abcam

ab249852

Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free

Recombinant RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR12722(B)
Purification technique	Affinity purification Protein A
Specificity	The human recommendation is based on the WB results. We do not guarantee IHC-P for human.
Concentration	1.036 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.

Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	The human recommendation is based on the WB results. We do not guarantee IHC-P for human.

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information POLB

Function

Repair polymerase that plays a key role in base-excision repair (PubMed:10556592, PubMed:9207062, PubMed:9572863). During this process, the damaged base is excised by specific DNA glycosylases, the DNA backbone is nicked at the abasic site by an apurinic/apyrimidic (AP) endonuclease, and POLB removes 5'-deoxyribose-phosphate from the preincised AP site acting as a 5'-deoxyribose-phosphate lyase (5'-dRP lyase); through its DNA polymerase activity, it adds one nucleotide to the 3' end of the arising single-nucleotide gap (PubMed:10556592, PubMed:17526740, PubMed:9556598, PubMed:9572863, PubMed:9614142). Conducts 'gap-filling' DNA synthesis in a stepwise distributive fashion rather than in a processive fashion as for other DNA polymerases. It is also able to cleave sugar-phosphate bonds 3' to an intact AP site, acting as an AP lyase (PubMed:9614142).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab249852 is the carrier-free version of ab175197.
We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	DNA polymerase beta often abbreviated as pol β serves as a repair enzyme that plays a role in the base excision repair (BER) pathway. This protein's mechanical function involves filling small gaps in the DNA created during repair processes by adding nucleotides. Its molecular weight is approximately 39 kDa. DNA polymerase beta is expressed extensively in the brain liver and testis indicating its importance in DNA repair in various cells. Other names for this protein include DNA pol beta and pol β. It synthesizes DNA using deoxyribonucleotide triphosphates as substrates and requires magnesium ions for activity.
Biological function summary	DNA polymerase beta helps to maintain genome integrity by repairing DNA lesions caused by oxidation alkylation or deamination. This protein often collaborates with other components of the DNA repair pathways but it does not directly form a larger protein complex focusing instead on its important function in BER. When DNA damage like single-strand breaks occur pol β carries out important gap-filling synthesis steps preparing the strand for subsequent ligation.
Pathways	DNA polymerase beta functions critically in base excision repair and acts alongside other important proteins like XRCC1. The BER pathway operates to correct DNA damage from endogenous sources preventing harmful mutations. This pathway is essential for maintaining cellular stability and protecting cells from apoptosis or malignant transformation that might occur if DNA damage propagates.
Associated diseases and disorders	Mutations or dysfunctional activity within DNA polymerase beta have links to cancer and neurodegenerative diseases. For example errors in pol β's repair functions can lead to the persistence of DNA damage which can contribute to tumorigenesis. Furthermore its relationship with beta-actin has implications in

cellular structural integrity and cancer metastasis. Dysfunctions within the BER pathway indicate potential contributions to neurodegenerative disorders where an accumulation of DNA damage is a common feature.

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

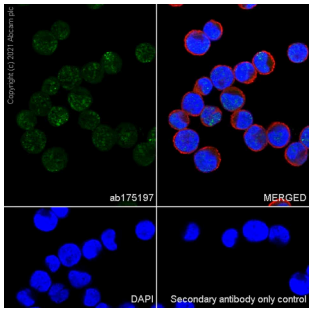
We do not recommend this combination. It is not covered by our product promise.

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.

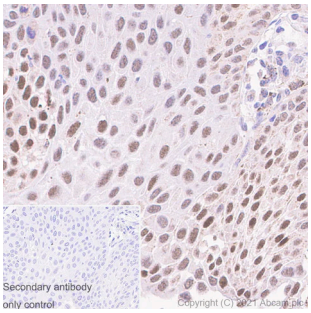
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free (ab249852)

DNA Polymerase beta Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DNA Polymerase beta antibody

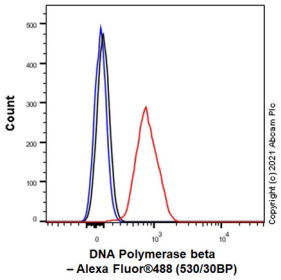
This data was developed using ab175197, the same antibody clone in a different buffer formulation.
Immunocytochemistry analysis of K-562 (Human chronic myelogenous leukemia lymphoblast) cells labeling DNA Polymerase beta with Purified ab175197 at 1:50 dilution (3.1 µg/ml). Cells were fixed in 100% Methanol and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free (ab249852)

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

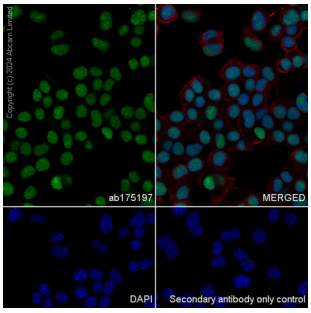
This data was developed using ab249852, the same antibody clone in a different buffer formulation.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human lung carcinoma tissue sections labeling DNA Polymerase beta with Purified ab249852 at 1:500 dilution (0.31 µg/ml). Heat mediated antigen retrieval was performed using Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0) . Tissue was counterstained with Hematoxylin. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) secondary antibody was used. PBS instead of the primary antibody was used as the negative control. M3



Flow Cytometry - Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free (ab249852)

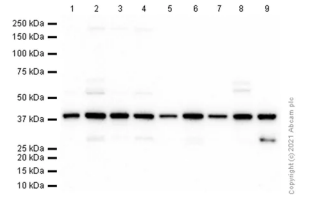
DNA Polymerase beta Flow Cytometry staining using rabbit Anti-DNA Polymerase beta antibody

This data was developed using ab249852, the same antibody clone in a different buffer formulation.
Flow Cytometry analysis of A431 (Human epidermoid carcinoma epithelial cell) cells labelling DNA Polymerase beta with Purified ab249852 at 1:200 dilution (1 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor™ 488, ab150077) secondary antibody was used at 1:2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabelled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free (ab249852)

This data was developed using ab175197, the same antibody clone in a different buffer formulation. Immunocytochemistry analysis of Neuro-2a (mouse neuroblastoma neuroblast) cells labeling DNA Polymerase beta with ab175197 at 1/50 dilution (1.57 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Confocal image showing nuclear staining in Neuro-2a cell line (shown in green). The counterstain was observed in red. Nuclear DNA was labelled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Western blot - Anti-DNA Polymerase beta antibody [EPR12722(B)] - BSA and Azide free (ab249852)

All lanes:
Western blot - Anti-DNA Polymerase beta antibody [EPR12722(B)] (ab175197) at 1/1000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Jurkat (Human T cell leukemia T lymphocyte) whole cell lysate at 20 µg

Lane 3:
K-562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

Lane 4:
A431 (Human epidermoid carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 5:
Mouse brain lysate at 20 µg

Lane 6:
Mouse spleen lysate at 20 µg

Lane 7:
Rat brain lysate at 20 µg

Lane 8:
Rat spleen lysate

Lane 9:
C6 (Rat glial tumor glial cell) whole cell lysate

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 38 kDa

Observed band size: 38 kDa

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