2 × Taq Plus Master Mix

P211/P212

Version 22.1

Product Description

2 × Taq Plus Master Mix contains Taq Plus DNA Polymerase, dNTPs, and an optimized buffer system, which is suitable for high-yield PCR. Compared with *Taq* DNA Polymerase, it has higher fidelity, stronger amplification performance and higher yield. This product can efficiently amplify up to 10 kb genomic DNA fragments, 15 kb plasmid DNA fragments and 15 kb λDNA fragments. The 2 × Master Mix only needs to add primers and templates to perform amplification reaction, thereby reducing pipetting operations and improving detection throughput and reproducibility of results. The 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	P211-01	P211-02	P211-03
2 × Taq Plus Master Mix	5 × 1 ml	15 × 1 ml	50 × 1 ml

Components	P212-01	P212-02	P212-03
2 × Taq Plus 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 amplification reaction of animal, plant and microbial DNA.

Notes

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

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 Plus 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.

FAQ & Troubleshooting

	No amplification products or low yield	Nonspecific products or smear bands
Primer	Optimize primer design	Optimize primer design
Annealing temperature	Set temperature gradient and find the optimal annealing temperature	Try to increase the annealing temperature to 65℃ at 2℃ intervals
Primer concentration	Increase the concentration of primers properly	Decrease the final concentration of primers to 0.2 μM
Extension time	Increase the extension time properly	Shorten the extension time properly, when there are nonspecific bands larger than the target band
Cycles	Increase the number of cycles to 35 - 40 cycles	Decrease the number of cycles to 25 - 30 cycles
Template purity	Use templates with high purity	Use templates with high purity
Input amounts of template	Decrease the amount of crude samples; adjust the amount of other samples according to the recommended amount and increase it properly	Adjust the template amount according to the recommended amount