

Histone H3 (di methyl K4) Antibody / HIST1H3A [clone 31H99] (FY12922)

Catalog No.	Formulation	Size
FY12922	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

[Bulk quote request](#)

Availability	2-3 weeks
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	31H99
Purity	Affinity-chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	P68431
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200 Immunocytochemistry/Immunofluorescence : 1:50-1:200
Limitations	This Histone H3 (di methyl K4) antibody is available for research use only.

Description

Histone H3 (di methyl K4) antibody detects histone H3 when lysine 4 is di methylated, a key epigenetic modification that influences chromatin structure and gene expression. Histones are core proteins that package DNA into nucleosomes, and post translational modifications of histones regulate access of transcriptional machinery to genomic DNA. The HIST1H3A gene encodes one of the histone H3 variants, and its lysine 4 residue undergoes multiple methylation states, including mono, di, and tri methylation, each with distinct biological roles. Histone H3 (di methyl K4) antibody enables precise detection of this modification, providing insights into chromatin dynamics and transcriptional regulation across development and disease.

Di methylation of histone H3 at lysine 4 is often enriched at promoter regions of actively transcribed genes. While tri methylation of lysine 4 strongly marks active promoters, di methylation provides a broader distribution pattern, sometimes marking both active and poised regulatory regions. Studies using Histone H3 (di methyl K4) antibody have revealed its

involvement in the recruitment of chromatin remodeling complexes and transcription factors, linking it to fine tuning of gene activation. This modification is placed by SET domain containing methyltransferases, including the MLL/SET1 family, and removed by specific demethylases. The dynamic balance of methylation and demethylation at lysine 4 ensures flexibility in gene expression responses.

Dysregulation of histone H3 lysine 4 methylation is implicated in cancer, developmental syndromes, and neurological disorders. Aberrant patterns of di methylation at promoters can alter transcriptional programs, driving oncogenesis or impairing differentiation. For example, mutations in methyltransferases such as MLL2 disrupt normal H3K4 methylation patterns, resulting in abnormal gene expression signatures in leukemia and solid tumors. Research with Histone H3 (di methyl K4) antibody has been critical for characterizing these altered epigenetic landscapes and understanding their impact on disease progression.

Histone H3 (di methyl K4) antibody is widely used in chromatin immunoprecipitation, western blotting, and immunofluorescence. Chromatin immunoprecipitation coupled with sequencing (ChIP seq) allows genome wide mapping of histone modification patterns, revealing regulatory regions associated with transcriptional control. Western blotting confirms global levels of modification, while immunofluorescence highlights distribution within nuclear chromatin. These applications enable researchers to integrate molecular, genomic, and cellular approaches to study histone modification biology.

Beyond oncology, Histone H3 (di methyl K4) antibody has applications in developmental biology and stem cell research. This modification marks regulatory elements required for lineage commitment and differentiation, making it an important indicator of epigenetic states during cell fate transitions. It is also studied in neurobiology, where changes in histone methylation accompany activity dependent gene expression and synaptic plasticity. By providing high quality reagents such as Histone H3 (di methyl K4) antibody, NSJ Bioreagents supports efforts to decode the epigenetic language of chromatin and its role in physiology and pathology.

Application Notes

Optimal dilution of the Histone H3 (di methyl K4) antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Histone H3 (di methyl K4) was used as the immunogen for the Histone H3 (di methyl K4) antibody.

Storage

Store the Histone H3 (di methyl K4) antibody at -20oC.