PRODUCT INFORMATION

MLL1 (human recombinant)

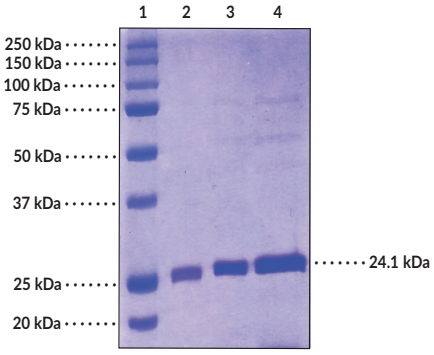
Item No. 10658

Overview and Properties

Synonyms:	ALL1, CXXC-type zinc finger protein 7, HRX, KMT2a, Lysine Methyltransferase 2A, Mixed Lineage Leukemia 1
Source:	Recombinant protein expressed in *E. coli*. An N-terminal hexahistidine tag and SUMOpro tag were removed by cleavage with SUMO protease 1 (Ulp1). *SUMOpro and SUMO Protease 1 were used under non-exclusive license from LifeSensors, Inc. www.lifesensors.com.*
Amino Acids:	3,762-3,969 (N-terminal truncations)
Uniprot No.:	Q03164
Molecular Weight:	24.1 kDa
Storage:	-80°C (as supplied)
Stability:	≥6 months
Purity:	***batch specific*** (≥90% estimated by SDS-PAGE)
Supplied in:	50 mM Tris, pH 8.0, with 400 mM sodium chloride, 10% glycerol, and 5 mM 2-mercaptoethanol
Protein Concentration:	***batch specific*** mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: MLL1 SET domain (1 µg)
Lane 3: MLL1 SET domain (2 µg)
Lane 4: MLL1 SET domain (5 µg)

Representative gel image shown; actual purity may vary between each batch.

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Description

Mixed Lineage Leukemia (MLL1) plays a major role in epigenetic regulation through methylation of histone 3 at lysine 4 (H3K4) to activate gene transcription. Methylation of H3K4 leads to upregulation of developmental genes, including HOX family members.[1] In addition to its methylation activity, MLL1 has been shown to co-localize with Pol II at several genomic elements.[2] Consequently, MLL1 has very low basal methyltransferase activity unless complexed with the activating protein complex of WDR5, Ash2L, and RbBP5 (MLL/WAR complex).[3] This C-terminal fragment of MLL1, residues 3,762 - 3,969, contains the SET1 domain for methyltransferase activity, and the WIN motif for binding the WAR complex. The protein DPY-30 has also been reported to associate with the MLL1-WAR complex. MLL1 is also available as a component of the MLL1/WAR complex (Item No. 10756) and MLL1/WARD complex.

References

1. Patel, A., Dharmarajan, V., Vought, V.E., *et al.* On the mechanism of multiple lysine methylation by the human mixed lineage leukemia protein-1 (MLL1) core complex. *J. Biol. Chem.* **284(36)**, 24242-24256 (2009).
2. Mohan, M., Lin, C., Guest, E., *et al.* Licensed to elongate: A molecular mechanism for MLL-based leukaemogenesis. *Nature Reviews Cancer* **10(10)**, 721-728 (2010).
3. Smith, E., Lin, C., and Shilatifard, A. The super elongation complex (SEC) and MLL in development and disease. *Genes & Development* **25(7)**, 661-672 (2011).

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