

## HelixAmp™ *HyperSense-Taq* Polymerase

### Kit Contents

| HelixAmp™ <i>HyperSense-Taq</i> Polymerase |                              |                              |                                  |
|--|------------------------------|------------------------------|----------------------------------|
| Cat. No.                                   | HST250/HST250N<br>(250units) | HST500/HST500N<br>(500units) | HST2500/HST2500N<br>(2,500units) |
| <i>HyperSense-Taq</i> (2.5unit/μl)         | 0.1ml                        | 0.2ml                        | 0.2ml x 5ea                      |
| 10x <i>HyperSense-Taq</i> Buffer           | 1ml                          | 1ml x 2ea                    | 1ml x 10ea                       |
| dNTP Mix (each 10mM)                       | None / 0.2ml                 | None / 0.4ml                 | None / 0.4ml x 5ea               |
| 5x TuneUp™ Solution                        | None / 0.5ml                 | None / 0.5ml x 2ea           | None / 0.5ml x 10ea              |
| 6x Loading Dye                             | 0.5ml                        | 1ml                          | 1ml x 5ea                        |
| Blue Box                                   | -                            | -                            | 1ea                              |
| Instruction for Use                        | 1ea                          | 1ea                          | 1ea                              |

### Description

**HelixAmp™ *HyperSense-Taq* Polymerase** is the most suitable enzyme for the detection of extremely low copy target DNA. In a PCR reaction with HelixAmp™ *HyperSense-Taq* Polymerase 1 ~ 5 copies of target could be detected. This robust polymerase is made of sophisticated blending of *Taq* DNA polymerase, a proof-reading DNA polymerase, anti-*Taq* antibody and noble additional factors to enhance the specificity and productivity of PCR amplification. HelixAmp™ *HyperSense-Taq* Polymerase is also applicable to long-range PCR up to 20 kb from genomic DNA. HelixAmp™ *HyperSense-Taq* Polymerase shows 4 to 5 times of higher fidelities than normal *Taq* DNA polymerases. The addition of TuneUp™ Solution in the reaction mixture is a simple way to optimize the long-range PCR or difficult targets of PCR.

### Application

Hot start PCR  
 Routine PCR  
 Long range PCR  
 RT-PCR  
 Generation of PCR products for TA cloning

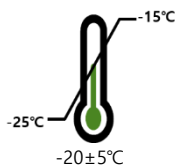
### Storage buffer

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

### NanoHelix Co., Ltd.

A-dong and B-dong, 43-15, Techno 5-ro, Yuseong-Gu, Daejeon, 34014, South Korea. TEL : 82-42-867-9055, FAX : 82-42-867-9057

E-mail : info@nanohelix.net <[www.nanohelix.net](http://www.nanohelix.net) [www.nanohelix.co.kr/KOR](http://www.nanohelix.co.kr/KOR)>

**Storage****Shelf life****Concentration**2.5unit/ $\mu$ l**Quality Control Assay****Contamination Assay**

HelixAmp™ *HyperSense-Taq* Polymerase is blending enzyme of HelixAmp™ *Taq* Polymerase, HelixAmp™ DNA Polymerase, and an anti-*Taq* antibody. HelixAmp™ *Taq* Polymerase was passed from quality control assay for contamination of endo- or exodeoxyribonuclease and the bacterial host DNA. Also, HelixAmp™ *Power-Pfu* Polymerase was passed from quality control assay for contamination of the bacterial host DNA.

**Functional assay**

HelixAmp™ *HyperSense-Taq* Polymerase was functionally tested for PCR amplifications to various units of enzyme using the primer sets for different sized products (0.5 ~ 17kb) 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 ( $\mu$ l) |
|------------------------------------|--------------------|
| Template                           | X $\mu$ l          |
| 10x HyperSense-Taq Buffer          | 5 $\mu$ l          |
| dNTP Mix (each 10mM)               | 1 $\mu$ l          |
| Forward Primer (10pmoles/ $\mu$ l) | 2 $\mu$ l          |
| Reverse Primer (10pmoles/ $\mu$ l) | 2 $\mu$ l          |
| 5x TuneUp™ Solution                | 0~20 $\mu$ l       |
| <i>HyperSense-Taq</i>              | 1.25units          |
| RNase-free Water                   | to 50 $\mu$ l      |

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※ **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.

## 2. 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. =  $T_m - (4 \sim 6^\circ\text{C})$**

**$T_m$  (Melting Temp.) =  $[4^\circ\text{C} \times (\text{G} + \text{C})] + [2^\circ\text{C} \times (\text{A} + \text{T})]$**

## Products

| Cat. No.        | Products   | Size       |
|-----------------|--|------------|
| <b>HST250</b>   | HelixAmp™ <i>HyperSense-Taq</i> Polymerase             | 250units   |
| <b>HST250N</b>  | HelixAmp™ <i>HyperSense-Taq</i> Polymerase (with dNTP) | 250units   |
| <b>HST500</b>   | HelixAmp™ <i>HyperSense-Taq</i> Polymerase             | 500units   |
| <b>HST500N</b>  | HelixAmp™ <i>HyperSense-Taq</i> Polymerase (with dNTP) | 500units   |
| <b>HST2500</b>  | HelixAmp™ <i>HyperSense-Taq</i> Polymerase             | 2,500units |
| <b>HST2500N</b> | HelixAmp™ <i>HyperSense-Taq</i> Polymerase (with dNTP) | 2,500units |

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