SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol β (D-11): sc-376581

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA replication, recombination and repair, all of which are necessary for genomic stability, require the presence of exonucleases. In DNA replication, these enzymes are involved in the processing of Okazaki fragments, whereas in DNA repair, they function to excise damaged DNA fragments and correct recombinational mismatches. These exonucleases include the family of DNA polymerases. DNA pol α, β, δ, and ε are involved in DNA replication and repair. DNA pol δ and DNA pol ε are multisubunit enzymes, with DNA pol δ consisting of two subunits p125, which interacts with the sliding DNA clamp protein PCNA, and p50. The nuclear-encoded DNA pol γ is the only DNA polymerase required for the replication of the mitochondrial DNA. DNA pol ζ is ubiquitously expressed in various tissues and mediates the cellular mechanism of damage-induced mutagenesis. DNA pol θ is a DNA polymerase-helicase that binds ATP and is involved in the repair of interstrand crosslinks.

REFERENCES

1. Bambara, R.A., et al. 1991. Properties of DNA polymerases δ and ε, and their roles in eukaryotic DNA replication. Biochim. Biophys. Acta 1088: 11-24.
2. Li, J.J., et al. 1992. DNA replication. Eukaryotic initiation rites. Nature 357: 114-115.

CHROMOSOMAL LOCATION

Genetic locus: POLB (human) mapping to 8p11.21; Polb (mouse) mapping to 8 A2.

SOURCE

DNA pol β (D-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 193-227 near the C-terminus of DNA pol β of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DNA pol β (D-11) is available conjugated to agarose (sc-376581 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376581 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376581 PE), fluorescein (sc-376581 FITC), Alexa Fluor® 488 (sc-376581 AF488), Alexa Fluor® 546 (sc-376581 AF546), Alexa Fluor® 594 (sc-376581 AF594) or Alexa Fluor® 647 (sc-376581 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376581 AF680) or Alexa Fluor® 790 (sc-376581 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376581 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

DNA pol β (D-11) is recommended for detection of DNA pol β of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

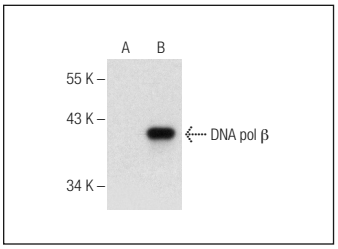
DNA pol β (D-11) is also recommended for detection of DNA pol β in additional species, including equine, canine and bovine.

Suitable for use as control antibody for DNA pol β siRNA (h): sc-37773, DNA pol β siRNA (m): sc-37774, DNA pol β shRNA Plasmid (h): sc-37773-SH, DNA pol β shRNA Plasmid (m): sc-37774-SH, DNA pol β shRNA (h) Lentiviral Particles: sc-37773-V and DNA pol β shRNA (m) Lentiviral Particles: sc-37774-V.

Molecular Weight of DNA pol β: 39 kDa.

Positive Controls: DNA pol β (h): 293T Lysate: sc-111735, A-431 nuclear extract: sc-2122 or Jurkat nuclear extract: sc-2132.

DATA



DNA pol β (D-11): sc-376581. Western blot analysis of DNA pol β expression in non-transfected: sc-117752 (**A**) and human DNA pol β transfected: sc-111735 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hembram, K.C., et al. 2019. Comparative and mechanistic study on the anticancer activity of quinacrine-based silver and gold hybrid nanoparticles in head and neck cancer. Mol. Pharm. 16: 3011-3023.
2. Sengupta, S., et al. 2020. Ligand-induced gene activation is associated with oxidative genome damage whose repair is required for transcription. Proc. Natl. Acad. Sci. USA 117: 22183-22192.
3. Molla, S., et al. 2021. Olaparib enhances curcumin-mediated apoptosis in oral cancer cells by inducing PARP trapping through modulation of BER and chromatin assembly. DNA Repair 105: 103157.
4. Sinha, S., et al. 2022. Olaparib enhances the resveratrol-mediated apoptosis in breast cancer cells by inhibiting the homologous recombination repair pathway. Exp. Cell Res. 420: 113338.

RESEARCH USE

For research use only, not for use in diagnostic procedures.