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DATA SHEET

Version: 2
Revision date: 14/03/2023

1. Identification

Product name **FastPANGEA™ Long PCR DNA Polymerase MasterMix (2x)**
200 rxn

Cat. No **P0022**

2. Description

FastPANGEA-Long PCR Master Mix combines Taq DNA Polymerase and a DNA proofreading polymerase with 3' to 5' exonuclease activity that is optimized for PCR amplification of very long DNA templates (long range PCR). 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**. PANGEA Long polymerase generates long templates with an accuracy and speed previously unattainable with other thermostable DNA polymerases. PANGEA- Long DNA Polymerase Master Mix possesses 3´→ 5´ exonuclease activity and it generates PCR products with blunt ends and generate 3´-adenine overhang in amplified DNA and thus such Taq amplified DNA could be cloned into T-vectors.

3. Composition

Item	Quantity
2X PANGEA-Long PCR master mix Includes: Mix DNA Polymerases, dNTPs, MgCl2	2 mL
DMSO (100%)	50 µL
MgCl2 (25 mM)	100 µL

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).

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7. Applications

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

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

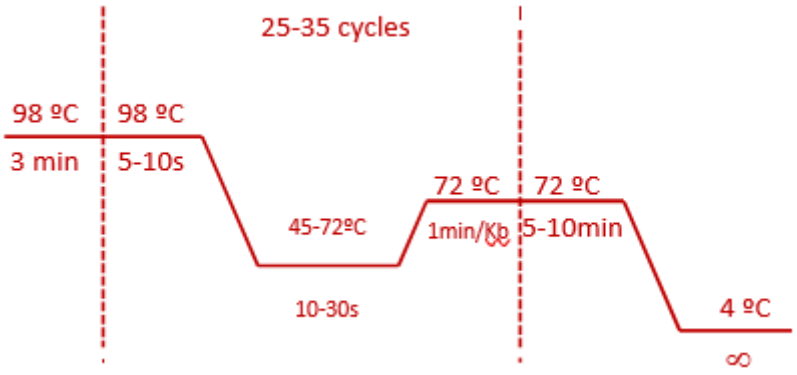
1. **Assemble the following reagents in a thin-walled PCR tube.**

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)	(X µL)	3%(3)
2X Polymerase master mix	10 µL	1X
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.