# OmniTaq Cat #: 300

**Amount:** 125µl (500 x 25µl 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:** OmniTaq DNA Polymerase is a triple mutant of Taq polymerase that makes the enzyme resistant to the inhibitory effects of blood, soil and more. OmniTaq is extremely sensitive and able to perform well using very low amounts of template DNA. Another special feature of OmniTaq is its fast running ability. 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 µl reaction:**

| Reagent | Volume | Final Concentration |
|---|---|---|
| 10x Taq 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 |
| OmniTaq | 0.05 – 0.25 µl ** | |
| De-ionized distilled H2O | 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) which are specially formulated for use with whole blood, serum or plasma or 1.3M 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 for purified DNA templates and 0.25 µl 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.

**Please visit us on the web at 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.
U.S. Patent No.