SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol ε A (D-10): sc-390785

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., et al. 1984. Further studies on calf thymus DNA polymerase δ purified to homogeneity by a new procedure. Biochemistry 23: 1906-1913.
2. 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.
3. Goulian, M., et al. 1990. Discontinuous DNA synthesis by purified mammalian proteins. J. Biol. Chem. 265: 18461-18471.
4. Morrison, A., et al. 1990. A third essential DNA polymerase in *S. cerevisiae*. Cell 62: 1143-1151.
5. Zeng, X.R., et al. 1994. Regulation of human DNA polymerase δ during the cell cycle. J. Biol. Chem. 269: 24027-24033.
6. Johnson, R.E., et al. 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: POLE (human) mapping to 12q24.33; Pole (mouse) mapping to 5 F.

SOURCE

DNA pol ε A (D-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of DNA pol ε A 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 ε A (D-10) is available conjugated to agarose (sc-390785 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390785 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390785 PE), fluorescein (sc-390785 FITC), Alexa Fluor® 488 (sc-390785 AF488), Alexa Fluor® 546 (sc-390785 AF546), Alexa Fluor® 594 (sc-390785 AF594) or Alexa Fluor® 647 (sc-390785 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390785 AF680) or Alexa Fluor® 790 (sc-390785 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

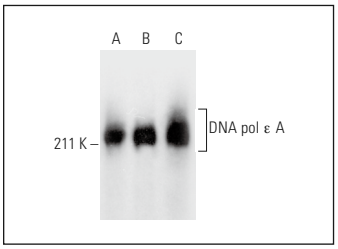
DNA pol ε A (D-10) is recommended for detection of DNA pol ε A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DNA pol ε A siRNA (h): sc-43728, DNA pol ε A siRNA (m): sc-45512, DNA pol e A shRNA Plasmid (h): sc-43728-SH, DNA pol ε A shRNA Plasmid (m): sc-45512-SH, DNA pol ε A shRNA (h) Lentiviral Particles: sc-43728-V and DNA pol ε A shRNA (m) Lentiviral Particles: sc-45512-V.

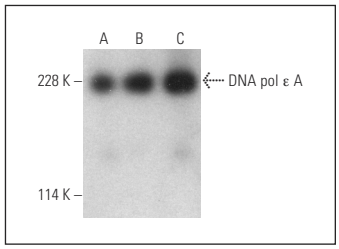
Molecular Weight of DNA pol ε A: 220 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, K-562 nuclear extract: sc-2130 or HeLa nuclear extract: sc-2120.

DATA



DNA pol ε A (D-10): sc-390785. Western blot analysis of DNA pol ε A expression in Jurkat (**A**), K-562 (**B**) and HeLa (**C**) nuclear extracts.



DNA pol ε A (D-10) HRP: sc-390785 HRP. Direct western blot analysis of DNA pol ε A expression in Jurkat (**A**), K-562 (**B**) and HeLa (**C**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Fan, Y., et al. 2021. LRR1-mediated replisome disassembly promotes DNA replication by recycling replisome components. J. Cell Biol. 220: e202009147.
2. Vipat, S., et al. 2022. The non-catalytic role of DNA polymerase ε in replication initiation in human cells. Nat. Commun. 13: 7099.
3. Lin, C.C., et al. 2024. PRMT5 is an actionable therapeutic target in CDK4/6 inhibitor-resistant ER+/RB-deficient breast cancer. Nat. Commun. 15: 2287.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.