

## HelixAmp™ Taq Polymerase [MgCl<sub>2</sub> free]

### Kit Contents

HelixAmp™ Taq Polymerase [MgCl <sub>2</sub> free]		
Cat. No.	TBF500/TBF500N (500units)	TBF2500/TBF2500N (2,500units)
Taq (5unit/μl)	0.1ml	0.1ml x 5ea
10x Mg-free Buffer [Taq]	1ml x 2ea	1ml x 10ea
25mM MgCl <sub>2</sub>	1ml x 2ea	1ml x 10ea
dNTP Mix (each 10mM)	None / 0.4ml	None / 0.4ml x 5ea
5x TuneUp™ Solution	None / 0.5ml x 2ea	None / 0.5ml x 10ea
Blue Box	-	1ea
Instruction for Use	1ea	1ea

### Description

**HelixAmp™ Taq Polymerase** is a recombinant enzyme expressed and purified from a bacterial host cell harboring *Thermus aquaticus* DNA polymerase gene. HelixAmp™ Taq Polymerase is an engineered Taq DNA polymerase enforced its thermostability and template sensitivity. This highly purified thermostable DNA polymerase with unique NanoHelix's purification process is quite suitable for routine PCR. For the maximum performance extremely pure dNTPs and TuneUp™ Solutions are also included. TuneUp™ Solution helps HelixAmp™ Taq Polymerase to efficiently amplify the problematic target region of high G+C content or structural problem.

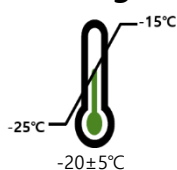
### Application

Routine PCR  
High yield  
TA cloning

### Storage buffer

20mM Tris-HCl (pH 9.0), 100mM KCl,  
0.1mM EDTA, 1mM DTT, stabilizers,  
50% Glycerol

### Storage



### Shelf life



### Concentration

5unit/μl

### NanoHelix Co., Ltd.

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## Quality Control Assay

### DNase contamination test

Not detectable (Incubation with 40 units of the enzyme and pUC19 plasmid at 37°C, 1hr)

### RNase contamination test

Not detectable (Incubation with 40 units of the enzyme and human total RNA at 37°C, 1hr)

### DNA contamination test

[*E.coli* DNA] Less than one copy in 5 units of the enzyme

[Human DNA] Not detectable

### Functional assay

HelixAmp™ DNA-free *Taq* Polymerase was functionally tested for PCR amplifications to various units of enzyme using the primer sets for different sized products (0.5kb ~ 3.18kb) and to various concentrations of human genomic DNA as a template.

Quality authorized by Yountaek Go



## Protocol

※ Although precipitates could be arised in the 10x Buffer, they will not affect the enzyme activities

### 1. Recommended amount of template DNA.

Human genomic DNA : 10 ~ 100ng

Bacterial genomic DNA : 5 ~ 50ng

Purified plasmid or phage DNA : 1 ~ 5ng

### 2. Mix following components in a PCR tube.

Components	Volumes (μl)
Template	X μl
10x Mg-free Buffer [Taq]	5μl
25mM MgCl <sub>2</sub>	2 ~ 7μl <sup>(a)</sup>
dNTP Mix (each 10mM)	1μl
Forward Primer (10pmoles/μl)	2μl
Reverse Primer (10pmoles/μl)	2μl
5x TuneUp™ Solution <sup>(b)</sup>	0 ~ 20μl
<i>Taq</i>	1.25units
RNase-free Water	to 50μl

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※ Because dNTP Mix (each 10mM) and 5x TuneUp™ Solution are not provided in product with Cat. No. TBF500, these components are available separately from NanoHelix (Cat. No. DN10 and TUS10).

(a) The optimal Mg<sup>2+</sup> concentration should be determined empirically, but in most cases a concentration of 2.5mM will produce satisfactory results.

(b) **TuneUp™ Solution** is an additive altering the binding behavior of primer and template and can help the amplification that do not work well under standard PCR condition. Especially, **TuneUp™ Solution** can be used for the amplification of problematic template, such as high G+C content and repeat sequence regions. **TuneUp™ Solution** uses as adding into PCR reaction mixture from 0.5x to 2x.

### 3. PCR condition.

Temperature & time	Cycles
95°C, 2 min	x 1
95°C, 20 sec	} x 25 ~ 40
Annealing Temp., 40 sec	
72°C, 1 min/kb (Expected size of product)	
72°C, 5 min	x 1

Annealing Temp. = T<sub>m</sub> - (4 ~ 6°C)

T<sub>m</sub> (Melting Temp.) = [4°C x (G + C)] + [2°C x (A + T)]

## Products

Cat. No.	Products	Size
<b>TBF500</b>	HelixAmp™ Taq Polymerase	500units
<b>TBF500N</b>	HelixAmp™ Taq Polymerase (with dNTP)	500units
<b>TBF2500</b>	HelixAmp™ Taq Polymerase	2,500units
<b>TBF2500N</b>	HelixAmp™ Taq Polymerase (with dNTP)	2,500units

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