



## *TransTaq*<sup>®</sup> DNA Polymerase High Fidelity (HiFi)

Cat. No. AP131

Concentration 5 units/ $\mu$ l

Storage: at -20°C for two years

### Description

*TransTaq*<sup>®</sup> DNA Polymerase High Fidelity (*TransTaq*<sup>®</sup> HiFi DNA Polymerase) contains *TransTaq*<sup>®</sup>-T DNA Polymerase and a proofreading 3'-5' exonuclease. *TransTaq*<sup>®</sup> HiFi DNA Polymerase provides higher specificity and higher amplification efficiency than *TransTaq*<sup>®</sup>-T DNA Polymerase. Two different buffers are provided in the kit. *TransTaq*<sup>®</sup> HiFi Buffer I is optimized for the amplification of genomic DNA and *TransTaq*<sup>®</sup> HiFi Buffer II is optimized for the amplification of  $\lambda$ DNA, cDNA or plasmid DNA.

### Highlights

- *TransTaq*<sup>®</sup> HiFi DNA Polymerase offers 18-fold fidelity as compared to *EasyTaq*<sup>®</sup> DNA Polymerase.
- Extension rate is about 1-2 kb/min.
- Template-independent "A" can be generated at the 3' end of the PCR product. PCR products can be directly cloned into *pEASY*<sup>®</sup>-T vectors.
- Amplification of genomic DNA fragment up to 15 kb.

### Applications

- Complex templates
- GC/AT rich templates
- Long PCR
- High yield PCR

### Unit Definition

One unit of *TransTaq*<sup>®</sup> HiFi DNA Polymerase incorporates 10 nmol of deoxyribonucleotide into acid-precipitable material in 30 minutes at 74°C.

### Quality Control

*TransTaq*<sup>®</sup> HiFi DNA Polymerase has passed the following quality control assays: functional absence of double- and single-strand endonuclease activity; >99% homogeneous measured by SDS-PAGE. Each batch of *TransTaq*<sup>®</sup> HiFi DNA Polymerase has been assayed for amplification efficiency to amplify p53 gene from 10 ng of human genomic DNA.

### Storage Buffer

20 mM Tris-HCl (pH 8.0), 0.1 mM EDTA, 1 mM DTT, 100 mM KCl, 50% glycerol, stabilizers

### 10 $\times$ *TransTaq*<sup>®</sup> HiFi Buffer

200 mM Tris-HCl (pH 9.0), 100 mM KCl, 100 mM (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 20 mM MgSO<sub>4</sub>, 10% Glycerol, others

### Kit Content

Component	AP131-01/11	AP131-02/12	AP131-03/13
<i>TransTaq</i> <sup>®</sup> HiFi DNA Polymerase	250 U $\times$ 1	500 U $\times$ 1	500 U $\times$ 6
10 $\times$ <i>TransTaq</i> <sup>®</sup> HiFi Buffer I	1.2 ml $\times$ 1	1.2 ml $\times$ 1	1.2 ml $\times$ 6
10 $\times$ <i>TransTaq</i> <sup>®</sup> HiFi Buffer II	1.2 ml $\times$ 1	1.2 ml $\times$ 1	1.2 ml $\times$ 6
2.5 mM dNTP	-/400 $\mu$ l $\times$ 1	-/800 $\mu$ l $\times$ 1	-/800 $\mu$ l $\times$ 6
10 $\times$ GC Enhancer	200 $\mu$ l $\times$ 1	400 $\mu$ l $\times$ 1	1 ml $\times$ 1
6 $\times$ DNA Loading Buffer	500 $\mu$ l $\times$ 1	1 ml $\times$ 1	1 ml $\times$ 2

#### GC Enhancer

For better amplification of GC/AT- rich or complex template, we recommend adding GC enhancer into PCR reaction. GC enhancer is provided at 10× concentration and can be used at 0.5×-5× concentration.

#### Reaction Components

Component	Volume	Final Concentration
Template	Variable	as required
Forward Primer (10 μM)	1 μl	0.2 μM
Reverse Primer (10 μM)	1 μl	0.2 μM
10× <i>TransTaq</i> <sup>®</sup> HiFi Buffer I/II	5 μl	1×
2.5 mM dNTPs	4 μl	0.2 mM
<i>TransTaq</i> <sup>®</sup> HiFi DNA Polymerase	0.5-1 μl	2.5-5 units
Nuclease-free Water	Variable	-
Total volume	50 μl	-

#### Thermal cycling conditions

94°C	2-5 min	} 30-35 cycles
94°C	30 sec	
50-60°C	30 sec	
72°C	1-2 kb/min	
72°C	5-10 min	

#### Notes

- A final concentration of 2 mM MgSO<sub>4</sub> is sufficient for most targets amplification. For some targets, more Mg<sup>2+</sup> may be required.
- For optimal results, we recommend to use the 100 mM MgSO<sub>4</sub> stock to prepare a titration from 2 mM to 4 mM (final concentration) in 0.25 mM increments.
- 0.5 μl (2.5 units) enzyme is enough for per 50 μl reaction. For better amplification, up to 1 μl (5 units) enzyme can be used.
- For amplification of GC/AT-rich templates and complex templates, we suggest to use GC Enhancer.

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