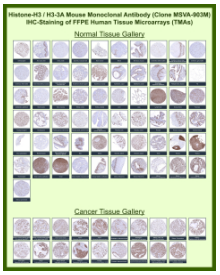
Phospho-Histone H3 Antibody (Ser10) [clone MSVA-903M] (V6135)

Catalog No.	Formulation	Size
V6135-100UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V6135-20UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug

Recombinant | MOUSE MONOCLONAL

Bulk quote request

Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG2b, kappa
Clone Name	MSVA-903M
UniProt	P68431
Localization	Chromosome, Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml
Limitations	This Phospho-Histone H3/Ser10 antibody is available for research use only.



Histone H3.1 Mouse Recombinant Monoclonal Antibody (MSVA-903M) tested on many normal and cancer tissues. The immunohistochemistry staining in these tissues aligns with the expression data in Human Protein Atlas.

Manual Protocol: Freshly cut sections should be used (less than 10 days between cutting and staining). Heat-induced antigen retrieval for 5 minutes in an autoclave at 121oC in pH 7.8 Target Retrieval Solution buffer. Apply the antibody at a dilution of 1:150 at 37oC for 60 minutes. Visualization of bound antibody by the EnVision Kit (Dako, Agilent) according to the manufacturer's directions.

Description

Phospho-Histone H3 antibody (Ser10), also referred to as p-Histone H3 Ser10 antibody and H3S10ph antibody in the literature, recognizes histone H3 when phosphorylated at serine 10, a highly conserved post-translational modification that plays a central role in chromatin regulation and cell cycle progression. Histone H3 is a core component of the nucleosome, assembling with histones H2A, H2B, and H4 to form an octamer around which genomic DNA is wrapped. Modifications on the N-terminal tail of histone H3, including phosphorylation, acetylation, and methylation, regulate chromatin accessibility and coordinate DNA-templated processes such as transcription, replication, and mitosis.

Phosphorylation of histone H3 at serine 10 is most prominently associated with mitotic chromosome condensation. This modification becomes detectable during late G2 phase, increases sharply during prophase and metaphase, and is removed as cells progress through anaphase and telophase. Because of this tightly regulated temporal pattern, phospho-Histone H3 Ser10 is widely used as a molecular marker of mitotic cells. A phospho-Histone H3 antibody provides a robust approach for identifying cells actively undergoing mitosis and for quantifying mitotic index in proliferating cell populations, tissues, and tumor samples.

In addition to its role in mitosis, phosphorylation of histone H3 at Ser10 also participates in transcriptional regulation during interphase. In response to extracellular stimuli such as growth factors, cytokines, or cellular stress, transient Ser10 phosphorylation can occur at promoter and enhancer regions of immediate early genes. In this context, the modification contributes to localized chromatin relaxation and facilitates transcriptional activation. Phosphorylation at Ser10 often cooperates with adjacent histone acetylation events, highlighting the importance of modification crosstalk in shaping chromatin structure and gene expression outcomes. These dual mitotic and transcriptional roles make phospho-Histone H3 Ser10 a versatile indicator of chromatin state and cellular activity.

At the molecular level, histone H3 Ser10 phosphorylation is catalyzed by distinct kinases depending on cellular context. During mitosis, Aurora B kinase is the primary enzyme responsible for this modification and is a core component of the chromosomal passenger complex. In interphase cells, kinases from the mitogen-activated protein kinase pathway and related signaling cascades have been implicated in stimulus-induced Ser10 phosphorylation. The modification occurs on the exposed N-terminal tail of histone H3, a region that serves as a platform for regulatory protein interactions and additional post-translational modifications. Use of a phospho-Histone H3 antibody enables site-specific detection of these dynamic regulatory events.

Phospho-Histone H3 Ser10 has broad relevance in cancer research, developmental biology, and cell cycle studies. Elevated levels of Ser10 phosphorylation are commonly observed in rapidly proliferating tumor cells and are frequently used as a readout of cell division in experimental oncology. In developmental systems, spatial and temporal patterns of histone H3 phosphorylation reflect tightly regulated waves of cell proliferation and differentiation. Changes in Ser10 phosphorylation can also indicate altered kinase signaling or disrupted chromatin regulation in disease models, making this modification a valuable biomarker in both basic and translational research settings.

A phospho-Histone H3 antibody directed against Ser10 is therefore a useful research tool for detecting mitotic cells, monitoring cell cycle progression, and investigating chromatin-based regulatory mechanisms. By selectively recognizing the phosphorylated form of histone H3, this reagent supports precise analysis of epigenetic modifications that link signaling pathways, chromatin structure, and cellular state transitions in a wide range of research applications.

Application Notes

1. Optimal dilution of the Phospho-Histone H3/Ser10 antibody should be determined by the researcher.

2. This Phospho-Histone H3/Ser10 antibody is recombinantly produced by expression in CHO cells.

Immunogen

A synthetic peptide corresponding to (ARK-pS-TGGKAPRKQLc) of Phosphohistone H3 (phospho S10) was used as the immuongen for the Phospho-Histone H3/Ser10 antibody.

Storage

Phospho-Histone H3/Ser10 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.