Omni Klentaq Cat #: 340

Amount: 125 µl (0.25 µl / 25 µl reaction)
Shipping conditions: Ambient temperature
Storage conditions: -20°C for enzyme, 4°C for 10x Omni Klentaq buffer
Thermostability: Retains at least 85% activity after 1 hour at 95°C
Shelf life: At least 1 year from date of receipt under proper storage conditions.

PRODUCT DESCRIPTION:
Omni Klentaq is a triple mutant of Klentaq polymerase that makes the enzyme resistant to the inhibitory effects of blood, soil and more. It typically remains functional in 0-25% whole blood and up to 40% for some targets, especially in the presence of one of our PEC cocktails, and in some concentrations of crude soil extracts where other commercial enzymes fail. Due to its suppressed activity at low temperatures this enzyme also provides a hot start for PCR. The 10x reaction buffer composition is: 500 mM Tris-Cl pH 9.2, 160 mM ammonium sulfate, 0.25% Brij 58, and 35 mM magnesium chloride. We also offer (upon request) 10x reaction buffer at pH 7.9 for better fidelity.

TYPICAL PCR PROTOCOL for a 25µl reaction:

Reagent	Volume	Final Concentration
10x Omni Klentaq PCR 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 (PEC) (recommended)*	12.5 µl	1x
Omni Klentaq	0.1 – 0.25 µl **	
De-ionized distilled H_2O	Adjust final volume to 25µl	-

[†] 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-1-GC, PEC-2, or PEC-2-GC) which are specially formulated for use with whole blood, serum, or plasma.
** To determine specific optimal enzyme concentration, we strongly recommend an enzyme titration test for each target. A good starting amount of enzyme per 25 µl reaction is 0.1 µl for purified DNA templates and 0.25 µl for crude samples containing 5% or more whole blood, plasma or serum. Targets larger than 1 kb may require more enzyme.

CYCLING CONDITIONS:
1. Denaturing: 94° for 2-10 minutes for 1 cycle *
2. Denaturing: 94° for 40-60 seconds
3. Annealing: 50°-68° depending on the specific Tm primers for 40-60 seconds
4. Extension: 68° for 2 min / 1kb target
5. Repeat steps 2-4 for 25-40 cycles

An initial 2 min heating step is recommended for purified DNA samples, and 5-10 min for crude samples containingwhole blood, plasma, or serum.

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.

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