abcam

ab245113

Anti-Ki67 antibody [37C7-12]

Anti-Ki67 antibody [37C7-12] (ab245113) is a mouse monoclonal antibody detecting Ki67 in **Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human**.

- KO validated for confirmed specificity
- Over 20 publications

Recombinant | KO Validated

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	37C7-12
Purification technique	Affinity purification Protein A
Light chain type	kappa
Concentration	0.965 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	If fixing cells in 4% PFA (20 min, room temp), it is recommended to permeabilized cells with 0.1% Triton-X for 5 min.

WB

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	0.02 µg for 10^6 Cells
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/800
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information MKI67

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Ki67 antibody [37C7-12] (ab245113) is a mouse recombinant monoclonal antibody and is validated for use in Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

Trusted by the scientific community
Anti-Ki67 [37C7-12] (ab245113) was first used in a scientific publication in 2019 and has been cited over 20 times in

peer-reviewed journals.

Specificity confirmed
The specificity of Anti-Ki67 antibody [37C7-12] (ab245113) has been confirmed by Flow Cytometry testing in MKI67 Knockout HAP1 cells.

Other related products
We have a range of other formats of antibody clone [37C7-12] also available for your convenience: ab245113, Carrier free - ab252260, Alexa Fluor® 647 - ab314943

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Ki67 is a nuclear protein often referred to as MKI67 with a molecular weight of approximately 345 kDa. This protein is strongly associated with cell proliferation. Scientists commonly use Ki67 staining techniques to identify and quantify proliferating cells in tissues. Ki67 is expressed in the nucleus during active cell cycle phases—G1 S G2 and M—but not in resting cells in G0 phase. It is detectable through methods such as Ki67 immunofluorescence and Ki67 flow cytometry which are important for analyzing cell division.
Biological function summary	The Ki67 protein plays an essential role in cellular proliferation processes. It does not form part of a stable complex but interacts transiently with other cell cycle-related proteins. Research indicates that Ki67 maintains the structure of the perichromosomal layer during mitosis impacting chromosome separation. It is particularly active in tissues with high cell turnover such as bone marrow and lymphoid organs.
Pathways	Ki67 influences several key cellular pathways that control cell proliferation and differentiation. The protein acts within the regulation of the cell cycle and the PI3K/AKT signaling pathway important for cell growth and survival. Within these pathways Ki67 interacts with proteins like cyclin-dependent kinases (CDKs) which regulate transitions between different phases of the cell cycle.
Associated diseases and disorders	Ki67 has significant implications in oncology and can be used as a biomarker for cancer prognosis. Its expression levels help determine the aggressiveness of tumors especially in breast cancer and prostate cancer. High Ki67 levels correlate

with poor prognosis as it indicates rapid cell division. In cancer Ki67 associates with p53 a protein that regulates the cell cycle and function as a tumor suppressor.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

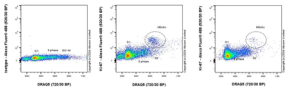
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

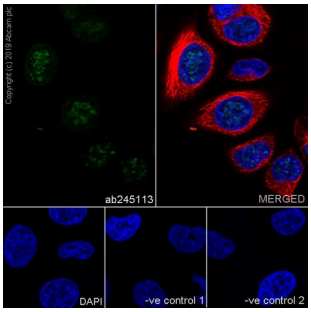
7 product images



Flow Cytometry - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Flow Cytometry staining using mouse Anti-Ki67 antibody

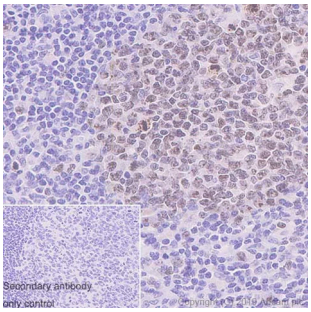
Flow cytometry analysis of Isotype Rabbit monoclonal IgG (ab172730) (Left) / 4% paraformaldehyde-fixed 90% methanol-permeabilised HeLa (human cervix adenocarcinoma epithelial cell) treated with 100ng/mL nocodazole for 24 hours (Middle) / Untreated HeLa (Right). ab245113 was used at 1/5000 dilution and secondary Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) was used at 1/5000 dilution. Cells were co-stained with DRAQ5 to differentiate cell cycle phase.



Immunocytochemistry/ Immunofluorescence - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Ki67 antibody

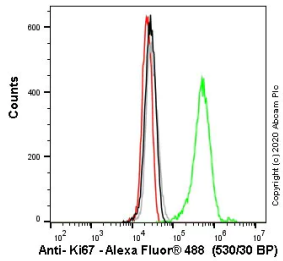
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labeling Ki67 with ab245113 at 1/100 dilution, followed by Goat Anti-Mouse IgG (Alexa Fluor® 488) (ab150113) secondary antibody at 1/1000 dilution (green). Confocal image showing nucleolus staining on HeLa cell line. The nuclear counterstain is DAPI (blue).
Tubulin is detected with ab179504 Anti-beta IV Tubulin antibody - Microtubule Marker at 1/1000 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 594) (ab150080) secondary antibody at 1/1000 dilution (red).
The negative controls are as follows:
-ve control 1: ab245113 at 1/50 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 594) (ab150080) secondary antibody at 1/1000 dilution.
-ve control 2: ab179504 at 1/200 dilution, followed by ab150113 AlexaFluor®488 Goat anti-Mouse secondary at 1/1000 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Ki67 antibody

Immunohistochemical analysis of paraffin-embedded human tonsil tissue labeling Ki67 with ab245113 at 1/800 dilution, followed by a ready to use secondary. Nuclear staining on human tonsil tissue is observed. The section was incubated with ab245113 for 30 mins at RT. The immunostaining staining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, followed by ready to use secondary. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.



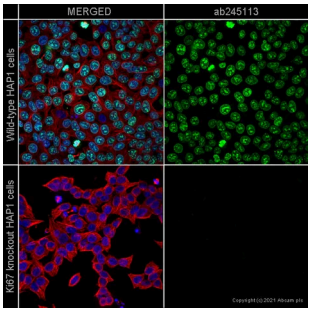
Flow Cytometry (Intracellular) - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Flow Cytometry (Intracellular) staining using mouse Anti-Ki67 antibody

Intracellular Intracellular Flow Cytometry overlay histogram showing wild-type HAP1 (green line) and MKI67 knockout HAP1 cells stained with ab245113 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab245113) ($1x10^6$ in 100 µl at 0.2 µg/ml) for 30 min at 22°C.
The secondary antibody Goat anti-mouse IgG H&L (Alexa Fluor® 488, pre-adsorbed) (ab150117) was used at 1/2000 for 30 min at 22°C.

Isotype control antibody was mouse IgG2aκ (ab18413) used at the same concentration and conditions as the primary antibody (wild-type HAP1 - black line MKI67 knockout HAP1 - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter. This antibody can also be used in HAP1 cells fixed with 80% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 15 min used under the same conditions.

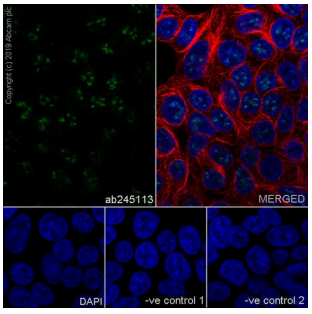


Immunocytochemistry/ Immunofluorescence - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Ki67 antibody

ab245113 staining Ki67 in Hap1-Ki67 cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated overnight at 4°C with ab245113 at 1µg/ml and ab6046, Rabbit polyclonal to beta Tubulin - Loading Control. Cells were then incubated with ab150117, Goat polyclonal Secondary Antibody to Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150080, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 594) at 1/1000 dilution (shown in pseudocolour red). Nuclear DNA was labelled with DAPI (shown in blue).
Also suitable in cells fixed with 4% paraformaldehyde (10 min).

Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.

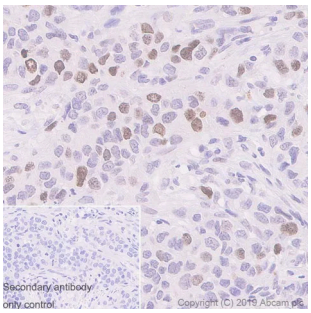


Immunocytochemistry/ Immunofluorescence - Anti-Ki67 antibody [37C7-12] (ab245113)

Ki67 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Ki67 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HAP1 (human chronic myelogenous leukemia near-haploid cell line) cells labeling Ki67 with ab245113 at 1/100 dilution, followed by Goat Anti-Mouse IgG (Alexa Fluor® 488) (ab150113) secondary antibody at 1/1000 dilution (green). Confocal image showing nucleolus staining on HAP1 cell line. The nuclear counterstain is DAPI (blue).
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Ki67 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Ki67 antibody

Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue labeling Ki67 with ab245113 at 1/800 dilution, followed by a ready to use secondary. Nuclear staining on human breast carcinoma tissue is observed. The section was incubated with ab245113 for 30 mins at RT. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, followed by ready to use secondary. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.

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