

## DNA polymerase kappa, functional

<b>Product code</b>	10-105
<b>Size</b>	50 µg
<b>Storage</b>	-80°C. Avoid freeze-thaw cycles.
<b>Product Description</b>	This product was over-expressed as a recombinant protein in <i>E. coli</i> with a plasmid carrying a C-terminal histidine-tagged human <b>DNA polymerase K</b> (1-560 aa), and highly purified by several steps of chromatography (2). The product is catalytically active and its molecular weight is 65 kD (Fig 1). Activity of this product has been confirmed by a user researcher even if it was diluted 8,000-fold.
<b>Concentration</b>	1.0 mg/ml as measured by BCA method
<b>Buffer</b>	50% glycerol, 10 mM sodium phosphate buffer (pH 7.0), 0.2 M NaCl
<b>Purity</b>	Over 90% by SDS-PAGE (CBB staining)
<b>Application</b>	1. Functional studies on translesion DNA synthesis by DNA polymerase kappa 2. Antigen for western blotting and ELISA by anti-Pol kappa antibody
<b>Background</b>	Mammalian <b>DNA polymerase K</b> , a member of the UmuC/DinB nucleotidyl transferase superfamily, has been implicated in spontaneous mutagenesis (1). <b>Human DNA polymerase K</b> copies undamaged DNA with average single-base substitution and deletion error rates of $7 \times 10^{-3}$ and $2 \times 10^{-3}$ , respectively. These error rates are high when compared to those of most other DNA polymerases (2). <b>DNA polymerase K</b> has important role in the mutagenic bypass of certain types of DNA lesions (3).
<b>References</b>	This product has been used in the following publications 1. Ohashi E et al (2000) Fidelity and processivity of DNA synthesis by DNA polymerase kappa, the product of the human DINB1 gene. <i>J Biol Chem</i> <b>275</b> : 39678-39684 (2000) PMID: <a href="#">11006276</a> 2. Ohashi E et al (2000) Error-prone bypass of certain DNA lesions by the human DNA polymerase kappa” <i>Genes Dev</i> <b>14</b> : 1589-1594 (2000) PMID: <a href="#">10887153</a> 3. Jalszyński P. et al (2005) Error-prone and inefficient replication across 8-hydroxyguanine (8-oxoguanine) in human and mouse ras gene fragments by DNA polymerase kappa <i>Genes Cells</i> .10:543-50. PMID: <a href="#">15938713</a>
<b>Data Link</b>	UniProt KB <a href="#">Q9UBT6</a> (POLK_HUMAN)
Please note: All products are FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR MILITARY USE.	

**Data Images:** 10-105 DNA polymerase kappa

**Fig. 1. DNA polymerizing activity of Pol kappa (1-560 aa)**



13 25 50  
pol κ C

50 mM Tris-HCl (pH 8.0), 2 mM MgCl<sub>2</sub>, 1 mM DTT, 0.1 mg/ml BSA, 0.1 mM dNTP, 100 nM primer/template (13-mer/30-mer) DNA polymerase κ 13 - 50 ng/25 ul assay, at 37°C, 10 min (above figure)

**Fig.2 polyacrylamide gel electrophoresis of DNA polymerase K protein**

