SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol ι (M-14): sc-14255

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA polymerase activity is essential for replication, repair, recombination and mutagenesis. DNA polymerases can often bypass DNA lesions that block DNA replication, thereby allowing the replication of damaged DNA. One such DNA polymerase is the distributive enzyme DNA pol ι (pol iota), which is encoded by the POLI gene. POLI is located on human chromosome 18q21.2, a region often implicated in the etiology of many human cancers. At thymine templates, DNA Pol ι is highly error-prone when replicating undamaged DNA in that it favors the misincorporation of guanine over the correct nucleotide, adenosine. DNA Pol ι also promotes the replication of damaged DNA by misincorporating deoxynucleotides opposite DNA lesions. DNA Pol ι acts sequentially with DNA Pol ζ, which is essential for damage-induced mutagenesis, to complete the DNA lesion bypass. Therefore, replication involving DNA Pol ι is likely to be highly mutagenic.

REFERENCES

1. Johnson, R.E., Washington, M.T., Haracska, L., Prakash, S. and Prakash, L. 2000. Eukaryotic polymerase ι and ζ act sequentially to bypass DNA lesions. Nature 406: 1015-1019.
2. Tissier, A., Frank, E.G., McDonald, J.P., Iwai, S., Hanaoka, F. and Woodgate, R. 2000. Misinsertion and bypass of thymine-thymine dimers by human DNA polymerase ι. EMBO J. 19: 5259-5266.
3. Tissier, A., McDonald, J.P, Frank, E.G. and Woodgate, R. 2000. Novel human and mouse homologs of *Saccharomyces cerevisiae* DNA polymerase η. Genomics 60: 20-30.
4. Tissier, A., McDonald, J.P., Frank, E.G. and Woodgate, R. 2000. pol ι, a remarkably error-prone human DNA polymerase. Genes Dev. 14: 1642-1650.
5. Zhang, Y., Yuan, F., Wu, X. and Wang, Z. 2000. Preferential incorporation of G opposite template T by the low-fidelity human DNA polymerase ι. Mol. Cell. Biol. 20: 7099-7108.

CHROMOSOMAL LOCATION

Genetic locus: Poli (mouse) mapping to 18 E2.

SOURCE

DNA pol i (M-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of DNA pol ι of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14255 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

DNA pol ι (M-14) is recommended for detection of DNA pol ι of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 î siRNA (m): sc-37786, DNA pol î shRNA Plasmid (m): sc-37786-SH and DNA pol î shRNA (m) Lentiviral Particles: sc-37786-V.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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