

## Hot Start Cesium Klentaq AC LA Cat #: HS250



**Amount:** 100 µl (1000 x 50 µl reactions)

**Shipping conditions:** Ambient temperature

**Storage conditions:** -20°C

**Thermostability:** Retains at least 85% activity after 1 hour at 95°C

**Expiration:** On tube label

### PRODUCT DESCRIPTION:

Hot Start Cesium Klentaq AC LA is made with aptamer-based technology, enabling room temperature reaction set-up.

Cesium Klentaq AC is a double cold-sensitive mutant of Klentaq1 (5'-exonuclease deficient Taq polymerase with improved fidelity and thermostability). Due to its suppressed activity at low temperatures this enzyme is designed for hot start PCR performance. Addition of the aptamer further enhances its hot start performance. 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, 0.25% Brij 58, and 35 mM magnesium chloride.

### TYPICAL PCR PROTOCOL for a 25 µl reaction:

Reagent	Volume	Final Concentration
10x Klentaq Mutant Reaction Buffer	2.5 µl	1x
dNTP mix (10 mM each)	0.5 µl	200 µM 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 Cesium Klentaq AC LA	0.05 – 0.25 µl **	
De-ionized distilled H <sub>2</sub> O	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, which is 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 2-8 minutes for 1 cycle
2. Denaturing: 94° for 40-60 seconds
3. Annealing: 50°-68° depending on the specific T<sub>m</sub> primers 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](http://www.klentaq.com) for troubleshooting and detailed protocols.**

### REFERENCES:

Kermekchiev, M.B., et al. (2003) Cold-sensitive mutants of Taq DNA polymerase provide a hot start for PCR. Nucl Acids Res. 31, 6139-6147.

Kermekchiev, M.B. et al. (2009) Mutants of Taq DNA polymerase resistant to PCR inhibitors allow DNA amplification from whole blood and crude soil samples. Nucl. Acids Res., 37 (5):e40 E pub.