# *TransTaq*® DNA Polymerase High Fidelity (HiFi)

Cat. No. AP131
Concentration 5 units/μl
Storage: at -20°C for two years

## Description

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

## Highlights

- *TransTaq*® HiFi DNA Polymerase offers 18-fold fidelity as compared to *EasyTaq*® 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*®-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*® HiFi DNA Polymerase incorporates 10 nmol of deoxyribonucleotide into acid-precipitable material in 30 minutes at 74°C.

## Quality Control

*TransTaq*® 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*® 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×*TransTaq*® HiFi Buffer

200 mM Tris-HCl (pH 9.0), 100 mM KCl, 100 mM $(NH4)_2SO_4$, 20 mM $MgSO_4$, 10% Glycerol, others

## Kit Content

| Component | AP131-01/11 | AP131-02/12 | AP131-03/13 |
|---|---|---|---|
| *TransTaq*® HiFi DNA Polymerase | 250 U×1 | 500 U×1 | 500 U×6 |
| 10×*TransTaq*® HiFi Buffer I | 1.2 ml×1 | 1.2 ml×1 | 1.2 ml×6 |
| 10×*TransTaq*® HiFi Buffer II | 1.2 ml×1 | 1.2 ml×1 | 1.2 ml×6 |
| 2.5 mM dNTP | -/400 μl×1 | -/800 μl×1 | -/800 μl×6 |
| 10×GC Enhancer | 200 μl×1 | 400 μl×1 | 1 ml×1 |
| 6×DNA Loading Buffer | 500 μl×1 | 1 ml×1 | 1 ml×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×*TransTaq*® HiFi Buffer I/II | 5 μl | 1× |
| 2.5 mM dNTPs | 4 μl | 0.2 mM |
| *TransTaq*® 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 | |
| 94°C | 30 sec | 30-35 cycles |
| 50-60°C | 30 sec | |
| 72°C | 1-2 kb/min | |
| 72°C | 5-10 min | |

## Notes

- A final concentration of 2 mM $MgSO_4$ is sufficient for most targets amplification. For some targets, more $Mg^{2+}$ may be required.
- For optinal results, we recommend to use the 100 mM $MgSO_4$ 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.



Service telephone +86-10-57815020
Service email complaints@transgen.com