role in the Wnt signaling pathway and the TGF-beta signaling pathway. RUNX1 interacts with several proteins in these pathways including SMAD proteins and β-catenin which are important for transmitting extracellular signals that regulate cell growth and differentiation. RUNX1’s role in these pathways highlights its importance not only in hematopoiesis but also in preventing abnormal cell proliferation.
Associated diseases and disorders	RUNX1 mutations are strongly associated with acute myeloid leukemia (AML) and familial platelet disorder. In AML RUNX1 mutations disrupt normal hematopoiesis leading to the uncontrolled proliferation of immature blood cells. RUNX1-related proteins such as the GM-CSF receptor can contribute to disease progression by altering cytokine signaling. RUNX1's involvement in familial platelet disorder reflects its importance in maintaining normal blood cell counts and function as loss of RUNX1 function leads to predisposition to leukemia.

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

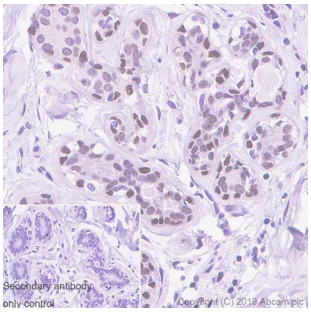
We do not recommend this combination. It is not covered by our product promise.

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

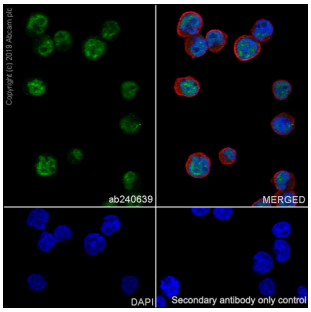


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RUNX1 / AML1 antibody

Immunohistochemical analysis of paraffin-embedded Human breast tissue labeling RUNX1 / AML1 with ab240639 at 1/2000 dilution (0.25 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear staining on human breast tissue is observed. The section was incubated with ab240639 for 15 mins at room temperature. The immunostaining staining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

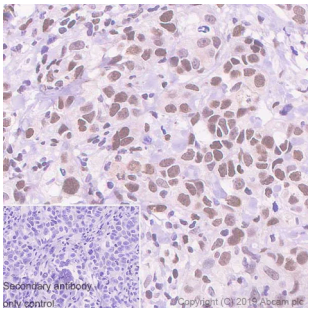
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.



Immunocytochemistry/ Immunofluorescence - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RUNX1 / AML1 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Jurkat (Human T cell leukemia T lymphocyte) cells labelling RUNX1 / AML1 with ab240639 at 1/100 dilution, followed by ab240639 anti-RUNX1/AML1 ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing strong nuclear and weak cytoplasmic staining in Jurkat 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 ab240639 anti-RUNX1/AML1 ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.

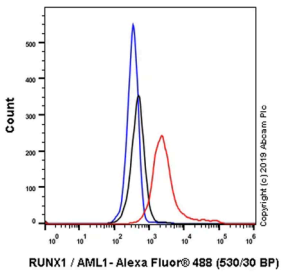


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RUNX1 / AML1 antibody

Immunohistochemical analysis of paraffin-embedded Human breast carcinoma tissue labeling RUNX1 / AML1 with ab240639 at 1/2000 dilution (0.25 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear staining on human breast carcinoma (PMID: 24967588) tissue is observed. The section was incubated with ab240639 for 15 mins at room temperature. The immunostaining staining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

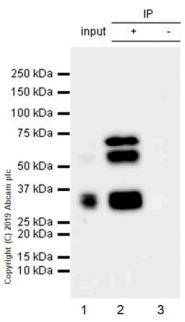
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.



Flow Cytometry (Intracellular) - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Flow Cytometry (Intracellular) staining using rabbit Anti-RUNX1 / AML1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Jurkat (Human T cell leukemia T lymphocyte) cells labelling RUNX1 / AML1 with ab240639 at 1/500 (Red) compared with a Rabbit monoclonal IgG (ab172730, Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 was immunoprecipitated from 0.35 mg Jurkat (human T cell leukemia T lymphocyte) whole cell lysate 10ug with ab240639 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab240639 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1/5000 dilution. Lane 1: Jurkat (human T cell leukemia T lymphocyte) whole cell lysate 10ug
Lane 2: ab240639 IP in Jurkat whole cell lysate

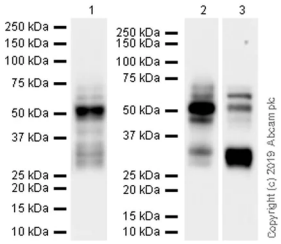
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab240639 in Jurkat whole cell lysate

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

Exposure time: 10 seconds

All lanes:
Immunoprecipitation - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

Predicted band size: 48 kDa



Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

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: 23352661, 29296779). The RUNX1 gene has several isoforms, 3 major isotypes. RUNX1b is broadly expressed, and RUNX1a overexpression has been reported in AML.
Exposure time: Lane 1: 48 seconds Lanes 2-3: 26 seconds

All lanes:
Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639) at 1/1000 dilution

Lane 1:
THP-1 (human monocytic leukemia monocyte), whole cell lysate at 10 µg

Lane 2:
Jurkat (human T cell leukemia T lymphocyte), whole cell lysate at 10 µg

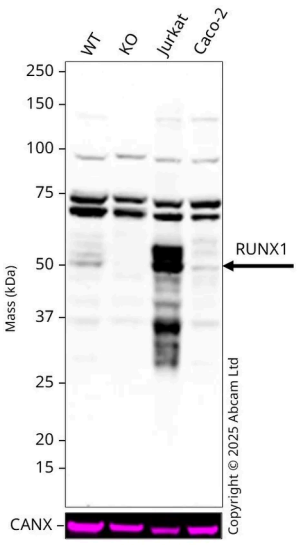
Lane 3:
MOLT-4 (human lymphoblastic leukemia T lymphoblast), whole cell lysate at 10 µg

Secondary

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

Predicted band size: 48 kDa

Observed band size: 27-55 kDa



Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Western blot staining using rabbit Anti-RUNX1 / AML1 antibody

Western blot: Rabbit Monoclonal [EPR23044-100] to RUNX1 / AML1 ab240639 staining at a 1/200 dilution, shown in black; Mouse anti-CANX (ab238078) loading control staining at 1/20,000 dilution, shown in magenta. A band was observed at 50-54 kDa in Wild-type U-87 MG cell lysates with no signal observed at this size in RUNX1 knockout U-87 MG cell line.
To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit HRP (H+L) & Goat anti-Mouse 680RD at 1/20,000 dilution.

Lanes 1 - 4:
Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639) at 1/200 dilution

Lanes 1 - 4:
Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] - BSA and Azide free (ab264471) at 1/200 dilution

Lane 1:
Wild-type U-87 MG at 40 µg

Lane 2:
Western blot - Human RUNx1 knockout U-87 MG cell line (ab306773) at 40 µg

Lane 3:
Jurkat at 20 µg

Lane 4:
Caco-2 at 20 µg

Secondary

All lanes:
Goat anti-Rabbit HRP (H+L) & Goat anti-Mouse 680RD at 1/20000 dilution

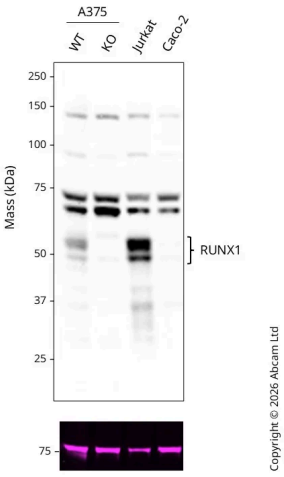
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 48 kDa

Observed band size: 50-54 kDa

Exposure time: 10s



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Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

RUNX1 / AML1 Western blot staining using rabbit Anti-RUNX1 / AML1 antibody

Western blot: Anti-RUNX1 / AML1 antibody [EPR23044-100] ab240639 staining at 1/200 dilution, shown in black; Mouse anti-CANX ab238078 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 50-55 kDa in Wild-type A-375 cell line with no signal observed at this size in RUNX1 knockout A-375 cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit HRP (H+L) and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639) at 1/200 dilution

Lane 1:
Wild-type A-375 cell lysate at 20 µg

Lane 2:
RUNX1 knockout A-375 cell lysate at 20 µg

Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
Caco-2 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit HRP (H+L) & Goat anti-Mouse 680RD at 1/20000 dilution

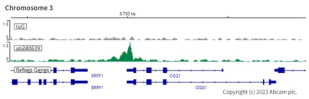
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 49 kDa

Observed band size: 50-55 kDa

Exposure time: 5s



ChIC/CUT&RUN sequencing - Anti-RUNX1 / AML1 antibody [EPR23044-100] (ab240639)

ChIC/CUT&RUN was performed using a pAG-MNAse at a final concentration of 700 ng/mL, 2.5 x 10^5 K-562 (Human chronic myelogenous leukemia lymphoblast) cells and 5µg of ab240639 [EPR23044-100]. 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. Additional screenshots of mapped reads can be found in the Protocol booklet in the Product Protocol section. The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods.

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