

# DOT1L1 (C-3): sc-390879

## BACKGROUND

DOT1L1, also known as DOT1L (DOT1-like, Histone H3 methyltransferase), DOT1 or KMT4, is a 1,739 amino acid homolog of the yeast DOT1 (disruptor of telomeric silencing-1) protein. Localized to the nucleus and highly expressed in testis, lung and kidney, DOT1L1 is a histone methyltransferase that transfers methyl groups from S-adenosyl-L-methionine to lysine residues on various substrates, such as nucleosomes or histones. While most histone methyltransferases contain a SET domain through which they confer their enzymatic activity, DOT1L1 does not contain this characteristic domain and is, therefore, thought to function through a different mechanism. DOT1L1 can bind with several MLL-fusion partners found in acute leukemia and, through this binding, can promote oncogenesis. Two isoforms of DOT1L1 are expressed due to alternative splicing events.

## REFERENCES

1. Feng, Q., et al. 2002. Methylation of H3-lysine 79 is mediated by a new family of HMTases without a SET domain. *Curr. Biol.* 12: 1052-1058.
2. Min, J., et al. 2003. Structure of the catalytic domain of human DOT1L, a non-SET domain nucleosomal histone methyltransferase. *Cell* 112: 711-723.
3. Okada, Y., et al. 2005. hDOT1L links histone methylation to leukemogenesis. *Cell* 121: 167-178.
4. Okada, Y., et al. 2006. Leukaemic transformation by CALM-AF10 involves upregulation of HoxA5 by hDOT1L. *Nat. Cell Biol.* 8: 1017-1024.
5. Zhang, W., et al. 2006. Dot1a-AF9 complex mediates Histone H3 Lys-79 hypermethylation and repression of ENAC $\alpha$  in an aldosterone-sensitive manner. *J. Biol. Chem.* 281: 18059-18068.
6. Zhang, W., et al. 2006. Aldosterone-sensitive repression of ENAC $\alpha$  transcription by a Histone H3 lysine-79 methyltransferase. *Am. J. Physiol., Cell Physiol.* 290: C936-C946.

## CHROMOSOMAL LOCATION

Genetic locus: DOT1L (human) mapping to 19p13.3; Dot1l (mouse) mapping to 10 C1.

## SOURCE

DOT1L1 (C-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1515-1528 within an internal region of DOT1L1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $\kappa$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-390879 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

DOT1L1 (C-3) is recommended for detection of DOT1L1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DOT1L1 siRNA (h): sc-77174, DOT1L1 siRNA (m): sc-77175, DOT1L1 shRNA Plasmid (h): sc-77174-SH, DOT1L1 shRNA Plasmid (m): sc-77175-SH, DOT1L1 shRNA (h) Lentiviral Particles: sc-77174-V and DOT1L1 shRNA (m) Lentiviral Particles: sc-77175-V.

Molecular Weight of DOT1L1: 185 kDa.

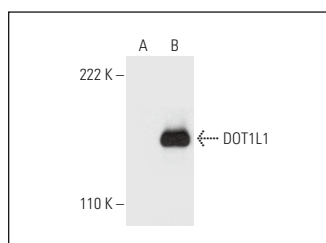
Positive Controls: DOT1L1 (m): 293T Lysate: sc-178530.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



DOT1L1 (C-3): sc-390879. Western blot analysis of DOT1L1 expression in non-transfected: sc-117752 (A) and mouse DOT1L1 transfected: sc-178530 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Liu, C., et al. 2020. CBP mediated DOT1L acetylation confers DOT1L stability and promotes cancer metastasis. *Theranostics* 10: 1758-1776.
2. Xu, J., et al. 2022. Inhibition of the cardiac fibroblast-enriched histone methyltransferase DOT1L1 prevents cardiac fibrosis and cardiac dysfunction. *Cell Biosci.* 12: 134.
3. Liu, C., et al. 2024. PARP1-DOT1L transcription axis drives acquired resistance to PARP inhibitor in ovarian cancer. *Mol. Cancer* 23: 111.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.