

## OmniTaq 2      Cat #: 302

**Amount:** 125 µl (500 x 25 µl reactions)

**Shipping conditions:** Ambient temperature

**Storage conditions:** -20°C F

**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:

OmniTaq 2 is a triple mutant of Taq polymerase. When used with our KLA buffer, it remains functional in up to 40% whole blood, (though we suggest 25 - 30 %) especially in the presence of our enhancer products. It also works in some concentrations of crude soil extract or inhibitory food matrices where other commercial enzymes fail. 10x buffer composition is: 500 mM Tris-Cl pH 9.1, 160 mM ammonium sulfate, 0.25% Brij 58, and 25 mM magnesium chloride.

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

Reagent	Volume	Final Concentration
10x OmniTaq 2 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
OmniTaq 2	0.05 – 0.25 µl **	
De-ionized distilled H2O	Adjust final volume to 25 ul	

† 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 25 ul reaction is 0.05 ul for purified DNA templates and 0.25 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 Tm primers for 40-60 seconds
4. Extension: 68° for 2 min/kb 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](http://www.klentaq.com) for troubleshooting and detailed protocols.**

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