abcam

ab309921

Alexa Fluor® 488 Anti-DNA Polymerase beta antibody [EPR12722(B)]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
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

Reactivity data

Target Binding Affinity

Expected

Species	Human, Mouse

Dilution info	Use at an assay dependent concentration.
Notes	-

Antibody Labelling

Expected

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

Flow Cyt

Expected

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

ICC/IF

Expected

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

IHC-P

Expected

Species	Human, Mouse
Dilution info	Use at an assay dependent concentration.
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 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, Store in the dark

Notes

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.

How are conjugated primary antibodies validated?
This conjugated primary antibody is released using a quantitative quality control method that evaluates binding affinity post-conjugation and efficiency of antibody labeling.
For suitable applications and species reactivity, please refer to the unconjugated version of this clone.

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.

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.

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