Cat.:M2181-4-NA

AcuGenix™ FastAmpli All-in-One qPCR Master Mix with UNG (Low DNA)-V4 V01

Product Description

AcuGenix™ FastAmpli All-in-One qPCR Master Mix with UNG (Low DNA)-V4 is a probe-based reagent specifically formulated for qualitative and quantitative Real-Time PCR applications.It contains genetically modified DNA polymerase that can rapidly amplify DNA and complete the entire PCR reaction within 30 minutes. The buffer system has been optimized for multiple amplifications. This product consists of an anti-inhibitory amplification enzyme, UNG enzyme, and an optimized buffer system containing dUTP to prevent false positive reactions caused by residual PCR products or aerosol contamination. This reagent is compatible with most real-time PCR instruments from major manufacturers, including Applied Biosystems, Eppendorf, Bio-Rad, and Roche. Through specialized treatment, this product is devoid of DNA residues and is appropriate for the development of biopharmaceutical-related detection reagents.

Components

AcuGenix™ FastAmpli All-in-One qPCR Master Mix with UNG (Low DNA)-V4

*This reagent already contains hot-start DNA polymerase, UNG, PCR Buffer, $MgCl_2$, dNTPs, and stabilizers.

Storage

Store at -20±5℃. Vortex before use. Avoid freeze-thaw cycles.

Prepare Reaction Mix

Composition	Volume per Reaction	Volume per Reaction	Final Concentration
AcuGenix™ FastAmpli All-in-One qPCR Master Mix with UNG (Low DNA)-V4	12.5 μL	25 μL	1×
25×Primer-Probe Mix [1,2]	1 μL	2 μL	1×
Template DNA [3]	—	—	—
ddH_2O	To 25 μL	To 50 μL	—

1. When using the rapid PCR protocol, appropriately increasing primer and probe concentrations may yield improved amplification results. The primer-to-probe ratio should be optimized empirically.
2. When using the standard PCR protocol, a final primer concentration of 0.2 μM typically yields optimal results. If assay performance is suboptimal, primer concentrations may be adjusted within the range of 0.2-1 μM. Probe concentrations are typically optimized within the range of 0.1-0.3 μM. Gradient titration experiments are recommended to determine the optimal primer-probe combination.
3. Different template types contain different copy numbers of the target gene, gradient dilutions may be performed as necessary to determine the optimal template quantity.

Reaction Programe

Standard PCR Protocol			
Procedure	Temp.	Time	Cycle
Digestion	50°C	2 min	1
Hot Start	95°C	1-5 min	1
Denaturation	95°C	10-20 s	40-50
Annealing/ Extension	56-64°C	20-60 s	

FAST PCR Protocol			
Procedure	Temp.	Time	Cycle
Digestion	50°C	2 min	1
Hot Start	95°C	30 s	1
Denaturation	95°C	1-3 s	40-45
Annealing/ Extension	56-64°C	3-20 s	

Quality Control

1. Functional testing: sensitivity, specificity, and reproducibility of qPCR.
2. No exogenous nuclease activity, no exogenous endo/exonuclease contamination.

Notes

1. The fast-amplification DNA polymerase incorporated in this reagent has an extension rate of no less than 1 kb/10 s. Different PCR instruments exhibit significant differences in temperature ramp rate, temperature control mode, and thermal conductivity. Therefore, it is recommended to optimize the optimal reaction conditions based on the specific characteristics of the fast PCR instrument.
2. This reagent exhibits enhanced specificity, significantly improving the detection sensitivity of real-time PCR at the limit

of detection. It markedly improves amplification curve uniformity and fluorescence signal intensity at extremely low template concentrations, making it suitable as a high-sensitivity real-time PCR detection reagent.

3. For primers with low annealing temperatures or amplicon fragments longer than 200 bp, it is recommended to use a three-step method for amplification.

4. The efficiency of dUTP utilization and sensitivity to UNG enzyme varies for different genes to be amplified. If the detection sensitivity is reduced due to the use of the UNG system, adjust and optimize the reaction system accordingly. If technical support is required, please contact our company.

5. Use dedicated areas and pipettes before and after amplification, wear gloves during operation, and regularly replace them. Do not open reaction tubes after PCR completion to minimize sample contamination from PCR products.