Hot Start OmniTaq 3 Cat #: HS303

Amount: 125 µl (500 x 25 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 OmniTaq 3 is made with aptamer-based technology, enabling room temperature reaction set-up.

OmniTaq 3 DNA polymerase is a mutant of Taq polymerase that makes the enzyme resistant to the inhibitory effects of blood, soil, and more. It remains functional in up to 40% whole blood, especially in the presence of our enhancer products. OmniTaq 3 is suitable for direct amplification of samples containing plant tissues and feces. It also works in some concentrations of crude soil extract or inhibitory food matrices where other commercial enzymes fail.

The aptamer binds to the polymerase at sub-cycling temperatures, inactivating the enzyme and preventing spurious amplification. 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
Hot Start OmniTaq 3	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 generic 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. (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.