# Hot Start Klentaq LA Cat #: HS110

**Amount:** 100 µl enyzme (sufficient for 2000 x 25 µl reactions up to 1 kb)
**Shipping conditions:** Ambient
**Storage conditions:** -20°C
**Thermostability:** Retains at least 85% activity after 1 hour at 95°C
**Expiration:** On tube label

**PRODUCT DESCRIPTION:**
Hot Start Klentaq LA is made with aptamer-based technology, enabling room temperature reaction set-up.

Klentaq1 is a 5′-exonuclease deficient Taq polymerase (an N-terminal deletion of Taq) with improved fidelity and thermostability. The aptamer binds to the polymerase at sub-cycling temperatures, inactivating the enzyme and preventing spurious amplification. The Long-Accurate feature allows for amplification of longer products with higher fidelity and accuracy. LA enzymes are not recommended for use with dUTP.

10x buffer composition is: 500 mM Tris-Cl pH 9.2, 160 mM ammonium sulfate, 0.5% Brij 58, and 35 mM magnesium chloride. We also offer (upon request) 10x buffer at pH 7.9 for better fidelity.

**TYPICAL PCR PROTOCOL for a 25 ul reaction:**

| Reagent | Volume | Final Concentration |
|---|---|---|
| 10x Klentaq1 Reaction Buffer | 2.5 µl | 1x |
| DNTP mix (10 mM) | 0.5 ul | 200 uM each |
| Left Primer | variable | 200 nM |
| Right Primer | variable | 200 nM |
| DNA template† | variable | 0.1-100 ng |
| PCR Enhancer Cocktail (recommended)* | 12.5 µl | 1x |
| Hot Start Klentaq LA** | 0.05 – 0.25 µl ** | |
| De-ionized distilled $H_2O$ | Adjust final volume to 25 µl | - |

† DNA amount depends mostly on genome size and target gene copy number.
* For optimal performance, we recommend using one of our PCR Enhancer Cocktails (PEC-1, PEC-1GC, PEC-2, or PEC-2-GC) or 1.3 M Betaine, a general PCR enhancer.
** To determine specific optimal enzyme concentration, we strongly recommend an enzyme titration test for each target. A good starting amount of the enzyme per 25 µl reaction is 0.05 µl. Targets larger than 1 kb may require more enzyme.

**CYCLING CONDITIONS**

1. Denaturing: 94° for 2 minutes for 1 cycle
2. Denaturing: 94° for 40-60 seconds
3. Annealing: 50°-68° depending on the specific primers (5° less than Tm) for 40-60 seconds
4. Extension: 68° for 2 min/kb target
5. Repeat steps 2-4 for 25-40 cycles

**Please visit us on the web at www.klentaq.com for troubleshooting and detailed protocols.**

**REFERENCES:**
Barnes, W.M. (1994) PCR amplification of up to 35 kb DNA with high fidelity and high yield from bacteriophage templates, PNAS 91, 2216-2220.
U.S. Patent No. 5,436,149
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