abcam

ab136649

Anti-Nucleolin antibody [364-5]

Anti-Nucleolin antibody [364-5] (ab136649) is a mouse monoclonal antibody detecting Nucleolin in **Western Blot, Flow Cytometry, IP, IHC-P, ICC/IF**. Suitable for **Human**.

- Over 10 publications

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.3 Preservative: 0.02% Sodium azide Constituents: 0.88% Sodium chloride, 0.36% HEPES
Form	Liquid
Clonality	Monoclonal
Clone number	364-5
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab136649 is purified by biochemical fractionation. Near homogeneity as judged by SDS-PAGE.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Mouse
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rat

Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Cow
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Not recommended

Species	Mouse, Rat, Cow
Dilution info	-
Notes	-

Target data

See full target information NCL

Function	Nucleolin is the major nucleolar protein of growing eukaryotic cells. It is found associated with intranucleolar chromatin and pre-ribosomal particles. It induces chromatin decondensation by binding to histone H1. It is thought to play a role in pre-rRNA transcription and ribosome assembly. May play a role in the process of transcriptional elongation. Binds RNA oligonucleotides with 5'-UUAGGG-3' repeats more tightly than the telomeric single-stranded DNA 5'-TTAGGG-3' repeats.

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
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Nucleolin antibody [364-5] (ab136649) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Nucleolin?
Anti-Nucleolin [364-5] (ab136649) specifically detects a band for Nucleolin (UniProt: P19338) at a molecular weight of 76kDa.

Trusted by the scientific community
Anti-Nucleolin [364-5] (ab136649) was first used in a scientific publication in 2012 and has been cited over 10 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [364-5] also available for your convenience: ab136649, Alexa Fluor® 488 - ab154028, Alexa Fluor® 647 - ab198580, Carrier free - ab212672

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	Nucleolin also known as C23 is a multifunctional protein mainly found in the nucleolus with a molecular weight of approximately 100 kDa. It plays a mechanical role in ribosomal RNA (rRNA) synthesis and ribosome biogenesis. Nucleolin is widely expressed in proliferating cells including HeLa culture and shows higher expression in cancer cells compared to normal cells. The nucleolin protein is involved in various nucleolar processes like the modulation of chromatin structure and nucleocytoplasmic transport.
Biological function summary	The nucleolin molecular weight protein contributes to regulating cellular processes such as chromatin remodeling rRNA transcription and mRNA stability. Nucleolin often forms complexes with various other proteins and nucleic acids enhancing its functionality within the cell nucleus. Its participation in processes like DNA replication and cell proliferation shows the central role nucleolin plays at the cellular level. It influences cellular responses by binding directly to specific RNA or DNA sequences.
Pathways	The nucleolin protein engages in major cellular pathways such as the RNA processing and p53 signaling pathways. Through the RNA processing pathway it interacts with proteins like fibrillarin to assist in rRNA maturation. Moreover within the p53 signaling pathway nucleolin regulates the activity of the tumor suppressor protein p53 impacting cell cycle progression and apoptosis. These interactions highlight nucleolin's role in maintaining cellular homeostasis and response to stress.
Associated diseases and disorders	The nucleolin protein often shows altered expression in cancers and cardiovascular diseases. In cancer nucleolin's high expression levels correlate with tumor progression and metastasis making it a potential target for cancer therapies. In cardiovascular diseases nucleolin interacts with proteins like VEGF to influence angiogenesis which affects disease progression. Understanding nucleolin's involvement in these diseases provides insight into potential therapeutic targets and interventions.

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.

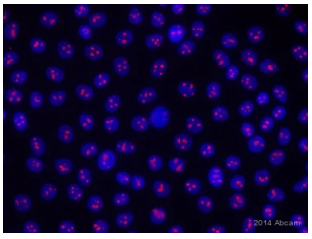
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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:
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9 product images

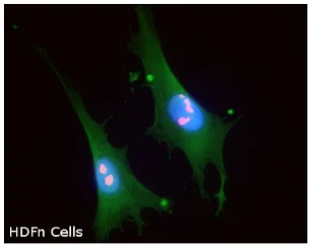


This image is courtesy of an anonymous customer review

Immunocytochemistry/ Immunofluorescence - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Nucleolin antibody

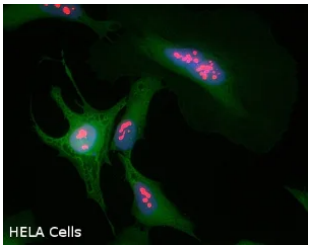
ab136649 staining Nucleolin in human breast cell line by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with formaldehyde, permeabilized with 5% Triton X-100 in PBS and blocked with 5% BSA for 1 hour at 25°C. Samples were incubated with primary antibody (1/1000) for 1 hour. An undiluted Alexa Fluor® 546-conjugated anti-mouse IgG polyclonal was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Nucleolin antibody

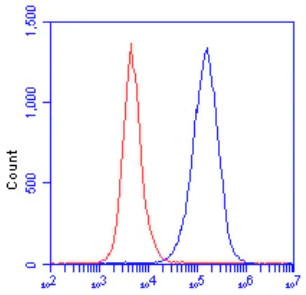
Immunocytochemical analysis of HDFn cells (paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15 min)) labelling Nucleolin with ab136649 at 1µg/ml (red) and anti-GAPDH (ab110305) in green, as a counter stain. Secondary: Alexa 594 goat anti-mouse IgG1 at a 1/1000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Nucleolin antibody

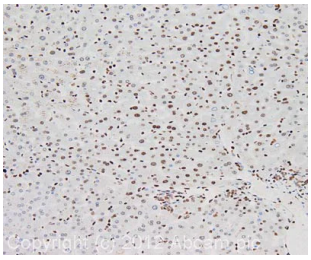
Immunocytochemical analysis of HeLa cells (paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15 min)) labelling Nucleolin with ab136649 at 1µg/ml (red) and anti-GAPDH (ab110305) in green, as a counter stain.
Secondary: Alexa 594 goat anti-mouse IgG1 at a 1/1000 dilution.



Flow Cytometry - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Flow Cytometry staining using mouse Anti-Nucleolin antibody

Flow Cytometric analysis of HeLa cells (fixed and permeabilized with methanol) labelling Nucleolin with ab136649 (blue) at 1µg/ml or an equal amount of an isotype control antibody (red).

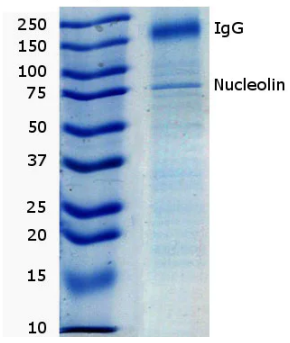


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nucleolin antibody [364-5] (ab136649)

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

IHC image of nucleolin staining in human liver HCC formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab136649, 5µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

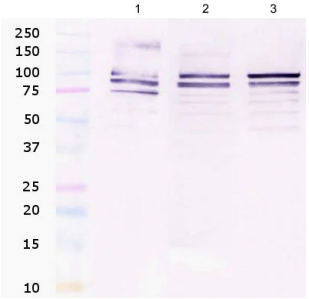
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunoprecipitation - Anti-Nucleolin antibody [364-5] (ab136649)

Detection of Nucleolin by Immunoprecipitation.
Nucleolin in HepG2 cell lysate (1 mg) was immunoprecipitated using 1 µg ab136649 antibody. The gel was stained with Coomassie brilliant blue G.
All lanes:
Immunoprecipitation - Anti-Nucleolin antibody [364-5] (ab136649)

Predicted band size: 76 kDa



Western blot - Anti-Nucleolin antibody [364-5] (ab136649)

All lanes:
Western blot - Anti-Nucleolin antibody [364-5] (ab136649) at 1 µg/mL

Lane 1:
HepG2 whole cell lysate at 20 µg

Lane 2:
HDFn whole cell lysate at 25 µg

Lane 3:
SH-SY5Y whole cell lysate at 20 µg

Secondary

All lanes:

Goat polyclonal to Mouse IgG - AP at 1/3000 dilution

Predicted band size: 76 kDa

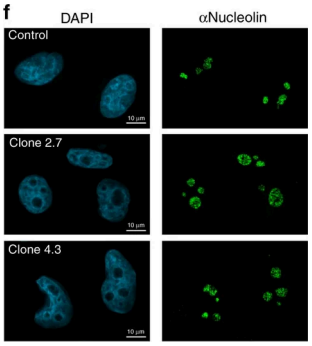


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Immunocytochemistry/ Immunofluorescence - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Nucleolin antibody

Immunocytochemistry-immunofluorescence using Anti-Nucleolin antibody [364-5], ab136649. Publication image from Dubois, M. L. et al., 2020, Nat Commun, 32161257. Legend direct from paper.

UbKEKS is important for cell growth and regulates lamin A localization.a–b Cells were transfected with either GFP-tagged lamin A (LMNA) or lamin B2 (LMNB2), and with HA-tagged Ub or UbKEKS. Total cell lysates (Extract) or IPs with GFP-Trap were loaded on SDS-PAGE and revealed with GFP or HA antibodies (n = 3 independent experiments). c Knockout of UBBP4 was performed using CRISPR/Cas9 and two different combinations of guide RNAs in HeLa cells. d Cells are sorted from the debris according to FSC-A and SSC-A, and then single cells are selected using FSC-H and FSC-W for measuring using the FITC channel. Wild type and KO HeLa cells (clones 2.7 and 4.3) were assessed for growth using a CFSE assay at each time points for 96 h. Data are presented as mean values with ±SD. Statistical analysis was performed using two-way ANOVA (F(2,84) = 45.70) and Dunnett's multiple comparison post hoc tests (n = 8 independent experiments). e Wild type and KO HeLa cells (clones 2.7 and 4.3) were labeled for immunofluorescence microscopy with a lamin A antibody. The nuclei were stained with DAPI (n = 3 independent experiments). f Control and KO HeLa cells (clones 2.7 and 4.3) were labeled for immunofluorescence microscopy with a Nucleolin antibody. The nuclei were stained with DAPI (n = 3 independent experiments). g Quantification of nucleoli was achieved using CellProfiler, through a primary object identification using DAPI and Nucleolin staining, respectively. Each nucleolus was reported to the parental nucleus and the area was determined by measuring the object size shape. Data are presented as box plots where the center lines show the medians; box limits indicate the 25th and 75th percentiles as determined by Prism software; whiskers extend to minimum and maximum values; individual data points are superimposed on the box plot. Statistical analysis was performed using two-way ANOVA (F(2,540) = 37.08) and Dunnett's multiple comparison post hoc tests (n = 90 cells examined over three independent experiments). Source data are provided as a Source Data file.

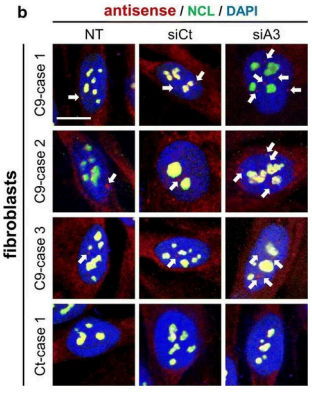


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Immunocytochemistry/ Immunofluorescence - Anti-Nucleolin antibody [364-5] (ab136649)

Nucleolin Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Nucleolin antibody

Immunocytochemistry-immunofluorescence using Anti-Nucleolin antibody [364-5], ab136649. Publication image from Nihei, Y. et al., 2020, Acta Neuropathol, 31642962. Legend direct from paper.

Reduction of hnRNPA3 increases RNA foci number. Knockdown of hnRNPA3 increases antisense RNA foci in fibroblasts derived from C9orf72 mutation carriers. a Western blotting with anti-hnRNPA3, hnRNPA1, and hnRNPA2B1 antibodies confirms selective and efficient siRNA-mediated knockdown of hnRNPA3. β-actin serves as a loading control. b Fluorescent in situ hybridization (FISH) of antisense repeat RNA foci in fibroblasts from 3 cases with a C9orf72 repeat extension (C9) and 1 control case (Ct). Arrows indicate Cy3-positive antisense RNA foci in the nucleus. c, d Quantification of RNA foci number and positivity upon siRNA-mediated knockdown of hnRNPA3. N = 126–234 cells from 3 biological replicates in each line. e Western blotting of cell lysates from

iPSC-derived human neurons. Western blotting with antibodies to β-actin and βIII-tubulin confirmed selective and efficient knockdown of hnRNPA3. f FISH of antisense RNA foci in neurons from control cases (Ct) and C9orf72 carriers (C9). siCt: control siRNA, siA3: hnRNPA3-targeted siRNA. g, h Knockdown of hnRNPA3 increases antisense RNA foci number and positivity in iPSC-derived neurons from C9orf72 mutation carriers. N = 72–102 cells from 3 biological replicates in each line. Data of 6 images in each line were used for analysis. NT non-treatment, siCt control siRNA, siA3 hnRNPA3-targeted siRNA, NCL nucleolin. All graphs are shown as mean ± SEM. *p < 0.05; two tailed paired t test. Scale bar 10 µm

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