# *TransFast® Taq* DNA Polymerase

Cat. No. AP101
Concentration 5 units/μl
Storage: at -20°C for two years

## Description

*TransFast® Taq* DNA Polymerase is an engineered version of *Taq* DNA Polymerase. The enzyme consists of a single polypeptide with a molecular weight of approximately 94 kDa. *TransFast® Taq* DNA Polymerase has 5'-3' DNA polymerase activity and 5'-3' exonuclease activity. It lacks 3'-5' exonuclease activity.

## Highlights

- Extension rate is about 6 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 4 kb.

## Applications

- Routine PCR
- High throughput PCR
- Colony PCR

## Unit Definition

One unit of *TransFast® Taq* DNA Polymerase incorporates 10 nmol of deoxyribonucleotide into acid-precipitable material in 30 minutes at 74°C.

## Quality Control

*TransFast® Taq* 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 *TransFast® Taq* 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×*TransFast® Taq* Buffer (with $Mg^{2+}$)

200 mM Tris-HCl (pH 8.4), 100 mM KCl, 100 mM $(NH_4)_2SO_4$, 20 mM $MgSO_4$, others

## Kit Contents

| Component | AP101-01/11 | AP101-02/12 |
|---|---|---|
| *TransFast® Taq* DNA Polymerase | 500 U×1 | 500 U×6 |
| 10×*TransFast® Taq* Buffer | 1.2 ml ×1 | 1.2 ml ×6 |
| 2.5 mM dNTPs | - / 800 μl ×1 | - / 800 μl ×6 |
| 6×DNA Loading Buffer | 1 ml×1 | 1 ml ×2 |

## 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×*TransFast® Taq* Buffer | 5 μl | 1× |
| 2.5 mM dNTPs | 4 μl | 0.2 mM |
| *TransFast® Taq* DNA polymerase | 0.5-1 μl | 2.5-5 unit |
| 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 | X sec | |
| 72°C | 5-10 min | |

## An interpretation about X sec

| Targets | X sec |
|---|---|
| 0-2 kb | 10 sec/kb |
| 2-3 kb | 20 sec/kb |
| >3 kb | 30 sec/kb |

## 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.

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