SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol δ cat (E-3): sc-55499

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Lee, M.Y., Tan, C.K., Downey, K.M. and So, A.G. 1984. Further studies on calf thymus DNA polymerase δ purified to homogeneity by a new procedure. Biochemistry 23: 1906-1913.
2. Hamatake, R.K., Hasegawa, H., Clark, A.B., Bebenek, K., Kunkel, T.A. and Sugino, A. 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.
3. Goulian, M., Richards, S.H., Heard, C.J. and Bigsby, B.M. 1990. Discontinuous DNA synthesis by purified mammalian proteins. J. Biol. Chem. 265: 18461-18471.
4. Morrison, A., Araki, H., Clark, A.B., Hamatake, R.K. and Sugino, A. 1990. A third essential DNA polymerase in *S. cerevisiae*. Cell 62: 1143-1151.
5. Zeng, X.R., Hao, H., Jiang, Y. and Lee, M.Y. 1994. Regulation of human DNA polymerase δ during the cell cycle. J. Biol. Chem. 269: 24027-24033.
6. Johnson, R.E., Kovvali, G.K., Prakash, L. and Prakash, S. 1995. Requirement of the yeast RTH1 5' to 3' exonuclease for the stability of simple repetitive DNA. Science 269: 238-240.

CHROMOSOMAL LOCATION

Genetic locus: POLD1 (human) mapping to 19q13.33.

SOURCE

DNA pol δ cat (E-3) is a mouse monoclonal antibody raised against amino acids 1-300 of DNA pol δ cat 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.

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 cat (E-3) is recommended for detection of DNA pol δ cat human origin by Western Blotting (starting dilution 1:200, 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).

Suitable for use as control antibody for DNA pol δ cat siRNA (h): sc-37777, DNA pol δ cat shRNA Plasmid (h): sc-37777-SH and DNA pol δ cat shRNA (h) Lentiviral Particles: sc-37777-V.

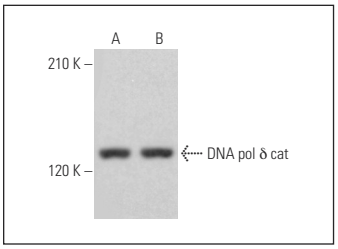
Molecular Weight of DNA pol δ cat: 125 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

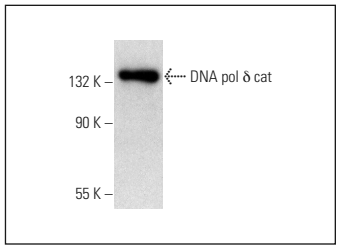
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



DNA pol δ cat (E-3): sc-55499. Western blot analysis of DNA pol δ cat expression in HL-60 (**A**) and K-562 (**B**) whole cell lysates.



DNA pol δ cat (E-3): sc-55499. Western blot analysis of DNA pol δ cat expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Li, B., Reddy, S. and Comai, L. 2017. The werner syndrome helicase coordinates sequential strand displacement and FEN1-mediated flap cleavage during polymerase δ elongation. Mol. Cell. Biol. 37 pii: e00560-16.
2. Kumar, A., Priya, A., Ahmed, T., Grundström, C., Negi, N. and Grundström, T. 2018. Regulation of the DNA repair complex during somatic hypermutation and class-switch recombination. J. Immunol. 200: 4146-4156.

RESEARCH USE

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