



## Human DNA Polymerase b Catalog #: 4020-01K-EB

### Contents:

4020-500-01 Human DNA Polymerase b **Size:** 2 X 500 Units  
3900-200-08 10X RECTM Buffer 8 5 X 1 ml

### Description:

Human DNA Polymerase b is constitutively expressed in cells and functions by filling in gaps in DNA that are formed following base excision repair. The activity of DNA Polymerase b is not affected by aphidicolin, an inhibitor of DNA polymerases a, d, and e.

**Source:** Purified from *E. coli* containing a recombinant plasmid harboring the human DNA polymerase b gene.

### Unit Definition:

One Unit is the amount of enzyme required to catalyze the incorporation of 1 nmole of dNTP into an acid-insoluble form in 1 hour at 37°C.

### Specificity:

The enzyme can fill small gaps (up to 6 nucleotides) and nicks in DNA, catalyze DNA synthesis after nucleotide excision repair, and release 5'-terminal deoxyribose phosphate residues from incised AP sites.

### Assay Conditions:

1X REC Buffer 8 (50 mM Tris-Cl (pH 8.8), 10 mM MgCl<sub>2</sub>, 10 mM KCl, 1.0 mM DTT, 1% glycerol), 50 μM dCTP, 50 μM dGTP, 50 μM dATP, 50 μM α-<sup>32</sup>P-dTTP, and 100 μg/ml of Activated DNA (Cat# 4667-50-06) in a reaction volume of 100 μl are incubated for 5 min at 37°C.

### Storage Buffer:

20 mM Tris-Cl (pH 7.8), 1.0 mM DTT, 1 mM EDTA, 100 mM NaCl, and 50% (v/v) glycerol.

### Storage Conditions:

Store at -20°C in a manual defrost freezer.

### References:

1. Matsumoto, Y. and K. Kim. 1995. Excision of deoxyribose phosphate residues by DNA polymerase b during DNA repair. *Science* **269**:699-702.

2. Kunkel, T.A. and P.S. Alexander. 1986. The base substitution fidelity of eukaryotic DNA polymerases. *J Biol Chem* **261**:160-166.
3. Jenkins, T.M., J.K. Saxena, A. Kumar, S.H. Wilson, and E.J. Ackerman. 1992. DNA polymerase  $\beta$  and DNA synthesis in *Xenopus* oocytes and in a nuclear extract. *Science* **258**:475-478.
4. Vens C, E. Dahmen-Mooren, M. Verwijs-Janssen, W. Blyweert, L. Graversen, H. Bartelink, A.C. Begg. 2002. The role of DNA polymerase  $\beta$  in determining sensitivity to ionizing radiation in human tumor cells. *Nucleic Acids Res.* **30**:2995-3004.
5. Bergoglio V, M.J. Pillaire, M. Lacroix-Triki, B. Raynaud-Messina, Y. Canitrot, A. Bieth, M. Gares, M. Wright, G. Delsol, L.A. Loeb, C. Cazaux, J.S. Hoffmann. 2002. Deregulated DNA polymerase  $\beta$  induces chromosome instability and tumorigenesis. *Cancer Res.* **62**:3511-4.
6. Kedar P.S., S.J. Kim, A. Robertson, E. Hou, R. Prasad, J.K. Horton, S.H. Wilson. 2002. Direct interaction between mammalian DNA polymerase  $\beta$  and proliferating cell nuclear antigen. *J Biol Chem.* **277**:31115-23.

GENTAUR