10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

KI67 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1294a

Product Information

Application	IHC, E
Primary Accession	P46013
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	4A1
Isotype	IgG2b
Calculated MW	358694
Description	Ki67, also known as MKI67, it is the prototypic cell cycle related nuclear protein, expressed by proliferating cells in all phases of the active cell cycle (G1, S, G2 and M phase). It is absent in resting (G0) cells. Ki67 antibodies are useful in establishing the cell growing fraction in neoplasms (immunohistochemically quantified by determining the number of Ki67 positive cells among the total number of resting cells = Ki67 index). In neoplastic tissues the prognostic value is comparable to the tritiated thymidine labelling index. The correlation between low Ki67 index and histologically low grade tumours is strong. Ki67 is routinely used as a neuronal marker of cell cycling and proliferation.
Immunogen	Synthetic peptide corresponding to aa (CEDLAGFKELFQTPG) of human KI67, conjugated to KLH.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	4288
Other Names	Antigen KI-67, MKI67
Dilution	IHC~~1/200 - 1/1000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	KI67 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

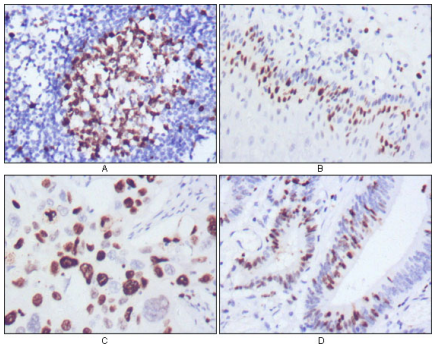
Name	MKI67 (HGNC:7107)
Function	Protein that associates with the surface of mitotic chromosomes and acts both as a chromosome repellent during early mitosis and chromosome attractant during late mitosis (PubMed:27362226, PubMed:32879492, PubMed:35513709, PubMed:39153474). Required to maintain individual mitotic chromosomes dispersed in the cytoplasm following nuclear envelope disassembly (PubMed:27362226). During early mitosis, relocalizes from nucleoli to the chromosome surface where it forms extended brush structures that cover a substantial fraction of the chromosome surface (PubMed:27362226). The MKI67 brush structure prevents chromosomes from collapsing into a single chromatin mass by forming a steric and electrostatic charge barrier: the protein has a high net electrical charge and acts as a surfactant, dispersing chromosomes and enabling independent chromosome motility (PubMed:27362226). During mitotic anaphase, the MKI67 brush structure collapses and MKI67 switches from a chromosome repellent to a chromosome attractant to promote chromosome clustering and facilitate the exclusion of large cytoplasmic particles from the future nuclear space (PubMed:32879492, PubMed:39153474). Mechanistically, dephosphorylation during mitotic exit and simultaneous exposure of a conserved basic patch induce the RNA-dependent formation of a liquid- like condensed phase on the chromosome surface, promoting coalescence of neighboring chromosome surfaces and clustering of chromosomes (PubMed:39153474). Binds premature ribosomal RNAs during anaphase; promoting liquid-liquid phase separation (PubMed:28935370, PubMed:39153474). Binds DNA, with a preference for supercoiled DNA and AT-rich DNA (PubMed:10878551). Does not contribute to the internal structure of mitotic chromosomes (By similarity). May play a role in chromatin organization; it is however unclear whether it plays a direct role in chromatin organization or whether it is an indirect consequence of its function in mitotic chromosome (PubMed:24867636).
Cellular Location	Chromosome. Nucleus. Nucleus, nucleolus. Note=During early mitosis, relocalizes from nucleoli to the surface of the mitotic chromosome, the perichromosomal layer, and covers a substantial fraction of the mitotic chromosome surface (PubMed:27362226) Associates with satellite DNA in G1 phase (PubMed:9510506). Binds tightly to chromatin in interphase, chromatin-binding decreases in mitosis when it associates with the surface of the condensed chromosomes (PubMed:15896774, PubMed:22002106). Predominantly localized in the G1 phase in the perinucleolar region, in the later phases it is also detected throughout the nuclear interior, being predominantly localized in the nuclear matrix (PubMed:22002106)

References

1. Folia Histochem Cytobiol. 2007;45(4):357-66. 2. Tumori. 2008 May-Jun;94(3):389-97.

Images

Figure 1: Immunohistochemical analysis of paraffin-embedded human lymph node (A), esophagus (B), lung cancer (C), rectum cancer (D), showing nuclear localization using KI67 mouse mAb with DAB staining.



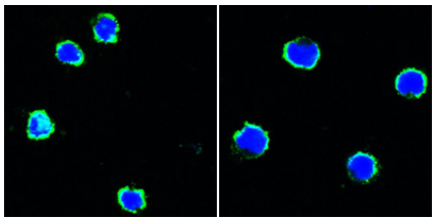


Figure 1: Confocal immunofluorescence analysis of human peripheral blood lymphocyles (left) and mouse L1210 cells (right) using CD40 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye.

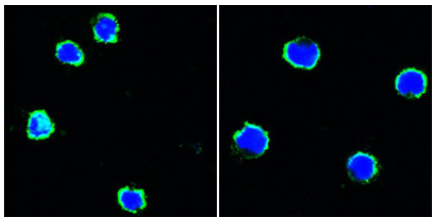


Figure 1: Confocal immunofluorescence analysis of human peripheral blood lymphocyles (left) and mouse L1210 cells (right) using anti-CD40 monoclonal antibody (green). Blue: DRAQ5 fluorescent DNA dye.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.