

Datasheet for ABIN7553702
POLG Protein (AA 1-1239) (His tag)



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Overview

Quantity:	1 mg
Target:	POLG
Protein Characteristics:	AA 1-1239
Origin:	Human
Source:	HEK-293 Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This POLG protein is labelled with His tag.

Product Details

Purpose:	Custom-made recombinant POLG Protein expressed in mammalian cells.
Sequence:	<p>MSRLLWRKVA GATVGPGPVP APGRWVSSSV PASDPSDGQR RRQQQQQQQQ QQQQPQQPQ</p> <p>VLSSEGGQLR HNPLDIQMLS RGLHEQIFGQ GGEMPGAAV RRSVEHLQKH GLWGQPAVPL</p> <p>PDVELRLPPL YGDNLDQHFR LLAQKQSLPY LEAANLLLQA QLPPKPPAWA WAEGWTRYGP</p> <p>EGEAVPVAIP EERALVFDVE VCLAEGTCPT LAVAISPSAW YSWCSQRLVE ERYSWTSQLS</p> <p>PADLIPLEVP TGASSPTQRD WQEQLVVGHN VSFDRAHIRE QYLIQGSRM RFLDTMSMHMA</p> <p>ISGLSSFQRS LWIAAKQGKH KVPPTKQGQ KSQRKARRGP AISSWDWLDI SSVNSLAEVH</p> <p>RLYVGGPPLE KEPRELFVKG TMKDIRENFQ DLMQYCAQDV WATHEVFQQQ LPLFLERCPH</p> <p>PVTLAGMLEM GVSYPVNQN WERYLAEAGG TYEELQREMK KSLMDLANDA CQLLSGERYK</p> <p>EDPWLWDLEW DLQEFKQKKA KKVKEPATA SKLPIEGAGA PGDPMQEDL GPCSEEEEFQ</p> <p>QDVMARACLQ KLKGTTELLP KRPQHLP GHP GWYRKLCPRL DDPAWTPGPS LLSLQMRVTP</p> <p>KLMALTWDGF PLHYSERHGW GYLVPGRRDN LAKLPTGTTL ESAGVVCYPYR AIESLYRKHC</p> <p>LEQGKQQLMP QEAGLAEFL LTDNSAIWQT VEELDYLEVE AEAKMENLRA AVPGQPLALT</p>

ARGGPKDTQP SYHHGNGPYN DVDIPGCWFF KLPHKDGNSC NVGSPFAKDF LPKMEDGTLQ
AGPGGASGPR ALEINKMISF WRNAHKRISS QMVVWLPRSA LPRAVIRHPD YDEEGLYGAI
LPQVVTAGTI TRRAVEPTWL TASNARPDRV GSELKAMVQA PPGYTLVGAD VDSQELWIAA
VLGDAHFAGM HGCTAFGWMT LQGRKSRGTD LHSKTATTVG ISREHAKIFN YGRIYGAGQP
FAERLLMQFN HRLTQQEAAE KAQQMYAATK GLRWYRLSDE GEWLVLRELNL PVDRTGGWI
SLQDLRKVQR ETARKSQWKK WEVVAERAWK GGTESEMFNK LESIATSDIP RTPVLGCCIS
RALEPSAVQE EFMTSRVNWW VQSSAVDYLH LMLVAMKWLF EEFAIDGRFC ISIHDEVRYL
VREEDRYRAA LALQITNLLT RCMFAYKLGL NDLPQSVAFF SAVDIDRCLR KEVTMDCKTP
SNPTGMERRY GIPQGEALDI YQIIELTKGS LEKRSQPGP **Sequence without tag. The proposed
Purification-Tag is based on experiences with the expression system, a different complexity
of the protein could make another tag necessary. In case you have a special request, please
contact us.**

Specificity: If you are looking for a specific domain and are interested in a partial protein or a different isoform, please contact us regarding an individual offer.

Characteristics: Key Benefits:

- Made to order protein - from design to production - by highly experienced protein experts.
- Protein expressed in mammalian cells and purified in one-step affinity chromatography
- The optimized expression system ensures reliability for intracellular, secreted and transmembrane proteins.
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a made-to-order protein and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.

If you are not interested in a full length protein, please contact us for individual protein fragments.

The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

Purity: > 90 % as determined by Bis-Tris PAGE, anti-tag ELISA, Western Blot and analytical SEC (HPLC)

Grade: custom-made

Target Details

Target: POLG

Target Details

Alternative Name:	POLG (POLG Products)
Target Type:	Viral Protein
Background:	<p>DNA polymerase subunit gamma-1 (EC 2.7.7.7) (3'-5' exodeoxyribonuclease) (EC 3.1.11.-) (5'-deoxyribose-phosphate lyase) (EC 4.2.99.-) (Mitochondrial DNA polymerase catalytic subunit) (PolG-alpha),FUNCTION: Catalytic subunit of DNA polymerase gamma solely responsible for replication of mitochondrial DNA (mtDNA). Replicates both heavy and light strands of the circular mtDNA genome using a single-stranded DNA template, RNA primers and the four deoxyribonucleoside triphosphates as substrates (PubMed:9558343, PubMed:11477093, PubMed:19837034, PubMed:11897778, PubMed:15917273). Has 5' -> 3' polymerase activity. Functionally interacts with TWNK and SSBP1 at the replication fork to form a highly processive replisome, where TWNK unwinds the double-stranded DNA template prior to replication and SSBP1 covers the parental heavy strand to enable continuous replication of the entire mitochondrial genome. A single nucleotide incorporation cycle includes binding of the incoming nucleotide at the insertion site, a phosphodiester bond formation reaction that extends the 3'-end of the primer DNA, and translocation of the primer terminus to the post-insertion site. After completing replication of a mtDNA strand, mediates 3' -> 5' exonucleolytic degradation at the nick to enable proper ligation (PubMed:9558343, PubMed:11477093, PubMed:15167897, PubMed:26095671, PubMed:19837034, PubMed:11897778, PubMed:15917273). Highly accurate due to high nucleotide selectivity and 3' -> 5' exonucleolytic proofreading. Proficiently corrects base substitutions, single-base additions and deletions in non-repetitive sequences and short repeats, but displays lower proofreading activity when replicating longer homopolymeric stretches. Exerts exonuclease activity toward single-stranded DNA and double-stranded DNA containing 3'-terminal mispairs. When a misincorporation occurs, transitions from replication to a pro-nucleolytic editing mode and removes the missincorporated nucleoside in the exonuclease active site. Proceeds via an SN2 nucleolytic mechanism in which Asp-198 catalyzes phosphodiester bond hydrolysis and Glu-200 stabilizes the leaving group. As a result the primer strand becomes one nucleotide shorter and is positioned in the post-insertion site, ready to resume DNA synthesis (PubMed:10827171, PubMed:11477094, PubMed:11504725, PubMed:37202477). Exerts 5'-deoxyribose phosphate (dRP) lyase activity and mediates repair-associated mtDNA synthesis (gap filling) in base-excision repair pathway. Catalyzes the release of the 5'-terminal 2-deoxyribose-5-phosphate sugar moiety from incised apurinic/apyrimidinic (AP) sites to produce a substrate for DNA ligase. The dRP lyase reaction does not require divalent metal ions and likely proceeds via a Schiff base intermediate in a beta-elimination reaction mechanism (PubMed:9770471). {ECO:0000269 PubMed:10827171, ECO:0000269 PubMed:11477093, ECO:0000269 PubMed:11477094,</p>

Target Details

ECO:0000269|PubMed:11504725, ECO:0000269|PubMed:11897778,
ECO:0000269|PubMed:15167897, ECO:0000269|PubMed:15917273,
ECO:0000269|PubMed:19837034, ECO:0000269|PubMed:26095671,
ECO:0000269|PubMed:37202477, ECO:0000269|PubMed:9558343,
ECO:0000269|PubMed:9770471}.

Molecular Weight: 139.6 kDa

UniProt: [P54098](#)

Application Details

Application Notes: We expect the protein to work for functional studies. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.

Restrictions: For Research Use only

Handling

Format: Liquid

Buffer: The buffer composition is at the discretion of the manufacturer.

Handling Advice: Avoid repeated freeze-thaw cycles.

Storage: -80 °C

Storage Comment: Store at -80°C.

Expiry Date: 12 months