2×Super-Fidelity Premix（With Dye)

(M012)

Components

Product Name	Cat. No.	Volume
2×Super-Fidelity Premix （With Dye）	M012	1mL

Product Overview

This product contains Super-Fidelity DNA Polymerase, dNTPs, and an optimized buffer system. Amplification can be performed simply by adding primers and template, which reduces pipetting steps and improves throughput and result reproducibility. Protective agents in the system ensure stable activity after repeated freeze-thaw cycles. The premix includes electrophoresis tracking dye, allowing direct loading for gel electrophoresis upon completion of PCR.

Super-Fidelity DNA Polymerase shows greatly improved performance in long-fragment amplification, specificity, and yield. It efficiently amplifies fragments up to **15 kb** from simple templates such as λDNA and plasmids, and up to **10 kb** from complex templates like genomic DNA. Its error rate is **1/83** that of ordinary Taq polymerase. The enzyme supports direct PCR from samples including bacteria, fungi, plant tissue, animal tissue, or whole blood. Amplification products are **blunt-ended**.

Storage Conditions

Store at −30 ~ −15°C for 1 year. Transport with ice packs. Avoid repeated freeze-thaw cycles.

Applications

This product is suitable for PCR using genomic DNA, cDNA, plasmid DNA, and crude samples as templates.

Unit Definition

One unit (U) is defined as the amount of enzyme that incorporates **10 nmol** of total nucleotides into acid-insoluble material within **30 minutes at 74°C** using activated salmon sperm DNA as the template/primer.

Protocol

*退火温度需根据引物和模板实际的 G+C 含量来做调整；针对高 GC 模板，可适当添加 DMSO 至 5%-10%。

6.1 Reaction Setup (on ice)

Mix thoroughly after adding all components. Return to −20°C immediately after use.

Component	Volume
ddH_2O	up to 50 μL
2×Super-Fidelity Premix (With Dye)	25 μL
Forward primer (10 μM)	1 μL
Reverse primer (10 μM)	1 μL
Template DNA*	X μL

*Use high-quality template.

6.2 PCR Cycling Conditions

Step	Temperature	Time	Cycle
Initial denaturation	95°C	3 min	1
Denaturation	95°C	15 sec	25–35
Annealing*	55°C	15 sec	
Extension	72°C	30–60 sec/kb	
Final extension	72°C	5 min	1

*Adjust annealing temperature based on primer and template GC content. For high-GC templates, add DMSO to **5%–10%**.

Notes

1) Do not use dUTP or primers/templates containing uracil.
2) Super-Fidelity DNA Polymerase has strong **proofreading activity**. If amplification products are used for TA cloning, DNA purification **must** be performed before A-tailing.
3) Extension speed: Simple templates (plasmid, simple genome): 10–15 sec/kb; Complex templates (human genome): 20–25 sec/kb
4) For high-GC or difficult templates: Add DMSO to a final concentration of **1%–8%** (optimize by 1% increments); Or add betaine to a final concentration of **1.0–1.7 M**.
5) This product is **for research use only**.
6) For safety and health, wear lab coat and disposable gloves during operation.