

DNA pol δ 2 (D-7): sc-390583

BACKGROUND

DNA replication, recombination and repair, all of which are necessary for genome 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. Exonucleases involved in these processes include DNA polymerases, including DNA pol δ and ϵ . DNA pol δ consists of two subunits, p125 which interacts directly with the sliding DNA clamp protein PCNA, and p50. DNA pol δ can be regulated by cell cycle proteins. DNA pol ϵ is a multiple subunit enzyme, the catalytic subunit of which is encoded by the POL2 gene. The exact reactions catalyzed by DNA pol δ and ϵ on leading and lagging strands have not yet been elucidated.

REFERENCES

- Lee, M.Y., et al. 1984. Further studies on calf thymus DNA polymerase δ purified to homogeneity by a new procedure. *Biochemistry* 23: 1906-1913.
- Hamatake, R.K., et al. 1990. Purification and characterization of DNA polymerase II from the yeast *Saccharomyces cerevisiae*. Identification of the catalytic core and a possible holoenzyme form of the enzyme. *J. Biol. Chem.* 265: 4072-4083.
- Goulian, M., et al. 1990. Discontinuous DNA synthesis by purified mammalian proteins. *J. Biol. Chem.* 265: 18461-18471.

CHROMOSOMAL LOCATION

Genetic locus: POLD2 (human) mapping to 7p13.

SOURCE

DNA pol δ 2 (D-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 448-473 of DNA pol δ ss of human origin.

PRODUCT

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

DNA pol δ 2 (D-7) is available conjugated to agarose (sc-390583 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390583 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390583 PE), fluorescein (sc-390583 FITC), Alexa Fluor[®] 488 (sc-390583 AF488), Alexa Fluor[®] 546 (sc-390583 AF546), Alexa Fluor[®] 594 (sc-390583 AF594) or Alexa Fluor[®] 647 (sc-390583 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-390583 AF680) or Alexa Fluor[®] 790 (sc-390583 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-390583 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor[®] is a trademark of Molecular Probes, Inc., Oregon, USA

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 δ 2 (D-7) is recommended for detection of DNA pol δ 2 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DNA pol δ 2 siRNA (h): sc-37783, DNA pol δ 2 shRNA Plasmid (h): sc-37783-SH and DNA pol δ 2 shRNA (h) Lentiviral Particles: sc-37783-V.

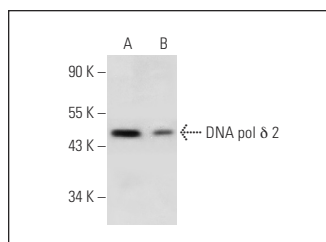
Molecular Weight of DNA pol δ 2: 50 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Jurkat nuclear extract: sc-2132.

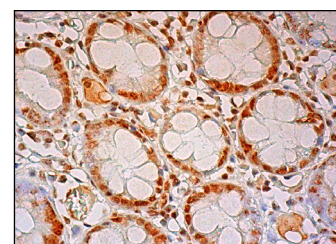
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



DNA pol δ 2 (D-7): sc-390583. Western blot analysis of DNA pol δ 2 expression in HeLa whole cell lysate (A) and Jurkat nuclear extract (B).



DNA pol δ 2 (D-7): sc-390583. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing nuclear staining of glandular cells and endothelial cells.

SELECT PRODUCT CITATIONS

- Layer, J.V., et al. 2020. Polymerase δ promotes chromosomal rearrangements and imprecise double-strand break repair. *Proc. Natl. Acad. Sci. USA* 117: 27566-27577.
- Zhang, Z. 2022. POLD2 is activated by E2F1 to promote triple-negative breast cancer proliferation. *Front. Oncol.* 12: 981329.

RESEARCH USE

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