

OmniTaq DNA Polymerase

Amount: 125 µl (0.5 µl / 50 µl reaction)

Shipping conditions: Ambient temperature

Storage conditions: -20°C for enzyme, 4°C for 10x OmniTaq buffer

Thermo stability: 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:

OmniTaq is a triple mutant of Taq polymerase that makes the enzyme resistant to the inhibitory effects of blood, soil and more. It remains functional in up to 20-25% whole blood, especially in the presence of our enhancer products, or in some concentrations of crude soil extract where other commercial enzymes fail. 10x buffer composition is: 500 mM Tris-Cl pH 8.3, 160 mM ammonium sulfate, 1% Tween 20, and 25 mM magnesium chloride.

TYPICAL PCR PROTOCOL for a 50ul reaction:

Reagent	Volume	Final Concentration
10x OmniTaq PCR buffer	5 µl	1x
dNTP mix (10 mM each)	1 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)*	25 µl	1x
OmniTaq Polymerase	0.1 – 0.5 µl **	
de-ionized distilled H ₂ O	Adjust final volume to 50ml	-

[†] 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) 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. Good starting amount of the enzyme per 50 ul reaction is 0.1 ul for purified DNA templates and 0.5 ul for crude samples containing 5-10% whole blood, plasma or serum. Targets larger than 1 kb may require more enzyme or may benefit from the use of an LA (Long Accurate) version of the polymerase.

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_m primers for 40-60 seconds
4. Extension: 68° for 2 min / 1kb target
5. Repeat steps 2-4 for 25-40 cycles

* Initial 2-8 min heating step is recommended for crude samples containing 5-10% whole 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.

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