



# Taq DNA Polymerase

<b>Catalog #</b>	3244	3245
<b>Package Size</b>	500 units	5,000 units
<b>Volume</b>	500 µl	5 ml
<b>Concentration</b>	1 units/µl	

<b>Catalog #</b>	3244d	3245d
<b>Package Size</b>	500 units	5,000 units
<b>Volume</b>	500 µl	5 ml
<b>Concentration</b>	1 units/µl	

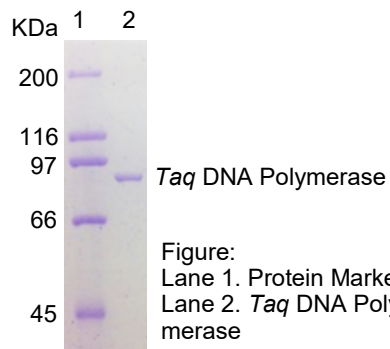
\*Catalog numbers ending with "d" include separate dNTP mix.

## Description

Intact Genomics *Taq* DNA Polymerase is a thermostable DNA polymerase that possesses a 5'→3' polymerase activity (1, 2) and a 5' flap endonuclease activity (3, 4). This product is supplied with 10x PCR reaction buffer, containing MgCl<sub>2</sub>, which produces a final Mg<sup>2+</sup> concentration of 1.5 mM. Ideal for primary extension reaction with DNA fragments having dA overhang on 3' ends.

## Physical Purity

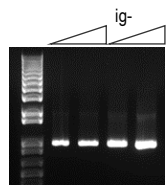
The physical purity of this enzyme is ≥98% as assessed by SDS-PAGE with Coomassie® blue staining (see figure below).



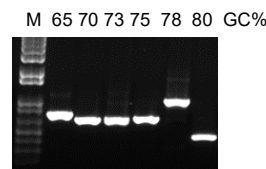
## Product Source

*E. coli* strain expressing a *Taq* DNA Polymerase gene from *Thermus aquaticus* YT-1.

## Taq Polymerase Comparison Data



Comparison of IG *Taq* with a top brand life tech company's *Taq*



Amplification of genes containing high GC (65-80%) with Intact Genomics GC enhancer

## Applications

- Routing PCR cloning
- Primer extension
- Colony PCR
- Elongation efficiency 1.0-1.2 kb/min.
- Formulated for amplifying long target DNA.
- Efficient for amplifying high GC content DNA with Intact Genomics magic enhancer

## Product Includes

- 1) *Taq* DNA Polymerase
- 2) 10x PCR Buffer with Mg<sup>2+</sup>
- 3) 5x Magic Enhancer
- 4) 10 mM dNTP (Cat. # 3241d, 3241d-04 only)

## Storage Temperature

-20 °C

## Storage Buffer

50 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.5 @ 25 °C

## 10x PCR Buffer with Mg<sup>2+</sup>

100 mM Tris-HCl pH 8.0, 15 mM MgCl<sub>2</sub>, 100 mM KCl, 80 mM (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 0.5% Igepal CA 630

## Unit Definition

One unit is defined as the amount of enzyme that incorporates 10 nmoles of dNTP into acid-insoluble form in 30 minutes at 72 °C.

## Protocol

1. Thaw PCR buffer, dNTP, Primer solutions, 5x Magic Enhancer (if required) and mix thoroughly before use.
2. Prepare a reaction mix according to the following table: The reaction mix typically contains all the components needed for PCR except the template DNA.

PCR Reaction Set Up:	
Template	~1 - 50 ng
10x PCR buffer	2.0 µl
dNTP (10 mM)	0.4 µl
Forward primer (3.2 µM)	1.0 µl
Reverse primer (3.2 µM)	1.0 µl
5x Magic Enhancer (optional)	4.0 µl
<i>Taq</i> DNA Polymerase (1 U)	1.0 µl
H <sub>2</sub> O up to	20.0 µl

3. Mix the reaction mixture thoroughly.
4. Add template DNA to the individual PCR tubes containing the reaction mixture.

- Program the thermal cycler according to the manufacturer's instructions. A typical PCR cycling program is outlined in the following table.

PCR Cycling Conditions:			
Steps	Temp.	Time	Cycles
Initial Denaturation	94 °C	3 min	1
Denaturation	94 °C	30 sec	25-35
Annealing	55-60 °C	40 sec	
Extension	72 °C	1-2 min	
Final Extension	72 °C	7 min	1
Hold	4-12 °C	∞	

- Place the PCR tubes in the thermal cycler and start the cycling program.

## Reference

- EChien, A., Edgar, D.B. and Trela, J.M. (1976). J. Bact. 127, 1550-1557.
- Lawyer, F.C. et al. (1993). PCR Methods and Appl. 2, 275-287.
- Longley, M.J., Bennett, S.E. and Mosbaugh D.W. (1990). Nucleic Acids Res. 18, 7317-7322.
- Lyamichev, V., Brow, M.A. and Dahlberg, J.E. (1993). Science. 260, 778-783.