DnaUs Hot Start *Taq* DNA Polymerase High Fidelity

Catalog No. 5800-02: DnaUs Hot Start *Taq* DNA Polymerase High Fidelity, 5U/μl, 200 units
Catalog No. 5800-05: DnaUs Hot Start *Taq* DNA Polymerase High Fidelity, 5U/μl, 500 units
Catalog No. 5800-15: DnaUs Hot Start *Taq* DNA Polymerase High Fidelity, 5U/μl, 1,500 units

Store at -20°C
DnaUs Hot Start *Taq* DNA polymerase High Fidelity is stable for 2 years when stored at -20°C.

Description
DnaUs Hot Start *Taq* DNA polymerase High Fidelity is a proprietary enzyme mixture of *Taq* DNA polymerase, proof reading enzyme, and ant-*Taq* antibodies and is designed for robust amplification of a broad range of targets with high fidelity. It is an antibody-inactivated hot-start enzyme designed to block polymerase activity at ambient temperature. Once the PCR step reaches denaturation temperature (94^{o}C), *Taq* DNA polymerase activity is restored and the resulting PCR exhibits higher sensitivity, specificity and yield. The use of this antibody-based hot start enzyme complex allows for convenient room temperature reaction set-up and reduces PCR optimization effort and contamination risk.

DnaUs Hot Start *Taq* DNA polymerase High Fidelity has an error rate more than 6-fold lower than *Taq* DNA polymerase alone and is ideal for 1 kb to 12 kb target detection, cloning, and sequencing. The enzyme is provided with 10XHF PCR buffer and 50 mM $MgSO_4$ solution to perform PCR amplification.

Features
- Room temperature reaction set-up
- Automatic hot start PCR
- High fidelity (>6-fold less error rate than *Taq* DNA polymerase alone)
- High sensitivity, high specificity, and high yield
- Superior reliability and robustness
- Ideal for everyday PCR of broad range of targets (1 kb to 12 kb)

Components

	200 Units	500 Units	1,500 Units
• DnaUs Hot Start *Taq* DNA Polymerase High Fidelity	40 μl	100 μl	300 μl
• 10X HF PCR Buffer (Minus Mg)	1.35 ml	2X1.35 ml	6X1.35 ml
• 50 mM $MgSO_4$	0.5 ml	1.0 ml	3X1.0 ml

Product Qualification
DnaUs Hot Start *Taq* DNA polymerase High Fidelity is functionally tested for amplification of a 4 kb target with 200 ng of human genomic DNA.

Product Specifications
Storage Buffer: 20 mM Tris-HCl (pH 8.0), 0.1 mM EDTA, 1 mM DTT, 50% (v/v) glycerol, and stabilizers.
Unit Definition: One unit is defined as the amount of enzyme that can incorporate 10 nmol of dNTP into acid-insoluble material in 30 minutes at 74°C.

Recommended PCR Reaction Protocol
The following protocol is suggested as a starting point.

Components	25 µl Rxn	50 µl Rxn	Final Concentration
10X HF PCR Buffer (Minus Mg)	2.5 µl	5.0 µl	1X
50 mM $MgSO_4$	1.0 µl	2.0 µl	2.0 mM (Variable:1.0 - 2.0 mM)
10 mM dNTPs (dA/dC/dT/dGTP)	0.5 µl	1.0 µl	0.2 mM
DnaUs Hot Start *Taq* DNA Polymerase High Fidelity (5U/µl)	0.1 - 0.2 µl	0.2 µl	1.0 - 2.0 Unit
Forward Primer (10 µM)	0.5 µl	1.0 µl	200 nM (Variable:100 - 500 nM)
Reverse Primer (10 µM)	0.5 µl	1.0 µl	200 nM (Variable:100 - 500 nM)
Template DNA	x µl	x µl	Variable (fg - µg)
Final Volume (µl)	25 µl	50 µl	

1. Assemble the reaction.at room temperature.
2. Cap reaction vessels, gentle mix, and load into a thermal cycler.
3. Incubate tubes in thermal cycler at 94°C for 1 to 2 min to completely denature the template.
4. Perform 25-40 cycles of PCR amplification as follows:
   - Denature 94°C for 15–30 s
   - Anneal 55-60°C for 15–30 s
   - Extend 68°C for 1 min per kb
   - Hold at 4°C until use
5. Analyze PCR products by gel electrophoresis**.**

Limitations of Use
For research use only. Not for use in diagnostic procedures