UniMax *Taq* Plus Master Mix (2X)

Instructions for Use of Products ATR-P511-1 and ATR-P511-2.

Quick Protocol

UniMax *Taq* Plus Master Mix (2X) contains *Taq* Plus DNA Polymerase, dNTPs, and a unique buffer system to ensure reliable PCR performance across a wide range of applications without the need for time-consuming optimization. To perform the amplification reaction, only primers and templates need to be added, reducing pipetting operations and improving detection throughput and result reproducibility. This master mix boasts twofold higher fidelity compared to **UniMax *Taq* Plus Master Mix (2X)**, providing heightened sensitivity, robustness, and very high yield PCR amplification over a broad template range with minimal PCR templates. It can efficiently amplify up to 10-kb genomic DNA fragments, 15-kb plasmid DNA fragments, and 15-kb λDNA fragments. **UniMax Taq Plus Master Mix (2X)** is an excellent choice for complex templates, including GC-rich templates and those with PCR inhibitors. The amplification system contains protective agents, maintaining **UniMax *Taq* Plus Master Mix** (2X) activity after repeated freezing and thawing. Additionally, this product includes a loading buffer, allowing direct electrophoresis of PCR products after the reaction for convenient use

Storage

Stored at -20°C.

Protocols

UniMax *Taq* Plus Master Mix (2X) should be used at a 1X concentration with DNA template and primers in a total reaction volume of 25 µL. Reaction volumes can be scaled up to 50 µL if desired.

1. Gently vortex and briefly centrifuge **UniMax *Taq* Plus Master Mix (2X)** after thawing.
2. Place a thin-walled PCR tube on ice and add the following components for each 25 µL reaction:

UniMax *Taq* Plus Master Mix (2X)	**12.5 µL**
Forward primer	0.1-1.0 µM
Reverse primer	0.1-1.0 µM
Template DNA*	10 pg - 1 µg
Water, nuclease-free	to 25 µL

***Optimal DNA concentration varies in different templates. In a 25 to 50 µl system, the recommended template usage is as follows:**

Template DNA	Concentration
Animal & Plant Genomic DNA	0.1 - 1 µg
Bacterial 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

3. Gently vortex the samples and spin down.
4. Perform PCR using the recommended thermal cycling conditions outlined below:

Step	Temperature (°C)	Time	Number of cycles
Initial denaturation [a]	95	1-3 min	1
Denaturation	95	30 sec	25-40
Annealing [b]	Tm-5	30 sec	
Extension [c]	72	1 min	
Final extension	72	5-15 min	1

[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°C 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.

[c] The recommended extension step is 1 min for PCR products up to 1 kb. For longer products, the extension time should be prolonged by 1 min/kb.

5. Load 3-5 µL of PCR mixture directly on a gel.

Additional protocol information is available in Product Information #ATR-P511-1 and #ATR-P511-2, available online at: www.atrmed.com