

DNA Polymerase γ (POLG), His-FLAG-Tag Recombinant

Catalog: 21001
Lot: 230309-1

Product Information

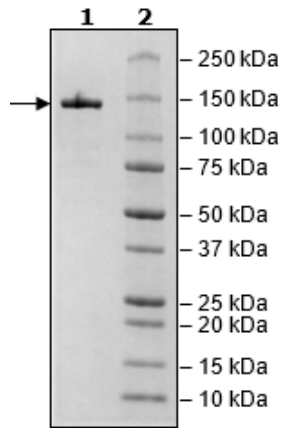
Description:	Recombinant human DNA polymerase γ (gamma), full length encompassing amino acids 2-1239 (end). This construct contains an N-terminal His-tag (6xHis) followed by a FLAG-tag. The recombinant protein was affinity purified.
Background:	Polymerases are the enzymes responsible for synthesizing nucleic acids. Polymerase γ , also known as DNA polymerase subunit gamma, POLG or POLG1, belongs to the Family A of DNA polymerases and corresponds to the catalytic subunit of the mitochondrial DNA polymerase. It works in conjunction with POLG2 to replicate mitochondrial DNA. In addition to its DNA polymerase activity, it has a 3'-5' exonuclease and a 5'dRP lyase activity for proofreading and repair. Mutations in polymerase γ cause mitochondrial dysfunction, as observed in SANDO (sensory ataxia neuropathy dysarthria and ophthalmoparesis), AHS (Alpers-Huttenlocher Syndrome) and MNGIE (mitochondrial neurogastrointestinal encephalopathy syndrome). Alternatively, the inhibition of DNA synthesis can be used as a therapeutic approach for diseases in which cell division or energetic needs are uncontrolled, such as cancer. Further studies into DNA polymerase inhibitors will bring new therapy options to cancer patients.
Species:	Human
Construct:	DNA Polymerase γ (His-FLAG-2-1239(end))
Concentration:	0.59 mg/ml
Expression System:	Sf9
Purity:	$\geq 90\%$
Format:	Aqueous buffer solution.
Formulated In:	40 mM Tris-HCl, pH 8.0, 110 mM NaCl, 2.2 mM KCl, 0.04% Tween-20, 20% glycerol, and 100 $\mu\text{g}/\text{ml}$ FLAG peptide
MW:	141 kDa
Genbank Accession:	NM_002693
Stability:	At least 6 months at -80°C .
Storage:	-80°C
Instructions for Use:	Thaw on ice and gently mix prior to use. DO NOT VORTEX. Perform a quick spin before opening. Aliquot into small volumes and flash freeze for long term storage. Avoid multiple freeze/thaw cycles.
Assay Conditions:	Assay was performed using Human DNA Polymerase Assay Kit (ProFoldin #DPB100K) and with various amounts of DNA Polymerase γ enzyme. The assay was run in 384-well format with a reaction volume of 15 μl supplemented with 15 μl of detection reagent (total 30 μl) prior plate reading. Plate was incubated for 1 hour at 37°C prior detection.
Applications:	Useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.

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Quality Control Data

4-20% SDS-PAGE Coomassie Staining



POLG Activity

