abcam

ab96051

Anti-PML Protein antibody [C7]

Anti-PML Protein antibody [C7] (ab96051) is a mouse monoclonal antibody detecting PML Protein in **Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human**.

- KO validated for confirmed specificity
- Over 20 publications
- Trusted since 2010

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.1% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Protein within Human PML. The exact immunogen used to generate this antibody is proprietary information. Database link P29590
Clone number	C7
Purification technique	Precipitation Ammonium Sulphate
Specificity	This antibody recognises all PML isoforms.
Light chain type	kappa
Concentration	2.77 - 3.989 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Not recommended

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200
Notes	1h incubation at 4 degrees or 37 degrees.

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	Signal can be observed in cells fixed with either methanol or paraformaldehyde.

Target data

See full target information PML

Function

Functions via its association with PML-nuclear bodies (PML-NBs) in a wide range of important cellular processes, including tumor suppression, transcriptional regulation, apoptosis, senescence, DNA damage response, and viral defense mechanisms. Acts as the scaffold of PML-NBs allowing other proteins to shuttle in and out, a process which is regulated by SUMO-mediated modifications and interactions. Inhibits EIF4E-mediated mRNA nuclear export by reducing EIF4E affinity for the 5' 7-methylguanosine (m7G) cap of target mRNAs (PubMed:11500381, PubMed:11575918, PubMed:18391071). Isoform PML-4 has a multifaceted role in the regulation of apoptosis and growth suppression: activates RB1 and inhibits AKT1 via interactions with PP1 and PP2A phosphatases respectively, negatively affects the PI3K pathway by inhibiting MTOR and activating PTEN, and positively regulates p53/TP53 by acting at different levels (by promoting its acetylation and phosphorylation and by inhibiting its MDM2-dependent degradation). Isoform PML-4 also: acts as a transcriptional repressor of TBX2 during cellular senescence and the repression is dependent on a functional RBL2/E2F4 repressor complex, regulates double-strand break repair in gamma-irradiation-induced DNA damage responses via its interaction with WRN, acts as a negative regulator of telomerase by interacting with TERT, and regulates PER2 nuclear localization and circadian function. Isoform PML-6 inhibits specifically the activity of the tetrameric form of PKM. The nuclear isoforms (isoform PML-1, isoform PML-2, isoform PML-3, isoform PML-4 and isoform PML-5) in concert with SATB1 are involved in local chromatin-loop remodeling and gene expression regulation at the MHC-I locus. Isoform PML-2 is required for efficient IFN-gamma induced MHC II gene transcription via regulation of CIITA. Cytoplasmic PML is involved in the regulation of the TGF-beta signaling pathway. PML also regulates transcription activity of ELF4 and can act as an important mediator for TNF- and IFN-alpha-mediated inhibition of endothelial cell network formation and migration. Exhibits antiviral activity against both DNA and RNA viruses. The antiviral activity can involve one or several isoform(s) and can be enhanced by the permanent PML-NB-associated protein DAXX or by the recruitment of p53/TP53 within these structures. Isoform PML-4 restricts varicella zoster virus (VZV) via sequestration of virion capsids in PML-NBs thereby preventing their nuclear egress and inhibiting formation of infectious virus particles. The sumoylated isoform PML-4 restricts rabies virus by inhibiting viral mRNA and protein synthesis. The cytoplasmic isoform PML-14 can restrict herpes simplex virus-1 (HHV-1) replication by sequestering the viral E3 ubiquitin-protein ligase ICP0 in the cytoplasm. Isoform PML-6 shows restriction activity towards human cytomegalovirus (HHV-5) and influenza A virus strains PR8(H1N1) and ST364(H3N2). Sumoylated isoform PML-4 and isoform PML-12 show antiviral activity against encephalomyocarditis virus (EMCV) by promoting nuclear sequestration of viral polymerase (P3D-POL) within PML NBs. Isoform PML-3 exhibits antiviral activity against poliovirus by inducing apoptosis in infected cells through the recruitment and the activation of p53/TP53 in the PML-NBs. Isoform PML-3 represses human foamy virus (HFV) transcription by complexing the HFV transactivator, bel1/tas, preventing its binding to viral DNA. PML may positively regulate infectious hepatitis C viral (HCV) production and isoform PML-2 may enhance adenovirus transcription. Functions as an E3 SUMO-protein ligase that sumoylates (HHV-5) immediate early protein IE1, thereby participating in the antiviral response (PubMed:20972456, PubMed:28250117). Isoforms PML-3 and PML-6 display the highest levels of sumoylation activity (PubMed:20972456, PubMed:28250117).

Storage

Shipped at conditions	Blue Ice
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-PML Protein antibody [C7] (ab96051) is a mouse monoclonal antibody and is validated for use in Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

Trusted by the scientific community
Anti-PML Protein [C7] (ab96051) was first used in a scientific publication in 2010 and has been cited over 20 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-PML Protein antibody [C7] (ab96051) has been confirmed by Western blot testing in PML Knockout HAP1 cells.

Supplementary info

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

Activity summary	The PML protein also known as promyelocytic leukemia protein has a mass of about 97 kilodaltons. PML is typically expressed in the nucleus in distinct structures called nuclear bodies. These nuclear bodies often referred to as PML-nuclear bodies or PML-NBs serve several functions within the cell. The PML protein is commonly identified in tissues such as the bone marrow and blood cells where it plays a significant role in various cellular processes. Numerous antibodies including anti-PML are used to study the distribution and function of PML protein in different cellular contexts.
Biological function summary	The PML protein interacts with various molecular partners and forms a part of multiprotein complexes within the PML-nuclear bodies. Its functions include the regulation of transcription induction of apoptosis DNA damage response and control of cell proliferation. PML can recruit other proteins such as p53 a tumor suppressor protein to influence these cellular activities. PML's ability to act as a scaffold within these complexes makes it essential for maintaining cellular

	homeostasis and response to stress. Various techniques such as PML protein ELISA are used to analyze PML-related biological activities.
Pathways	The PML protein plays a significant role in critical cellular pathways such as apoptosis and the interferon response pathway. PML's interaction with the p53 protein links it to the apoptosis pathway where it acts as an inducer of cell death in response to cellular stress and damage. In the interferon response pathway PML contributes to antiviral defense mechanisms. The involvement of PML in these pathways emphasizes its importance in cellular defense and programmed cell death. Related proteins like STATs (signal transducers and activators of transcription) are known to interact with PML in these pathways.
Associated diseases and disorders	Abnormalities in PML protein expression and function are linked to specific diseases including acute promyelocytic leukemia (APL) and certain types of cancer. Acute promyelocytic leukemia is characterized by a translocation involving the PML gene resulting in the PML-RARα fusion protein which interferes with normal cell differentiation. PML also relates to neurodegenerative disorders where changes in PML expression impact cellular stress responses. In the context of these diseases the PML protein's interaction with oncogenic proteins like RARα in leukemia highlights its role in disease development and potential as a therapeutic target.

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

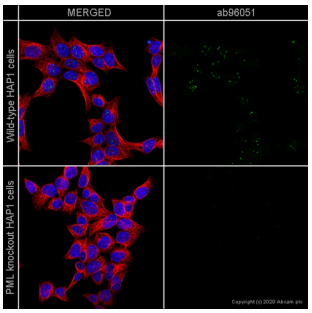
We do not recommend this combination. It is not covered by our product promise.

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.

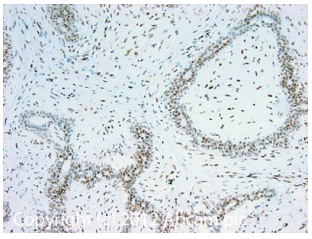
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-PML Protein antibody [C7] (ab96051)

PML Protein Immunocytochemistry/ Immunofluorescence staining using mouse Anti-PML Protein antibody

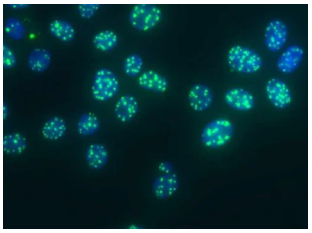
ab96051 staining PML in wild-type Hap1 cells (top panel) and PML knockout Hap1 cells (bottom panel). The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab96051 at 1/500 dilution and ab6046 (Rabbit polyclonal to beta Tubulin) at 1/1000 dilution overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to mouse IgG (Alexa Fluor® 488) (ab150117) at 2 µg/ml (shown in green) and a goat secondary antibody to rabbit IgG (Alexa Fluor® 594) (ab150080) at 2 µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PML Protein antibody [C7] (ab96051)

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

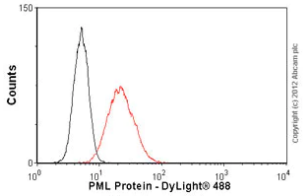
IHC image of PML protein staining in Human breast fibroadenoma formalin fixed paraffin embedded tissue section, performed on a Leica BondTM system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab96051, 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.



Immunocytochemistry/ Immunofluorescence - Anti-PML Protein antibody [C7] (ab96051)

PML Protein Immunocytochemistry/ Immunofluorescence staining using mouse Anti-PML Protein antibody

ab96051 staining human PML protein in IFNa-treated HL60 cells by immunofluorescence. This image demonstrates the presence of PML nuclear bodies.



Flow Cytometry - Anti-PML Protein antibody [C7] (ab96051)

PML Protein Flow Cytometry staining using mouse Anti-PML Protein antibody

Overlay histogram showing HL60 cells stained with ab96051 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells

were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab96051, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-Mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was Mouse IgG1 [ICIGG1] (ab91353, 2 µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HL60 cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

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