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DATA SHEET

Version: 2
Revision date: 14/03/2023

1. Identification

Product name **FastPANGEA™ - Long PCR DNA Polymerase** (5U/µL) 100 U

Cat. No **P0059**

2. Description

FastPANGEA™-Long PCR DNA Polymerase combines high quality recombinant Taq DNA Polymerase with a high-fidelity, proofreading polymerase. This enzyme blend has the 5'→3' exonuclease activity of Taq DNA polymerase as well as the 3'→5' exonuclease activity of the proofreading polymerase. Alone, Taq DNA polymerase is inefficient at amplifying fragments larger than 3–5kb due to its inability to repair nucleotide mismatches following misincorporation.

The addition of a small quantity of proofreading enzyme allows mismatches to be repaired and extension to continue, resulting in the amplification of long amplicons with high yield. The presence of the proofreading polymerase significantly increases fidelity (6.5X) as compared to Taq polymerase alone. This mixture of enzymes allows for long and accurate PCR amplification of targets from a variety of templates, such as 5-15 kb of genomic DNA. The enzyme blend generates PCR products whose ends are compatible with either blunt- end or TA cloning procedures with A-tailed ends favored over blunt ends in an approximately 3:1 ratio.

3. Composition

Item	Quantity
FastPANGEA™-Long PCR DNA Polymerase	100U
Buffer PA (5x)	1.5 mL
DMSO (100%)	50 µL
MgCl2 (25 mM)	1.5 mL

4. Features

- Extreme Fidelity
- Robust Reactions
- High Speed
- High Yield
- Versatile

5. Storage specifications

Store at **-20°C**

6. Quality certifications

- Functionally tested in PCR.
- Undetected bacterial DNA (by PCR).

7. Applications

- PCR-Cloning: highly recommended for cloning intopSpark® DNA cloning vectors.
- Primers extension.
- Long or difficult amplification.
- High-Throughput PCR.

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8. Further information

Product Use Limitations This product is developed, designed and sold exclusively only for research purposes use. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Disclaimer The information provided in this Data Sheet is correct to the best of our knowledge and belief at the date of publication. This information is intended only as a guide and should not be taken as a warranty or quality specification. Canvax Reagents S.L.U. shall not be held liable for any damage resulting from handling or from contact with the above product.

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Before you start

Carefully centrifuge all tubes before opening to improve recovery. PCR reactions should be set up on ice. Prepare a mix for the appropriate number of samples to be amplified. The following protocol is recommended for a 20 µl reaction volume:

PCR PROTOCOL

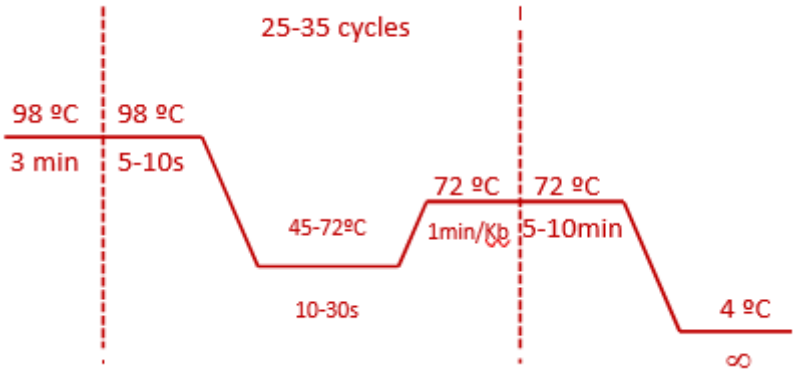
1. **Assemble the following reagents in a thin-walled PCR tube.**

Component	Volume reaction 20 µL	Final concentration
Primer A	X µL	0.75 µM(1)
Primer B	X µL	0.75 µM(1)
Template DNA	X µL	20-50 ng DNA(2)
DMSO (optional)	0.6 µL	3%(3)
8 mM dNTPs	2 µL	0.8 mM
Buffer PA (10x)	2 µL	1X
FastPANGEA™-Long PCR DNA Polymerase	0.2 µL	0.05U/µL
$MgCl_2$ (25 mM)	2µL	2.5mM
Nuclease-Free Water to a final volume of	20 µL	

(1) The recommendation for final primer concentration is 0.5 µM but it can be varied in a range of 0.2-1.0 µM if needed.
(2) For gDNA used 100-300 ng DNA.
(3) Addition of DMSO is recommended for GC-rich amplicons. If DMSO is added in the PCR reaction, Tm must be decreased about 3° C.

2. **Mix reagents completely, and then transfer to a thermocycler.**

3. **Perform the following cycling conditions:**



- As with all PCR reactions, conditions may need to be optimized to achieve maximum amplicon yield. You may be able to adjust your PCR conditions to optimize reaction.
- Genomic targets over 20kb may require additional optimization.