

5x OmniTaq 2 PCR Kit

Cat #: 322

Amount: 125 µl enzyme and two 1.25 ml tubes of 5x Mastermix
(sufficient for 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. It enables 2-3x faster PCR. In addition, this enzyme shows strand-displacement and reverse transcriptase activity; it can be used in RT-PCR and RT-LAMP assays. It can be used for conventional as well as realtime PCR. For real-time reactions you may need to add a fluorescent dye as an alternative to probes.

5x Mastermix composition is: 250 mM Tris-Cl, 80 mM ammonium sulfate, 0.13% Brij 58, 1 mM each dNTP, and 12.5 mM magnesium chloride. Final pH is 9.1

TYPICAL PCR PROTOCOL for a 25 µl reaction:

Reagent	Volume	Final Concentration
5x Mastermix	5 µl	1x
Left Primer	variable	200 nM
Right Primer	variable	200 nM
DNA template†	variable	0.1-100 ng
PCR Enhancer Cocktail (optional)*	12.5 µl	1x
OmniTaq 2	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.

* If inhibition-resistance is needed, 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 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.

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/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:

Barnes, W. M., et al. (2021) A Single Amino Acid Change to Taq DNA Polymerase Enables Faster PCR, Reverse Transcription and Strand-Displacement. *Front. Bioeng. Biotechnol.*, 8:1569.

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