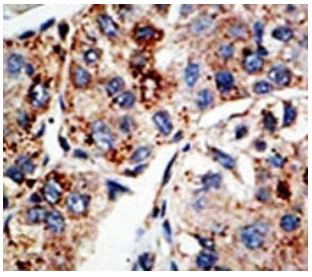
KMT4 Antibody / DOT1L (F53487)

Catalog No.	Formulation	Size
F53487-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F53487-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Purified
UniProt	Q8TEK3
Applications	IHC (Paraffin): 1:50-1:100
Limitations	This KMT4 antibody is available for research use only.



IHC analysis of FFPE human hepatocarcinoma tissue stained with the KMT4 antibody

Description

KMT4 antibody is an important reagent for investigating epigenetic regulation, chromatin dynamics, and transcriptional control. The encoded protein, DOT1L (disruptor of telomeric silencing 1 like), is a lysine methyltransferase best known for catalyzing methylation of histone H3 at lysine 79 (H3K79). Unlike many other histone methyltransferases that contain SET domains, DOT1L is unique in structure and function, operating through a distinct catalytic domain. Methylation of H3K79 by KMT4 is associated with active transcription, DNA damage response, and cell cycle regulation, highlighting its essential role in genome integrity and gene expression.

DOT1L mediated methylation influences chromatin accessibility and recruits transcriptional regulators to specific genomic regions. This activity is critical for developmental gene expression programs and hematopoietic differentiation. Research has shown that loss of DOT1L function disrupts embryonic development, impairs stem cell maintenance, and alters lineage commitment. Its central role in transcriptional regulation positions KMT4 as a key epigenetic regulator across multiple biological systems.

Dysregulation of DOT1L has been strongly implicated in human disease, particularly leukemia. Rearrangements of the MLL (KMT2A) gene recruit DOT1L to aberrant transcriptional complexes, leading to inappropriate H3K79 methylation and activation of oncogenes. This mechanism drives leukemogenesis in mixed lineage leukemia, making DOT1L a critical therapeutic target. Inhibitors of DOT1L have entered clinical trials as potential treatments for MLL rearranged leukemias, demonstrating the translational importance of this enzyme. Beyond hematological malignancies, altered DOT1L activity has been studied in solid tumors, cardiovascular disease, and viral infections, where it contributes to abnormal gene regulation.

At the molecular level, DOT1L interacts with multiple cofactors and transcriptional complexes, coordinating chromatin modification with transcriptional elongation. Structural studies reveal that its non SET domain catalytic core binds to nucleosomes in a distinct manner, enabling selective modification of histone H3. Through these activities, KMT4 integrates epigenetic signaling with transcriptional machinery, ensuring precise control of gene expression in response to developmental and environmental cues.

The KMT4 antibody is commonly applied in western blotting, immunohistochemistry, immunofluorescence, and flow cytometry to study expression patterns, nuclear localization, and disease associated changes. These applications are essential for dissecting the role of DOT1L in transcriptional regulation, hematopoiesis, and oncogenesis. For researchers investigating chromatin biology, epigenetic therapies, or cancer progression, the KMT4 antibody provides a dependable detection tool. NSJ Bioreagents offers validated antibodies that ensure reproducibility and accuracy in advanced molecular studies.

Application Notes

Titration of the KMT4 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 1390-1420 from the human protein was used as the immunogen for this KMT4 antibody.

Storage

Aliquot the KMT4 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Copyright © NSJ Bioreagents. All rights reserved.