Enzyme Combo Cat #: 500

Amount: Klentaq1: 25 µl (0.05- 0.5µl/ 25 µl rxn)
OmniTaq: 25 µl (0.05- 0.5µl/ 25 µl rxn)
OmniTaq 2: 25 µl (0.05- 0.5µl/ 25 µl rxn)
OmniTaq 3: 25 µl (0.05- 0.5µl/ 25 µl rxn)
Omni Klentaq: 25 µl (0.05- 0.5µl/ 25 µl rxn)
Omni Klentaq 2: 25 µl (0.05- 0.5µl/ 25 µl rxn)
Cesium Klentaq AC: 25 µl (0.05- 0.5µl/ 25 µl rxn)
Cesium Klentaq C: 25 µl (0.05- 0.5µl/ 25 µl rxn)
CesiumTaq: 25 µl (0.05- 0.5µl/ 25 µl rxn)
ZipTaq: 25 µl (0.05- 0.5µl/ 25 µl rxn)

10x Klentaq1 Reaction Buffer (1.5 ml) for use with Klentaq1
10x Klentaq Mutant Reaction Buffer (1.5 ml) for use with Omni Klentaq, and Omni Klentaq 2, Cesium Klentaq AC, and Cesium Klentaq C
10x Taq Mutant Reaction Buffer (1.5 ml) for use with OmniTaq, OmniTaq 2, OmniTaq 3, and CesiumTaq
10 ZipTaq Reaction Buffer (1.5 ml) for use with ZipTaq

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:
Our Enzyme Combo allows you to test 8 of our enzymes to see which one works best for your application.

10x Klentaq1 Reaction Buffer is provided for Klentaq1. Buffer composition is: 500 mM Tris, 160 mM ammonium sulfate, 0.5% Brij 58, and 35 mM magnesium chloride. Final pH is 9.2. pH 7.9 available upon request for better fidelity.

10x Klentaq Mutant Reaction Buffer is provided for Omni Klentaq, and Omni Klentaq 2, Cesium Klentaq AC, Cesium Klentaq C. Buffer composition is: 500 mM Tris, 160 mM ammonium sulfate, 0.25% Brij 58, and 35 mM magnesium chloride. Final pH is 9.2. pH 7.9 available upon request for better fidelity.

10x Taq Mutant Reaction Buffer is provided for OmniTaq, OmniTaq 2, OmniTaq 3, and CesiumTaq. Buffer composition is: 500 mM Tris-Cl, 160 mM ammonium sulfate, 0.25% Brij 58, and 25 mM magnesium chloride. Final pH is 9.1. pH 7.9 available upon request for better fidelity.

10x ZipTaq Reaction Buffer is provided for ZipTaq. Buffer composition is proprietary.

TYPICAL PCR PROTOCOL for a 25 ul reaction:

Reagent	Volume	Final Concentration
10x appropriate buffer (see above)	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
DNA Polymerase	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.
* Our PCR Enhancer Cocktails or 1.5M Betaine, a general PCR enhancer, (sold separately) confer additional inhibition resistance when

using whole blood, serum, plasma, soil, and some inhibitory foods.
** To determine specific optimal enzyme concentration, we strongly recommend an enzyme titration test for each target. Optimal concentrations start at 0.05 µl / 25 µl rxn when using purified DNA template. Our Omni enzymes require more enzyme (up to 0.5 µl / 25 µl rxn) for use with crude samples containing 5% or more whole blood, plasma or serum, or crude soil extracts, or food matrices. For all our enzymes, targets larger than 1 kb require more enzyme and will benefit from a Long Accurate (LA) version of the enzyme.

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

*ZipTaq requires only 1-5 seconds for each of the denature, anneal (optional), and extension steps. For longer products, add an additional extension of 1-5 seconds per kb.

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.