abcam

ab18197

Anti-PCNA antibody

Anti-PCNA antibody (ab18197) is a rabbit polyclonal antibody detecting PCNA in Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF. Suitable for Common marmoset, Human, Mouse, Rat. - Over 420 publications - Trusted since 2005

Lab Essentials

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Purification technique	Affinity purification Immunogen
Concentration	0.9 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	0.05 µg for 10^5 Cells
Notes	-

Expected

Species	Rat, Mouse, Common marmoset
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Sheep, Goat, Cow, Dog, Monkey, Zebrafish
Dilution info	-
Notes	-

WB

Tested

Species	Rat
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Mouse, Common marmoset
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Sheep, Goat, Cow, Dog, Monkey, Zebrafish
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse, Common marmoset
Dilution info	-
Notes	-

Expected

Species	Human, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Sheep, Goat, Cow, Dog, Monkey, Zebrafish
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Rat, Common marmoset
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Sheep, Goat, Cow, Dog, Monkey, Zebrafish
Dilution info	-
Notes	-

Target data

See full target information PCNA

Function

Confers DNA tethering and processivity to DNA polymerases and other proteins (PubMed:24695737, PubMed:24939902, PubMed:35585232). Auxiliary protein of DNA polymerase delta and epsilon, is involved in the control of DNA replication by increasing the polymerases' processivity during elongation of the leading strand (PubMed:35585232). Induces a robust stimulatory effect on the 3'-5' exonuclease and 3'-phosphodiesterase, but not apurinic-apyrimidinic (AP) endonuclease, APEX2 activities. Has to be loaded onto DNA in order to be able to stimulate APEX2. Plays a key role in DNA damage response (DDR) by being conveniently positioned at the replication fork to coordinate DNA replication with DNA repair and DNA damage tolerance pathways (PubMed:24939902). Acts as a loading platform to recruit DDR proteins that allow completion of DNA replication after DNA damage and promote postreplication repair: monoubiquitinated PCNA leads to recruitment of translesion (TLS) polymerases, while 'Lys-63'-linked polyubiquitination of PCNA is involved in error-free pathway and employs recombination mechanisms to synthesize across the lesion (PubMed:24695737).

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-PCNA antibody (ab18197) is a rabbit polyclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Common marmoset, Human, Mouse, Rat samples.

What is the molecular weight of PCNA?
Anti-PCNA (ab18197) specifically detects a band for PCNA (UniProt: P12004) at a molecular weight of 29kDa.

Trusted by the scientific community
Anti-PCNA (ab18197) was first used in a scientific publication in 2005 and has been cited over 420 times in peer-reviewed journals.

Reviewed by scientists
Anti-PCNA (ab18197) has over 50 independent reviews from customers.

Supplementary info

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

Activity summary	PCNA or Proliferating Cell Nuclear Antigen functions as a sliding clamp for DNA polymerases during DNA replication. This important role enables it to coordinate the orderly duplication of the genome by increasing the processivity of DNA polymerase Δ. PCNA weighs approximately 29 kDa and forms a homotrimeric ring structure. It is expressed in the nucleus of cells often found abundantly in proliferating cells. Aside from its main name some people also refer to it as PC10.
Biological function summary	This protein serves a core function in cell cycle regulation and DNA repair. PCNA acts as a scaffold for the assembly of numerous proteins involved in DNA processing forming part of the replication fork complex. It interacts with cyclins and cyclin-dependent kinases (CDKs) linking DNA synthesis to cell cycle progression. Furthermore PCNA partners with proteins involved in DNA mismatch repair base excision repair and nucleotide excision repair.
Pathways	PCNA is integral in the DNA replication and repair pathways. It closely associates with the p21 protein which regulates the cell cycle by inhibiting cyclin-CDK complexes upon DNA damage. PCNA also plays a part in the ubiquitin-proteasome pathway where its modification by ubiquitin impacts how cells respond to DNA damage. This modification recruits specific proteins for DNA repair highlighting its central role in maintaining genomic stability.
Associated diseases and disorders	PCNA is linked to cancer and autoimmune diseases. Its overexpression is common in various cancers reflecting its role in cell proliferation and the cell cycle. PCNA antibodies are sometimes found in the serum of patients with systemic lupus erythematosus (SLE) a connection also related to alterations in the p21 protein pathway. The interaction between PCNA and disease-specific proteins emphasizes its importance in both cell proliferation and immune system disorders.

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.

12 product images

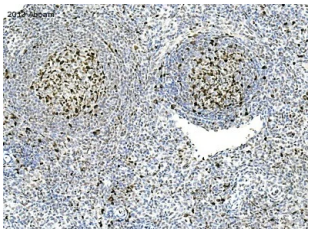
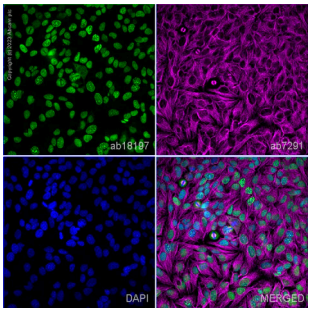


Image courtesy of Carl Hobbs, Kings College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

ab18197 staining PCNA in tissue sections of the marmoset spleen by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/6000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.

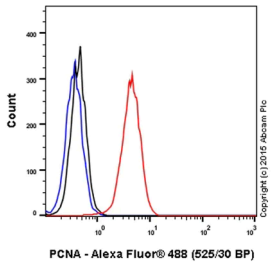


Immunocytochemistry/ Immunofluorescence - Anti-PCNA antibody (ab18197)

ab18197 staining PCNA in HeLa 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 ab18197 at 0.1µg/ml and ab7291, Mouse monoclonal [DM1A] to alpha Tubulin - Loading Control. Cells were then incubated with ab150081, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 488), pre-adsorbed at 1/1000 dilution (shown in green) and ab150120, Goat polyclonal Secondary Antibody to Mouse IgG - H&L (Alexa Fluor® 594), pre-adsorbed at 1/1000 dilution (shown in pseudocolour magenta). 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.



Flow Cytometry (Intracellular) - Anti-PCNA antibody (ab18197)

PCNA Flow Cytometry (Intracellular) staining using rabbit Anti-PCNA antibody

Overlay histogram showing HeLa cells stained with ab18197 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween 20 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 (ab18197, 0.05µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150081) at 1/4000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (polyclonal) (ab171870, 0.05µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control.
Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.

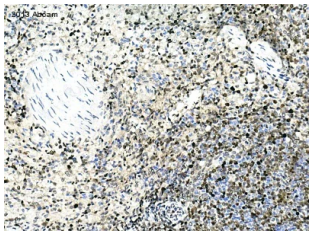


Image courtesy of Carl Hobbs, King College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

ab18197 staining PCNA in tissue sections of the cow spleen by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/4000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.

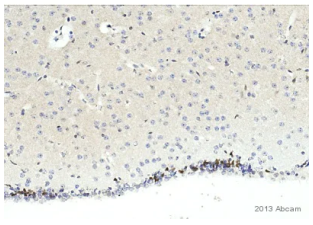


Image courtesy of Carl Hobbs, Kings College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

PCNA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCNA antibody

ab18197 staining PCNA in tissue sections of the mouse brain by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/6000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.

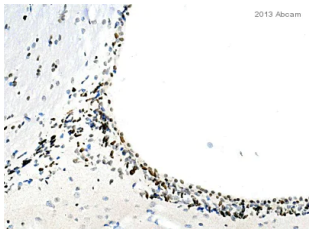


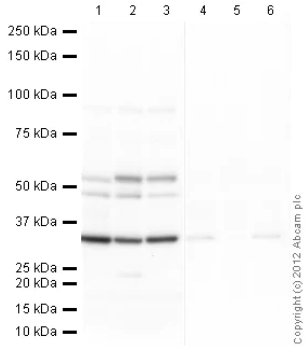
Image courtesy of Carl Hobbs, Kings College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

PCNA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCNA antibody

ab18197 staining PCNA in tissue sections of the rat brain by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at

21°C followed by incubation with the primary antibody for 2 hours at 1/10000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.



Western blot - Anti-PCNA antibody (ab18197)

All lanes:
Western blot - Anti-PCNA antibody (ab18197) at 1 µg/mL

Lane 1:
HEK293 (Human embryonic kidney cell line) Whole Cell Lysate at 20 µg

Lane 2:
NIH 3T3 (Mouse embryonic fibroblast cell line) Whole Cell Lysate at 20 µg

Lane 3:
PC12 (Rat adrenal pheochromocytoma cell line) Whole Cell Lysate at 20 µg

Lane 4:
HEK293 (Human embryonic kidney cell line) Whole Cell Lysate at 20 µg with Human PCNA peptide (ab18602)

Lane 5:
NIH 3T3 (Mouse embryonic fibroblast cell line) Whole Cell Lysate at 20 µg with Human PCNA peptide (ab18602)

Lane 6:
PC12 (Rat adrenal pheochromocytoma cell line) Whole Cell Lysate at 20 µg with Human PCNA peptide (ab18602)

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) preadsorbed (ab97080) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 29 kDa

Observed band size: 29 kDa, 48 kDa, 52 kDa

Exposure time: 1min

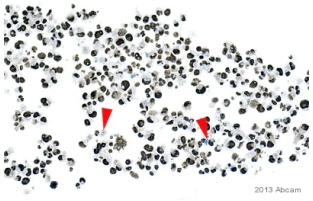


Image Courtesy of Carl Hobbs, Kings College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

PCNA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCNA antibody

ab18197 staining PCNA in monkey COS cell pellet by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/4000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.

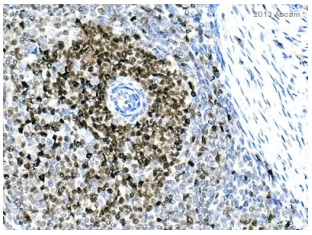


Image courtesy of Carl Hobbs, Kings College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

PCNA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCNA antibody

ab18197 staining PCNA in tissue sections of the goat spleen by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/4000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.

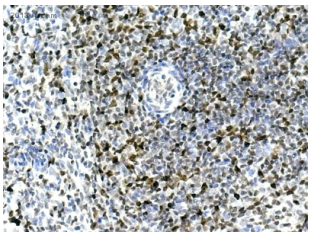
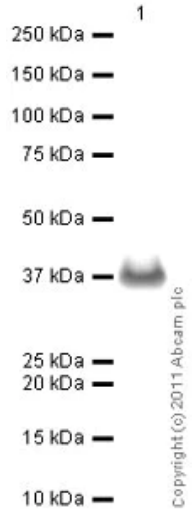


Image courtesy of Carl Hobbs, King College London, U.K.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PCNA antibody (ab18197)

PCNA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PCNA antibody

ab18197 staining PCNA in tissue sections of the sheep spleen by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed. Samples were then blocked with 1% B.S.A. for 10 minutes at 21°C followed by incubation with the primary antibody for 2 hours at 1/6000. A biotin-conjugated goat anti-rabbit polyclonal was used as secondary antibody at a 1/250 dilution.



Western blot - Anti-PCNA antibody (ab18197)

All lanes:
Western blot - Anti-PCNA antibody (ab18197) at 1 µg/mL

All lanes:
Western blot - Recombinant Human PCNA protein (ab85651) at 0.01 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) preadsorbed (ab97080) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 29 kDa

Exposure time: 10s



Western blot - Anti-PCNA antibody (ab18197)

All lanes:
Western blot - Anti-PCNA antibody (ab18197) at 1 µg/mL

All lanes:
Western blot - Recombinant Human PCNA protein (ab85651) at 0.01 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) preadsorbed (ab97080) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 29 kDa

Exposure time: 10s

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