SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol μ (C-1): sc-515349

BACKGROUND

DNA polymerase μ shares a number of characteristics with DNA polymerase β as well as with terminal deoxynucleotideyltransferase. Pol μ purportedly plays a role in microhomology mediated joining and the repair of double-stranded breaks. However, unlike other DNA polymerases, which show substrate specificity for deoxynucleotides, DNA Pol μ incorporates both deoxynucleotides and ribonucleotides in a template-directed manner. This unusual capability implies a novel role for this polymerase in DNA repair.

REFERENCES

1. Chiu, A., et al. 2002. DNA polymerase μ gene expression in B-cell non-Hodgkin's lymphomas: an analysis utilizing *in situ* hybridization. Am. J. Pathol. 161: 1349-1355.
2. Zhang, Y., et al. 2002. Lesion bypass activities of human DNA polymerase μ. J. Biol. Chem. 277: 44582-44587.
3. Mahajan, K.N., et al. 2002. Association of DNA polymerase μ (pol μ) with Ku and ligase IV: role for pol μ in end-joining double-strand break repair. Mol. Cell. Biol. 22: 5194-5202.
4. Havener, J.M., et al. 2003. Translesion synthesis past platinum DNA adducts by human DNA polymerase μ. Biochemistry 42: 1777-1788.
5. Nick McElhinny, S.A., et al. 2003. Polymerase μ is a DNA-directed DNA/RNA polymerase. Mol. Cell. Biol. 23: 2309-2315.
6. Ruiz, J.F., et al. 2004. Overexpression of human DNA polymerase μ (Pol μ) in a Burkitt's lymphoma cell line affects the somatic hypermutation rate. Nucleic Acids Res. 32: 5861-5873.
7. Washington, M.T., et al. 2004. Efficient and error-free replication past a minor-groove DNA adduct by the sequential action of human DNA polymerases ι and κ. Mol. Cell. Biol. 24: 5687-5693.
8. Covo, S., et al. 2004. Lesion bypass by human DNA polymerase μ reveals a template-dependent, sequence-independent nucleotidyl transferase activity. J. Biol. Chem. 279: 859-865.

CHROMOSOMAL LOCATION

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

SOURCE

DNA pol μ (C-1) is a mouse monoclonal antibody raised against amino acids 245-320 mapping within an internal region of DNA pol μ 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.

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 μ (C-1) is recommended for detection of DNA pol μ of 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).

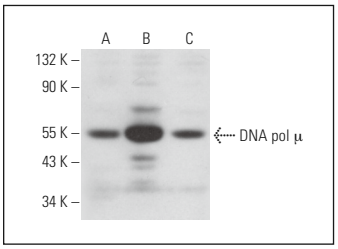
Suitable for use as control antibody for DNA pol μ siRNA (h): sc-105304, DNA pol μ shRNA Plasmid (h): sc-105304-SH and DNA pol μ shRNA (h) Lentiviral Particles: sc-105304-V.

Positive Controls: HeLa nuclear extract: sc-2120, Jurkat nuclear extract: sc-2132 or A-431 nuclear extract: sc-2122.

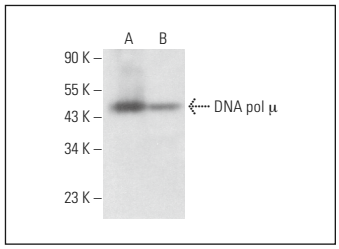
RECOMMENDED SUPPORT REAGENTS

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 μ (C-1): sc-515349. Western blot analysis of DNA pol μ expression in A-431 (**A**), Jurkat (**B**) and HeLa (**C**) nuclear extracts.



DNA pol μ (C-1): sc-515349. Western blot analysis of DNA pol μ expression in Jurkat nuclear extract (**A**) and JAR whole cell lysate (**B**).

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.