SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol α (D-7): sc-137021

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. and Jessee, C.B. 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. and Alberts, B.M. 1992. DNA replication. Eukaryotic initiation rites. Nature 357: 114-115.
3. Ropp, P.A. and Copeland, W.C. 1996. Cloning and characterization of the human mitochondrial DNA polymerase, DNA polymerase γ. Genomics 36: 449-458.
4. Kolodner, R.D. and Marsischky, G.T. 1999. Eukaryotic DNA mismatch repair. Curr. Opin. Genet. Dev. 9: 89-96.
5. Diede, S.J. and Gottschling, D.E. 1999. Telomerase-mediated telomere addition *in vivo* requires DNA primase and DNA polymerases α and δ. Cell 99: 723-733.

CHROMOSOMAL LOCATION

Genetic locus: POLA1 (human) mapping to Xp22.11; Pola1 (mouse) mapping to X C3.

SOURCE

DNA pol α (D-7) is a mouse monoclonal antibody raised against amino acids 1211-1440 mapping near the C-terminus of DNA pol α 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 α (D-7) is available conjugated to agarose (sc-137021 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-137021 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137021 PE), fluorescein (sc-137021 FITC), Alexa Fluor® 488 (sc-137021 AF488), Alexa Fluor® 546 (sc-137021 AF546), Alexa Fluor® 594 (sc-137021 AF594) or Alexa Fluor® 647 (sc-137021 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137021 AF680) or Alexa Fluor® 790 (sc-137021 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

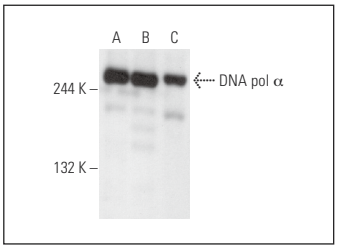
DNA pol α (D-7) is recommended for detection of DNA pol α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 α siRNA (h): sc-37771, DNA pol α siRNA (m): sc-37772, DNA pol α shRNA Plasmid (h): sc-37771-SH, DNA pol α shRNA Plasmid (m): sc-37772-SH, DNA pol α shRNA (h) Lentiviral Particles: sc-37771-V and DNA pol α shRNA (m) Lentiviral Particles: sc-37772-V.

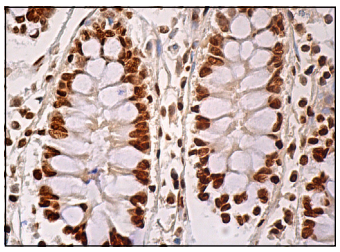
Molecular Weight of DNA pol α: 180 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, KNRK nuclear extract: sc-2141 or K-562 nuclear extract: sc-2130.

DATA



DNA pol α (D-7): sc-137021. Western blot analysis of DNA pol α expression in K-562 (**A**), Jurkat (**B**) and KNRK (**C**) nuclear extracts.



DNA pol α (D-7): sc-137021. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Wang, C., et al. 2015. Establishment of human pancreatic cancer gemcitabine-resistant cell line with ribonucleotide reductase overexpression. Oncol. Rep. 33: 383-390.
2. Mirman, Z., et al. 2018. 53BP1-RIF1-shieldin counteracts DSB resection through CST- and Polα-dependent fill-in. Nature 560: 112-116.

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.