5x OmniTaq 2 PCR/RT-PCR Kit Cat #: 322

Amount: 125 µl enyzme and two 1.25 ml tubes of 5x Mastermix
(sufficient for 500 x 25 µl reactions)
Shipping conditions: Ice Pack
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 mutant of Taq DNA polymerase that provides strand-displacement and reverse transcriptase activity. It can be used as the sole enzyme in RT-PCR and RT-LAMP assays. In addition, this enzyme provides 2-3x faster PCR and inhibition-resistance. This kit 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 ul 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 ul	

† 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 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.

CYCLING CONDITIONS:
For RT PCR (if desired): Denature: 65° - 70° for 3-5 min
Add primer and anneal: 50°-68° depending on the specific Tm of primers for 1 min

For PCR: Initial Denaturing*: 94° for 2-8 minutes for 1 cycle *
Denaturing: 94° for 40-60 seconds
Annealing: 50°-68° depending on the specific Tm primers for 40-60 seconds
Extension: 68° for 2 min/kb target
Repeat 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.