2X Achiever™ Taq Master Mix

Catalog # P211 / P212 Version5.1

GeneBio Systems, Inc.™

Introduction

Achiever™ Taq DNA polymerase is a mixture of Taq DNA polymerase and an enzyme containing 3'→5' exonuclease activity. Its fidelity is 6 times greater than that of Taq DNA Polymerase. Compared with Taq DNA Polymerase, Achiever™ Taq DNA polymerase has stronger amplification performance, higher sensitivity, and is more tolerant of impurities within 5 kb amplifying range. 2× Achiever™ Taq Master Mix contains Achiever™ DNA Polymerase, dNTP, and an optimized buffer system. The amplification can start only with the addition of primer and template, thereby easing PCR setup and improving reproducibility. It can amplify up to 10 kb from human genomic DNA or up to 15 kb from λ DNA. Protective agents in the 2× Achiever™ Taq Master Mix enable the resistance to repeated freeze-thaw cycles.

2× Achiever™ Taq Master Mix also provides another another option with dyes which enable direct loading PCR products onto agarose gels-2× Achiever™ Taq Master Mix (with Loading Dye), Cat. # P212. The obtained PCR products are compatible with TA-cloning because the PCR products contain A at the 3'-end and can be directly cloned into T-Vectors.

Package Information

Components	P211-01	P211-02	P211-03
2× Achiever™ Taq Master Mix	5 ml	15 ml	50 ml
Components	**P212-01**	**P212 -02**	**P212-03**
2× Achiever™ Taq Master Mix (with Loading Dye)	5 ml	15 ml	50 ml

Storage

Store at -20℃.

Unit Definition

One unit (U) is defined as the amount of enzyme that incorporates 10 nmol of dNTPs into acid-insoluble products in 30 min at 74℃ with activated salmon sperm DNA as the template / primer.

Protocol

1. General reaction mixture for PCR:

ddH_2O	to 50 µl
2x Achiever™ Master Mix	25 µl
Template DNA*	Optional
Primer 1 (10 µM)	2 µl
Primer 2 (10 µM)	2 µl

*The recommended amount of DNA template for a 50 µl reaction system is as follows:

Human Genomic DNA	0.1 - 1 µg
Bacterial Genomic DNA	10 - 100 ng
λ DNA	0.5 - 5 ng
Plasmid DNA	0.1 - 10 ng

2. Thermocycling conditions for a routine PCR:

94℃	5 min (Pre-denaturation)	
94℃	30 sec	30 - 35 cycles
55℃*	30 sec	
72℃	60 sec / kb	
72℃	7 min (Final extension)	
4℃	Hold	

*The optimal annealing temperature should be 1℃ - 2℃ lower than the T_m of the primers used.

Primers Designing Notes

1. Choose C or G as the last base of the 3'-end of the primer;
2. Avoid continuous mismatching at the last 8 bases of the 3'-end of the primer;
3. Avoid hairpin structure at the 3'-end of the primer;
4. T_m of the primers should be within the range of 55℃ - 65℃;
5. Additional sequence should not be included when calculating Tm of the primers;
6. GC content of the primers should be within the range of 40% - 60%;
7. T_m and GC content of forward and reverse primes should be as similar as possible.