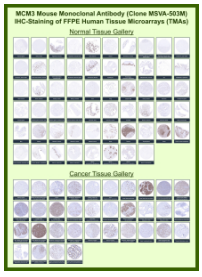
Proliferation Marker Antibody / MCM3 / Minichromosome maintenance complex component 3 [clone MSVA-503M] (V5940)

Catalog No.	Formulation	Size
V5940-100UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5940-20UG	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 IgG1, kappa
Clone Name	MSVA-503M
UniProt	P25205
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1:100-1:200
Limitations	This recombinant Proliferation Marker/MCM3 antibody is available for research use only.



Immunohistochemistry analysis of recombinant MCM3 antibody (clone MSVA-503M) in human tissue microarrays. Formalin-fixed, paraffin-embedded human normal and cancer tissues were stained with recombinant Proliferation Marker/MCM3 antibody (clone MSVA-503M). Distinct nuclear staining is observed in proliferating cells, consistent with MCM3 as a DNA replication licensing factor involved in initiation of S-phase entry. Quiescent and terminally differentiated tissues show low to absent nuclear signal, whereas multiple malignant tumors demonstrate strong nuclear positivity. The staining distribution aligns with known MCM3 expression patterns and supports its role as a proliferation marker in cancer tissues.

Description

Proliferation Marker Antibody recognizes MCM3, also known as Minichromosome maintenance complex component 3, a core subunit of the MCM2-7 DNA helicase complex required for eukaryotic DNA replication. MCM3 antibody is widely used as a nuclear proliferation marker in immunohistochemistry because MCM3 is expressed in cells that are licensed to replicate their DNA. As part of the minichromosome maintenance complex, MCM3 plays an essential role in formation of the pre-replication complex during the G1 phase of the cell cycle and is required for initiation and elongation of DNA

synthesis during S phase.

MCM3 functions within the heterohexameric MCM2-7 complex, which acts as the replicative helicase responsible for unwinding double-stranded DNA at replication origins. During early G1, MCM3 is loaded onto chromatin together with other MCM proteins, licensing replication origins for subsequent activation. Because replication licensing occurs before DNA synthesis begins, MCM3 expression identifies cells with proliferative capacity even if they have not yet entered S phase. In immunohistochemical applications, Proliferation Marker Antibody typically demonstrates strong nuclear staining in actively cycling epithelial and tumor cells, while quiescent or terminally differentiated cells show little to no expression.

In cancer biology, elevated expression of Minichromosome maintenance complex component 3 has been reported in a broad range of malignancies including breast carcinoma, colorectal cancer, lung carcinoma, prostate adenocarcinoma, and hematologic neoplasms. Increased nuclear MCM3 staining correlates with higher proliferative index, tumor grade, and aggressive clinical behavior. Because MCM proteins detect replication-competent cells earlier in the cell cycle than some traditional proliferation markers, MCM3 antibody can identify a larger population of proliferating cells. This makes Proliferation Marker Antibody particularly useful in tumor grading, dysplasia assessment, and studies examining deregulated cell cycle control.

Beyond oncology, MCM3 is essential for normal tissue renewal, stem cell maintenance, and controlled cell cycle progression. Proper regulation of replication licensing ensures that genomic DNA is duplicated once per cell cycle, preserving genomic integrity and preventing re-replication. Dysregulation of MCM3 or other MCM complex components can contribute to genomic instability and oncogenic transformation. Proliferation Marker Antibody (Clone MSVA-503M) is designed to detect nuclear MCM3 expression in research applications, supporting investigation of DNA replication licensing, cell cycle progression, proliferative capacity, and tumor growth biology in both normal and neoplastic tissues.

Application Notes

1. Optimal dilution of the recombinant Proliferation Marker/MCM3 antibody should be determined by the researcher.

2. This recombinant Proliferation Marker/MCM3 antibody is recombinantly produced by expression in CHO cells.

3. 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.

Immunogen

A recombinant fragment (aa 650-750) of human MCM3 protein (exact sequence is proprietary) was used as the immunogen for the recombinant Proliferation Marker/MCM3 antibody.

Storage

Proliferation Marker/MCM3 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.