abcam

Product datasheet

Anti-KMT2A / MLL antibody [mmN4.4] ab32400

1 Abreviews 8 References 3 Images

Overview

Product name	Anti-KMT2A / MLL antibody [mmN4.4]
Description	Mouse monoclonal [mmN4.4] to KMT2A / MLL
Host species	Mouse
Tested applications	**Suitable for:** IHC-P, WB, Flow Cyt (Intra)
Species reactivity	**Reacts with:** Human
Immunogen	Recombinant fragment. This information is proprietary to Abcam and/or its suppliers.
Positive control	Human lung adenocarcinoma FFPE human tissue sections
General notes	We can conjugate this antibody to FITC for you (please see **ab150234** for details). This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact **orders@abcam.com**. The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles.
Storage buffer	pH: 7.40 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine
Purity	Protein G purified
Clonality	Monoclonal
Clone number	mmN4.4
Isotype	IgG1

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab32400 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P		Use a concentration of 5 µg/ml. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
WB	★☆☆☆☆ **(1)**	Use a concentration of 10 µg/ml. Detects a band of approximately 432 kDa (predicted molecular weight: 432 kDa).
Flow Cyt (Intra)		Use 1µg for 10^6 cells. **ab170190** - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target

Function Histone methyltransferase that plays an essential role in early development and hematopoiesis. Catalytic subunit of the MLL1/MLL complex, a multiprotein complex that mediates both methylation of 'Lys-4' of histone H3 (H3K4me) complex and acetylation of 'Lys-16' of histone H4 (H4K16ac). In the MLL1/MLL complex, it specifically mediates H3K4me, a specific tag for epigenetic transcriptional activation. Has weak methyltransferase activity by itself, and requires other component of the MLL1/MLL complex to obtain full methyltransferase activity. Has no activity toward histone H3 phosphorylated on 'Thr-3', less activity toward H3 dimethylated on 'Arg-8' or 'Lys-9', while it has higher activity toward H3 acetylated on 'Lys-9'. Required for transcriptional activation of HOXA9. Promotes PPP1R15A-induced apoptosis.

Tissue specificity Heart, lung, brain and T- and B-lymphocytes.

Involvement in disease Note=Chromosomal aberrations involving MLL are a cause of acute leukemias. Translocation t(1;11)(q21;q23) with MLLT11/AF1Q; translocation t(3;11)(p21;q23) with NCKIPSD/AF3p21; translocation t(3,11)(q25,q23) with GMPS; translocation t(4;11)(q21;q23) with AFF1/MLLT2/AF4; insertion ins(5;11)(q31;q13q23) with AFF4/AF5Q31; translocation t(5;11)(q12;q23) with AF5-alpha/CENPK; translocation t(6;11)(q27;q23) with MLLT4/AF6; translocation t(9;11)(p22;q23) with MLLT3/AF9; translocation t(10;11)(p11.2;q23) with ABI1; translocation t(10;11)(p12;q23) with MLLT10/AF10; t(11;15)(q23;q14) with CASC5 and ZFYVE19; translocation t(11;17)(q23;q21) with MLLT6/AF17; translocation t(11;19)(q23;p13.3) with ELL; translocation t(11;19)(q23;p13.3) with MLLT1/ENL; translocation t(11;19)(q23;p23) with GAS7; translocation t(X;11)(q13;q23) with FOXO4/AFX1. Translocation t(3;11)(q28;q23) with LPP. Translocation t(10;11)(q22;q23) with TET1. Translocation t(9;11)(q34;q23) with DAB2IP. Translocation t(4;11)(p12;q23) with FRYL. Fusion proteins MLL-MLLT1, MLL-MLLT3 and MLL-ELL interact with PPP1R15A and, on the contrary to unfused MLL, inhibit PPP1R15A-induced apoptosis.
Note=A chromosomal aberration involving MLL may be a cause of chronic neutrophilic leukemia. Translocation t(4;11)(q21;q23) with SEPT11.

Sequence similarities Belongs to the histone-lysine methyltransferase family. TRX/MLL subfamily.
Contains 3 A.T hook DNA-binding domains.
Contains 1 bromo domain.
Contains 1 CXXC-type zinc finger.

Contains 1 FY-rich C-terminal domain.
Contains 1 FY-rich N-terminal domain.
Contains 3 PHD-type zinc fingers.
Contains 1 post-SET domain.
Contains 1 SET domain.

Domain

the 9aaTAD motif is a transactivation domain present in a large number of yeast and animal transcription factors.
The SET domain structure is atypical and is not in an optimal position to have methyltransferase activity. It requires other components of the MLL1/MLL complex, such as ASH2L or RBBP5, to order the active site and obtain optimal histone methyltransferase activity.
The CXXC-type zinc finger binds bind to nonmethyl-CpG dinucleotides.

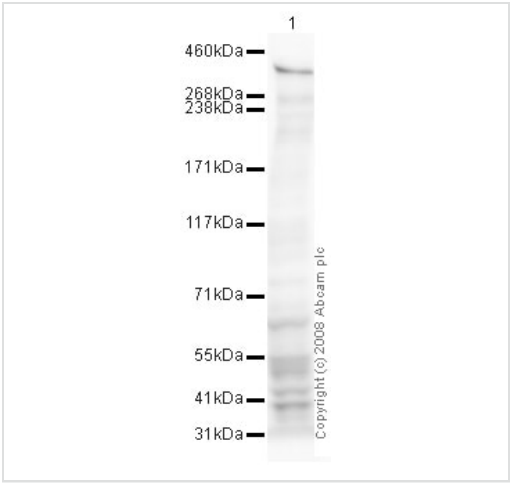
Post-translational modifications

Proteolytic cleavage by TASP1 generates MLL cleavage product N320 and MLL cleavage product C180, which reassemble through a non-covalent association. 2 cleavage sites exist, cleavage site 1 (CS1) and cleavage site 2 (CS2), to generate MLL cleavage products N320 and C180. CS2 is the major site.

Cellular localization

Nucleus and Nucleus. Localizes to a diffuse nuclear pattern when not associated with MLL cleavage product N320.

Images



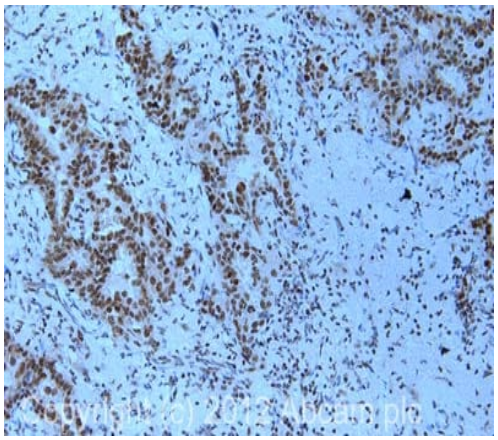
Western blot - Anti-KMT2A / MLL antibody [mmN4.4] (ab32400)

Anti-KMT2A / MLL antibody [mmN4.4] (ab32400) at 10 µg/ml +
Lysate from transfected cells overexpressing KMT2A/MLL

Secondary

Goat polyclonal to Mouse IgG - H&L - Pre-Adsorbed (HRP) at 1/3000 dilution

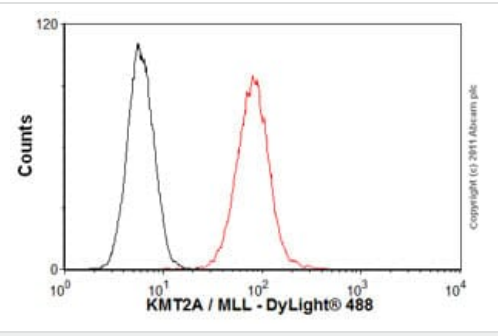
Predicted band size: 432 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KMT2A / MLL antibody [mmN4.4] (ab32400)

IHC image of ab32400 staining in human lung adenocarcinoma formalin fixed paraffin embedded tissue section, performed on a Leica 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 ab32400, 5µg/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.

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Flow Cytometry (Intracellular) - Anti-KMT2A / MLL antibody [mmN4.4] (ab32400)

Overlay histogram showing HeLa cells stained with ab32400 (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 (ab32400, 1µg/1x10^6 cells) for 30 min at 22ºC. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (**ab96879**) at 1/500 dilution for 30 min at 22ºC. 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. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

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