Product information

Product Name: Omni KlenTaq 2 LA DNA Polymerase

Catalog No: VN1903E, VN1904E

Packing Size: 125 µl and 50 µl

Shipping Condition: Ambient temperature

Storage Condition: -20^{0}C

Product Description:

Omni KlenTaq 2 LA DNA Polymerase is a new mutant of Klentaq polymerase that makes the enzyme resistant to the inhibitory effects of higher concentrations of blood, soil, plant and more. It typically remains functional in 40% whole blood in PCR even in the absence of PCR enhancer, and in some concentrations of crude soil extracts where other commercial enzymes fail. It is able to amplify the target gene directly from whole blood, serum, plasma, water, milk, tissue and plant leaf, etc. without DNA purification prior to PCR. The Long-and-Accurate feature allows for amplification of longer products with higher fidelity and accuracy. *This enzyme can be used in real-time PCR with DNA binding dyes, such as SYBR Green and Eva Green, however, it can not be used in real-time PCR TaqMan assay that requires 5'-3' exonuclease activity.*

10X Reaction Buffer:

500 mM Tris-HCl pH 9.2, 160 mM ammonium sulfate, 0.25% Brij-58, and 35 mM magnesium chloride.

Protocol:

PCR setting for a 25 µl reaction

Reagent	Volume	Final Concentration
10x KlenTaq Mutant Reaction Buffer	2.5 µl	1x
dNTP Mix (10 mM)	0.5 µl	200 µM each
Left Primer	Variable	0.2 µM
Right Primer	Variable	0.2 µM
DNA template† / Blood / Plasma / Serum	Variable	0.1-100 ng / < 10 µl
PCR Enhancer Cocktail (recommended for crude samples)*	Titration	Variable
Omni KlenTaq 2 LA Polymerase**	0.1-0.25 µl	
De-ionized Distilled H_2O	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 (see PCR enhancers for the detail) that are specially formulated for use with whole blood, serum, plasma or other crude samples. A titration of PEC is also recommended in order to find an optimal concentration for your target and inhibition level.
** To determine specific optimal enzyme concentration, we strongly recommend an enzyme titration test for each target. A good starting amount of enzyme per 25 µl reaction is 0.05 µl for purified DNA templates and 0.125 µl for crude samples containing 5% or more whole blood, plasma or serum. Targets larger than 1 kb may require more enzyme.

Typical Cycling Parameters

Initial denaturation	95^{0}C	2-5 min (for purified DNA) 5-10 (for crude samples)
25-40 cycles		
Denaturation	94^{0}C	20 to 40 sec
Annealing	50^{0}C to 68^{0}C	20 to 60 sec
Extension	70^{0}C	2 min / 1kb target
Final Extension	70^{0}C	5 min
Hold	4^{0}C	

Troubleshooting guide

No PCR products	Check your PCR setting to see if you miss some components in the PCR master mix.
The bands in agarose gel are smear	Enzyme titration test to find optimal enzyme concentration for your target. Check to see if the DNA or primers degraded.
Low yield of product	Increase PCR cycles. Try gradient annealing temperature. Enzyme titration. Use PCR enhancer cocktail. Redesign primers.
Non-specific products are observed	Try gradient annealing temperature to find optimal annealing temperature for your target. Check GC content of the target. If it is more than 65%, you may need to use PEC-1-GC in the PCR. Check your primers or redesign them if necessary. Use hot-start Taq mutant enzymes.

Note: This product is for R&D use only

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