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DATA SHEET

Version: 2
Revision date: 14/03/2023

1. Identification

Product name **FastPANGEA™ High Fidelity DNA Polymerase, MasterMix (2x)**
500 rxn (20µL/reaction)

Cat. No **P0061**

2. Description

FastPANGEA™ High Fidelity DNA Polymerase, MasterMix (2x) is a second generation high-fidelity DNA polymerase that offers extreme performance for all PCR applications.

Ready-to-use 2X master mix preserves the fidelity and the yield in the reaction when using extremely short PCR protocols. Additionally, the user only needs to add template and primers minimizing the number of pipetting steps.

PANGEA DNA polymerase possesses the 5'→3' DNA polymerase activity, 3´→ 5´ exonuclease activity and it generates PCR products with blunt ends.

3. Composition

Item	Quantity
FastPANGEA™ High Fidelity DNA Polymerase, MasterMix (2x)	4 x 1.25 mL
DMSO (100%)	500 µL
MgCl2 (25 mM)	100 µL

4. Features

- **Extreme Fidelity**
- **Robust Reactions**: maximal success with minimal optimization.
- **High Speed**: FastPANGEA™ High Fidelity DNA Polymerase, MasterMix (2x) extension times are 15-30 seconds/kb.
- **High Yield:** increased product yield using minimal amount of enzyme.

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.

PCR PROTOCOL

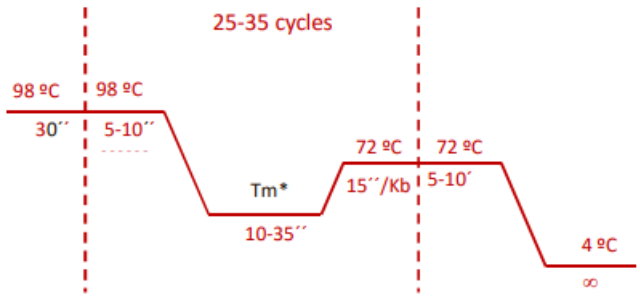
1. **Assemble the following reagents in a thin-walled PCR tube.**

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)
FastPANGEA™ High Fidelity DNA Polymerase, MasterMix (2x)	10 µL	1X
Nuclease-Free Water to a final volume of	Up to 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 100-250 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.
- Extension time depends on amplicon length and complexity:
  - For low complexity DNA (Plasmid, lambda, or BAC DNA) use 15 s per Kb.
  - For high complexity DNA (gDNA) use 30s per kb. Do not exceed 1 min. per kb for amplicons that are < 3 Kb.

* As a basic rule, for primers > 20 nt, for 10–30 seconds at a Tm +3 °C of the lower Tm primer. primers ≤ 20 nt, use an annealing temperature equal to the Tm of the lower Tm primer. If necessary, use a temperature gradient to find the optimal annealing temperature for each template-primer pair combination.