abcam

ab40278

Anti-RUNX3 antibody [R3-5G4]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	R3-5G4
Purification technique	Affinity purification
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1 µg/mL
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Target data

See full target information RUNX3

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 (By similarity). May be involved in the control of cellular proliferation and/or differentiation. In association with ZFHX3, up-regulates CDKN1A promoter activity following TGF-beta stimulation (PubMed:20599712). 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). Necessary for the development and survival of sensory neurons expressing parvalbumin (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

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	RUNX3 also known as Runt-related transcription factor 3 is a protein that plays an important role in regulating gene expression. The protein has a mass of approximately 44 kDa. RUNX3 is found mainly in tissues like the gastrointestinal tract and neural systems. It functions as a DNA-binding transcription factor that regulates various genes responsible for important cellular processes.
Biological function summary	The function of RUNX3 involves the regulation of cell proliferation differentiation and apoptosis. RUNX3 often forms a complex with the core-binding factor beta (CBFβ) enhancing its stability and DNA-binding capability. This protein is essential in maintaining cellular homeostasis and influencing the immune response particularly through its role in T cell development.
Pathways	RUNX3 is heavily involved in the TGF-beta signaling pathway and the Wnt signaling pathway. It interacts with several proteins such as SMADs in the TGF-beta pathway to modulate gene expression that affects cell growth and survival. Interaction with beta-catenin in the Wnt signaling pathway further emphasizes its importance in regulating cell fate decisions.
Associated diseases and disorders	Alterations in RUNX3 expression or function are linked to cancer including gastric cancer and colorectal cancer. It often shows reduced activity or expression in these cancers which associates with proteins like TGF-beta leading to impaired cell growth control. RUNX3 dysregulation is also connected to neurological disorders due to its role in neural development and function.

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.

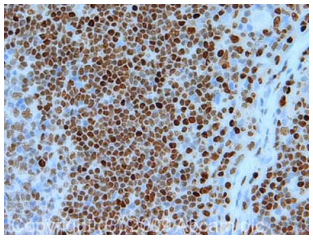
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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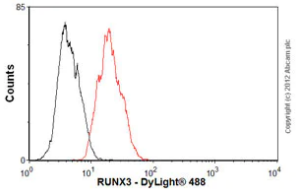
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4 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RUNX3 antibody [R3-5G4] (ab40278)

IHC image of RUNX3 staining in human lymphoma FFPE section, performed on a Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab40278, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

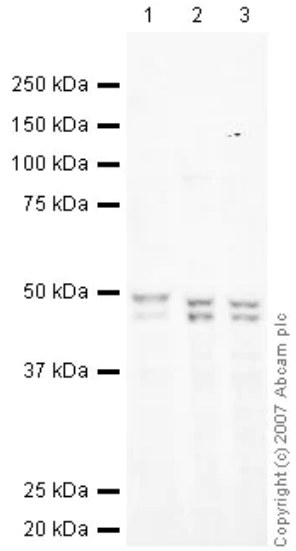


Flow Cytometry (Intracellular) - Anti-RUNX3 antibody [R3-5G4] (ab40278)

RUNX3 Flow Cytometry (Intracellular) staining using mouse Anti-RUNX3 antibody

Overlay histogram showing HEK293 cells stained with ab40278 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab40278, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution

for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Western blot - Anti-RUNX3 antibody [R3-5G4] (ab40278)

All lanes:
Western blot - Anti-RUNX3 antibody [R3-5G4] (ab40278) at 1 µg/mL

Lane 1:
Jurkat (Human T cell lymphoblast-like cell line) Whole Cell Lysate at 10 µg

Lane 2:
Raji (Human Burkitt's lymphoma cell line) Whole Cell Lysate at 10 µg

Lane 3:
Western blot - SW480 whole cell lysate (ab3957) at 10 µg

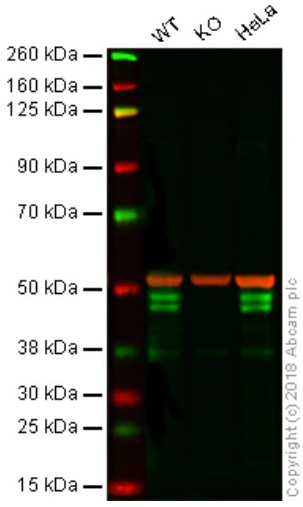
Secondary

All lanes:
IRDye 680 Conjugated Rabbit Anti-Mouse IgG (H+L) at 1/10000 dilution

Performed under reducing conditions.

Predicted band size: 44 kDa

Observed band size: 46 kDa



Western blot - Anti-RUNX3 antibody [R3-5G4] (ab40278)

RUNX3 Western blot staining using mouse Anti-RUNX3 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: RUNX3 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lanes 1 - 3: Merged signal (red and green). Green - ab40278 observed at 44 kDa. Red - loading control, ab176560, observed at 50 kDa.

ab40278 was shown to specifically react with RUNX3 in wild-type HAP1 cells as signal was lost in RUNX3 knockout cells. Wild-type and RUNX3 knockout samples were subjected to SDS-PAGE. ab40278 and ab176560 (Rabbit anti-alpha Tubulin loading control) were incubated overnight at 4°C at 1 µg/ml and 1/20000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed ab216772 and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed ab216777 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-RUNX3 antibody [R3-5G4] (ab40278)

Predicted band size: 44 kDa

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