**Phu-50 High Fidelity Polymerase**

**Performance**

**Empirical Bioscience's Phu-50 Polymerase** is a genetically modified Pyrococcus furiosus enzyme that also contains inherent 3'-5' proofreading capability which increase the fidelity of the enzyme to 50X that of Taq DNA Polymerase.

Due to its increased processivity and fidelity, Phu-50 High Fidelity Polymerase is ideal for long-range PCR amplification, GC rich templates, cloning, mutagenesis, sequencing, and fast PCR due to shorter elongation time requirements. Phu-50 is an extremely stable enzyme at high temperatures and is free of contaminating endonucleases and exonucleases.

**Empirical’s Phu-50 can amplify long targets:** *(Left)*

Phu-50 enzyme was compared to AlloyTaq, Thermo's Phusion, and NEB’s Q5 enzymes by PCR of a 8.5kb fragment from the human beta globin gene. *(Right)* Phu-50 was used to amplify an 18.3kb fragment from the Human Albumin gene. The experiment was performed in triplicate and analyzed on a 0.4% agarose gel.

**Empirical's Phu-50 is sensitive:** Decreasing units of Phu-50 enzyme were used to amplify a 1.3kb fragment from the human beta globin gene.

**Features**
- 50X Fidelity of Taq
- Increased Processivity and Sensitivity

**Applications:**
- High fidelity PCR
- Long amplification up to 8.5kb
- GC rich templates
- Fast PCR (30sec/kb)

**Item Number | Units**
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PHU-50-250 | 250
PHU-50-500 | 500
PHU-50-1000 | 1000
PHU-50-5000 | 5000

**Storage and Handling:**
Store at – 20°C upon arrival.

**Related Products**
- EasyLoad Low Range DNA Ladder
- EasyLoad Mid Range DNA Ladder
- EasyLoad High Range DNA Ladder
- UltraPure dNTP Solution Mix, 10mM each
- UltraPure dNTP Solution Mix, 100mM each
- 6x MeanGreen Loading Dye

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**Enzymes and Reagents**

<table>
<thead>
<tr>
<th>PCR</th>
<th>qPCR</th>
<th>RT</th>
<th>Kits</th>
<th>Oligonucleotides</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Phu-50 High Fidelity Polymerase</td>
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