

**Features**

Specific features of PCR enzymes are listed here in Table 1.

**Table 1.** PCR enzymes features and specifications

<b>Feature</b>	<b>Kit Name</b>	<b>Si-Taq Polymerase****</b>	<b>Hy-Taq Polymerase****</b>	<b>5t-pfu Polymerase**</b>	<b>Hy-Fidelity Pfu Polymerase</b>
<b>Fidelity***</b>		1	2	18	54
<b>Expression rate</b>		1-2 kb/min	6 kb/min	0.5 kb/min	2-4 kb/min
<b>Amplification of genomic DNA fragment up</b>		3 kb	4 kb	6 kb	15 kb
<b>Amplification of plasmid DNA fragment up</b>		—	—	10 kb	20 kb
<b>Hot-start</b>		No	No	No*	Yes
<b>Applications</b>					
<b>Short fragment PCR</b>		✓	✓	✓	✓
<b>High throughput PCR</b>		×	✓	×	×
<b>Colony PCR</b>		×	✓	×	×
<b>High fidelity PCR</b>		×	×	✓	✓
<b>Blunt- end cloning</b>		×	×	✓	✓
<b>Site directed mutagenesis</b>		×	×	✓	✓
<b>Equipment &amp; Reagents to be supplied by user</b>					
<ul style="list-style-type: none"> <li>• Pipets and pipet tips</li> <li>• Microcentrifuge tube</li> <li>• Thermal cycler</li> <li>• Mineral oil (for thermal cyclers without a heated lid)</li> <li>• Primers</li> </ul>					

- \* Since, it is not hot-start, we recommended to add enzyme last during PCR.
- \*\* PCR Product can be directly cloned in to Blunt Vectors.
- \*\*\* compare to Taq DNA Polymerase
- \*\*\*\* Template-independent 'A' can be generated at the 3' end of PCR product.

### Prepare PCR Reactions

It is recommended to prepare PCR reactions as indicated in Table2.

**Table 2.** Prepare PCR Reactions, Hy-Taq Polymerase

Component	Volume
Template	Variable
Forward primer (10 $\mu$ M)	1 $\mu$ l
Reverse primer (10 $\mu$ M)	1 $\mu$ l
Hy-Taq Polymerase, Recombinant (5U/ $\mu$ l)	0.5 - 1 $\mu$ l
PCR Buffer, 10X, with Mg <sup>++</sup> , optimized for Hy-Taq polymerase	5 $\mu$ l
HiPure-dNTP mix, 2.5 mM	8 $\mu$ l
Water for Molecular Biology, Sterile, Filtered	Up to 50 $\mu$ l

### Tips for Optimizing PCR Reaction

- A final concentration of 2mM MgSO<sub>4</sub> is sufficient for most targets amplification. For some targets, more Mg<sup>2+</sup> may be required; use the 50 mM MgSO<sub>4</sub> stock to test from 2 mM to 4 mM (final concentration) in 0.25 mM increments.