SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol ε B (C-9): sc-398582

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.

CHROMOSOMAL LOCATION

Genetic locus: POLE2 (human) mapping to 14q21.3; Pole2 (mouse) mapping to 12 C2.

SOURCE

DNA pol ε B (C-9) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of DNA pol ε B of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DNA pol ε B (C-9) is available conjugated to agarose (sc-398582 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398582 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398582 PE), fluorescein (sc-398582 FITC), Alexa Fluor® 488 (sc-398582 AF488), Alexa Fluor® 546 (sc-398582 AF546), Alexa Fluor® 594 (sc-398582 AF594) or Alexa Fluor® 647 (sc-398582 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398582 AF680) or Alexa Fluor® 790 (sc-398582 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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 ε B (C-9) is recommended for detection of DNA pol ε B 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 B siRNA (h): sc-37781, DNA pol ε B siRNA (m): sc-37782, DNA pol ε B shRNA Plasmid (h): sc-37781-SH, DNA pol ε B shRNA Plasmid (m): sc-37782-SH, DNA pol ε B shRNA (h) Lentiviral Particles: sc-37781-V and DNA pol ε B shRNA (m) Lentiviral Particles: sc-37782-V.

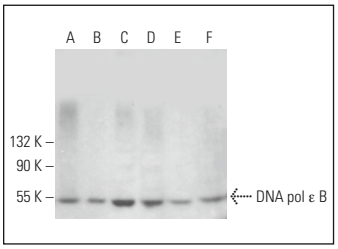
Molecular Weight of DNA pol ε B: 59 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, HeLa whole cell lysate: sc-2200 or RAW 264.7 whole cell lysate: sc-2211.

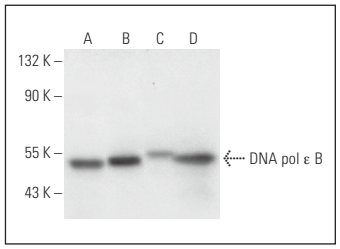
RECOMMENDED SUPPORT REAGENTS

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 ε B (C-9): sc-398582. Western blot analysis of DNA pol ε B expression in HeLa (**A**), SK-N-MC (**B**) and NIH/3T3 (**C**) nuclear extracts and HeLa (**D**), EOC 20 (**E**) and 3611-RF (**F**) whole cell lysates.



DNA pol ε B (C-9): sc-398582. Western blot analysis of DNA pol ε B expression in SK-N-SH (**A**), HeLa (**B**), PC-12 (**C**) and RAW 264.7 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhang, M., et al. 2019. Mammalian CST averts replication failure by preventing G-quadruplex accumulation. Nucleic Acids Res. 47: 5243-5259.
2. Vipat, S., et al. 2022. The non-catalytic role of DNA polymerase ε in replication initiation in human cells. Nat. Commun. 13: 7099.

RESEARCH USE

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