2 × Taq Master Mix

P111/P112

Version 22.1

Product Description

This product contains *Taq* DNA Polymerase, dNTP, and an optimized buffer system. It only needs to add primers and templates to perform amplification reaction, thereby reducing pipetting operations and improving detection throughput and reproducibility of results. The amplification system contains protective agents that keep 2 × Master Mix stable in activity after repeated freezing and thawing. This product is available in a version containing loading buffer, so PCR products can be directly loaded for electrophoresis after the reaction, which is convenient to use. The PCR product has an adenine at the 3' end that can be cloned into the T vector. It is also compatible with ClonExpress and TOPO cloning kits (Vazyme #C112/C113/C115/C601).

Components

Components	P111-01	P111-02	P111-03
2 × Taq Master Mix	5 × 1 ml	15 × 1 ml	50 × 1 ml

Components	P112-01	P112-02	P112-03
2 × Taq Master Mix (Dye Plus)	5 × 1 ml	15 × 1 ml	50 × 1 ml

Storage

Store at -30 ~ -15℃ and transport at ≤0℃.

Applications

It is applicable for conventional PCR.

Notes

For research use only. Not for use in diagnostic procedures.

Notes for Operation

Taq DNA Polymerase has a certain reactivity at room temperature, please prepare the PCR system on ice, and then place it on the PCR machine for the reaction. This can reduce non-specific amplification that occurs during the reaction preparation stage, and help to obtain highly specific amplification results.

Primer Design Guidance

1. It is recommended that the last base at the 3' end of the primer should be G or C.
2. Consecutive mismatches should be avoided in the last 8 bases at the 3' end of the primer.
3. Avoid hairpin structures at the 3' end of the primer.
4. Differences in the Tm value of the forward primer and the reverse primer should be no more than 1℃ and the Tm value should be adjusted to 55 ~ 65℃ (Primer Premier 5 is recommended to calculate the Tm value).
5. Extra additional primer sequences that are not matched with the template, should not be included when calculating the primer Tm value.
6. It is recommended that the GC content of the primer to be 40% - 60%.
7. The overall distribution of A, G, C, and T in the primer should be as even as possible. Avoid using regions with high GC or AT contents.
8. Avoid the presence of complementary sequences of 5 or more bases either within the primer or between two primers. Avoid the presence of complementary sequences of 3 or more bases at the 3' end of two primers.
9. Use the NCBI BLAST function to check the specificity of the primer to prevent nonspecific amplification.

Experiment Process

Reaction System

ddH_2O	To 50 μl
2 × Taq Master Mix	25 μl
Primer 1 (10 μM)	2 μl
Primer 2 (10 μM)	2 μl
Template DNA*	x μl

*Optimal reaction concentration varies in different templates. In a 50 μl system, the recommended template usage is as follows:

Animal & Plant Genomic DNA	0.1 - 1 μg
E. coli Genomic DNA	10 - 100 ng
cDNA	1 - 5 μl (≤1/10 of the total volume of PCR system)
Plasmid DNA	0.1 - 10 ng
λDNA	0.5 - 10 ng

Reaction Program

95℃	3 min (Initial Denaturation)[a]	
95℃	15 sec	30 - 35 cycles
60℃[b]	15 sec	
72℃	60 sec/kb	
72℃	5 min (Final Extension)	

a. The condition of initial denaturation is applicable for most amplification reactions and can be adjusted according to the complexity of the template structure. If the template structure is complex, the initial denaturation time can be extended to 5 - 10 min to improve its effect.

b. The annealing temperature needs to be adjusted according to the Tm value of the primer, generally set to be 3 ~ 5℃ lower than the Tm value of the primer; For complex templates, it is necessary to adjust the annealing temperature and extend the extension time to achieve efficient amplification.