Revision 5

#14893 Store at -20C

MLLT1/ENL (D9M4B) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, ChIP, ChIP-seq, C&R	H	Endogenous	80	Rabbit IgG	#Q03111	4298

Product Usage Information

For optimal ChIP results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10^6 cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

The CUT&RUN dilution was determined using CUT&RUN Assay Kit #86652.

Application	Dilution
Western Blotting	1:1000
Chromatin IP	1:50
Chromatin IP-seq	1:50
CUT&RUN	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

MLLT1/ENL (D9M4B) Rabbit mAb recognizes endogenous levels of total MLLT1/ENL protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala343 of human MLLT1/ENL protein.

Background

The super elongation complex (SEC) plays a critical role in regulating RNA polymerase II (RNAPII) transcription elongation (1). The SEC is composed of AFF4, AFF1/AF4, MLLT3/AF9, and MLLT1/ENL proteins. The pathogenesis of mixed lineage leukemia is often associated with translocations of the SEC subunits joined to the histone H3 Lys4 methyltransferase mixed lineage leukemia (*MLL*) gene (1-4). The SEC has been found to contain RNAPII elongation factors eleven-nineteen lysine-rich leukemia (ELL), ELL2, and ELL3, along with the associated factors EAF1 and EAF2, which can increase the catalytic rate of RNAPII transcription *in vitro*, (1,2,5-7). The SEC positive transcription elongation factor b (P-TEFb) phosphorylates the carboxy-terminal domain within the largest subunit of RNAP II at Ser2 of the heptapeptide repeat. The SEC negative transcription elongation factors, DRB-induced stimulating factor (DSIF) and negative elongation factor (NELF), signal the transition from transcription initiation and pausing to productive transcription elongation (2,8-10). The chromosomal translocation of *MLL* with the members of the SEC leads to SEC recruitment to MLL regulated genes, such as the highly developmentally regulated *HOX* genes, implicating the misregulation and overexpression of these genes as underlying contributors to leukemogenesis (1,2,9,11).

MLL translocated to 1/eleven-nineteen-leukemia (MLLT1/ENL) is also found as part of the histone H3 Lys79 methyltransferase disruptor of telomeric silencing-like (Dot1L) complex that has been suggested to play a role in transcription elongation. This complex regulates the expression of genes, such as the Wnt-signaling pathway target genes that control cell proliferation and differentiation during development (12,13).

Background References

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2. Lin, C. et al. (2010) *Mol Cell* 37, 429-37.
3. Drexler, H.G. et al. (2004) *Leukemia* 18, 227-32.
4. Smith, E. et al. (2011) *Genes Dev* 25, 661-72.
5. Shilatifard, A. et al. (1996) *Science* 271, 1873-6.
6. Shilatifard, A. et al. (1997) *Proc Natl Acad Sci U S A* 94, 3639-43.
7. Miller, T. et al. (2000) *J Biol Chem* 275, 32052-6.
8. Lin, C. et al. (2011) *Genes Dev* 25, 1486-98.
9. Yokoyama, A. et al. (2010) *Cancer Cell* 17, 198-212.
10. Cho, S. et al. (2010) *Cell Cycle* 9, 1697-705.
11. Shah, N. and Sukumar, S. (2010) *Nat Rev Cancer* 10, 361-71.
12. Mohan, M. et al. (2010) *Genes Dev* 24, 574-89.

13. Nguyen, A.T. and Zhang, Y. (2011) *Genes Dev* 25, 1345-58.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **ChIP:** Chromatin IP **ChIP-seq:** Chromatin IP-seq **C&R:** CUT&RUN

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses