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I. Introduction.

The *AccuPower® Pfu* PCR MasterMix contains *Pfu* DNA polymerase, dNTPs, and reaction buffer in a Master Mixed format that is 2xMasterMix solution. Patented chemical stabilizer maintains the activity of the Master Mixture for over 1 year in the freezer.

II. Advantages.

- 1.High fidelity.** *AccuPower® Pfu* PCR Master Mix has a high accuracy activity. (error rate=1.9x10⁻⁶)
- 2.High purity.** *AccuPower® Pfu* PCR Master Mix a high purity using polymerase, which passed *E.coli* genomic DNA contamination test. (template free PCR achievement done by *E.coli* genome detection primer.)
- 3.Stability.** *AccuPower® Pfu* PCR MasterMix contains a stabilizer (Patented in US and Korea), which can maintain the stability of the polymerase up to 1 years at -20°C, and for 20 minutes at 94°C. Also, pre-denaturation during PCR has no effects on the activity of the DNA polymerase.
- 4.Reproducibility.** *AccuPower® Pfu* PCR Master Mix has been batch produced using strict Q.C. procedures. Errors that often occur during mass production have been completely eliminated and our current batch processing system allows the most accurate and reproducible end-products.
- 5.Simplicity.** The fewer manual steps allow reduction in potential errors. Each tube contains tracking dye and precipitant for agarose gel electrophoresis, eliminating the needs for a separate loading buffer.

III. Application.

AccuPower® Pfu PCR MasterMix is recommended for use in Polymerase Chain Reaction (PCR), primer extension reactions, Gene Synthesis, site-directed mutagenesis and other applications that demands high fidelity.

IV. Contents.

Reaction size Component	20 µl reaction	50 µl reaction
Pfu DNA polymerase	1 U	2.5 U
Each:dNTP(dATP, dCTP, dGTP, dTTP)	250 µM	250 µM
10X reaction buffer	2 µl	5 µl
Stabilizer and tracking dye	O	O

V. Experimental Protocol.

1.Add template DNA and primers to *AccuPower® Pfu* PCR Master Mix.

2.Concentration of template DNA and primer.

Reaction size	20 µl reaction	50 µl reaction
Template DNA	1 ~ 100 ng	1 ~100 ng
Primer	5 ~20 pmole	10 ~ 50 pmole
Distilled water	-	-
2x <i>Pfu</i> PCR MasterMix	10 µl	25 µl

3.Add distilled water to *AccuPower® Pfu* PCR Master Mix to a total volume of 20 µl or 50 µl.

4.Vortexing, and briefly spin down.

5.Perform PCR of samples.

6.Load samples on agarose gel without adding a loading-dye mixture, and perform electrophoresis.

VI. PCR Cycling condition.

1. Typical PCR amplification.

Step	Temperature	Time	Number of cycles
Initial Denaturation	94°C	2~5 min	1 cycle
Denaturation	94°C	0.5~1 min	25~35 cycles
Annealing	42~65°C	0.5~1 min	
Extension	72°C	1~2 min	
Final Extension	72°C	5 min	1 cycle

2. The extension time of *AccuPower® Pfu* PCR Master Mix is needed approximately 1~2 minutes for every 1 kb to be amplified.

3. In case of long PCR, it is recommended to use two-step PCR methods of denaturation step (94°C for 30sec) and annealing/extension step (68°C for 1~2 min/1 kb).

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VII. Quality test.

1. Template Range & Sensitivity test.

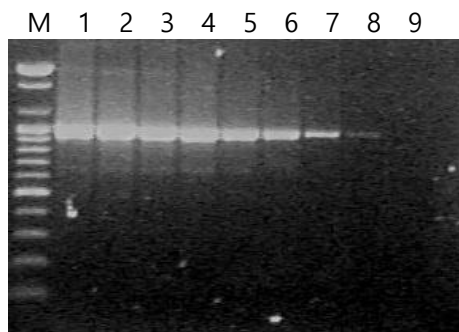


Fig 1. Test of working range & sensitivity of *AccuPower*® *Pfu* PCR Master Mix for Lambda DNA template.

M : 100 bp DNA Ladder
Line 1 : 100 ng
Line 2 : 10 ng
Line 3 : 1 ng
Line 4 : 100 pg
Line 5 : 10 pg
Line 6 : 1 pg
Line 7 : 100 fg
Line 8 : 10 fg
Line 9 : Template negative

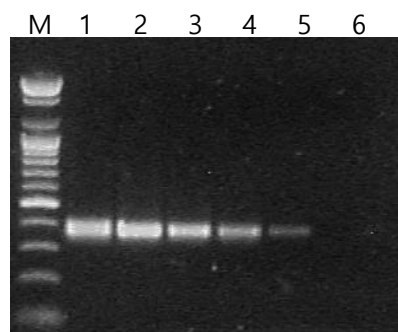


Fig 2. Test of working range & sensitivity of *AccuPower*® *Pfu* PCR Master Mix for Human DNA template.

M : 100 bp DNA Ladder
Line 1 : 100 ng
Line 2 : 10 ng
Line 3 : 1 ng
Line 4 : 100 pg
Line 5 : 10 pg
Line 6 : Template negative

2. Long kb test.

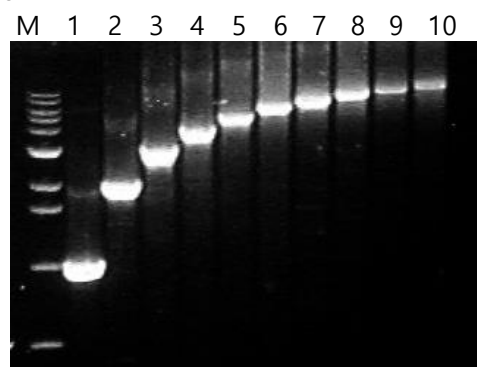


Fig 3. Amplification of Lambda DNA of 1 kb to 10 kb with *AccuPower*® *Pfu* PCR Master Mix

M : 1 kb DNA Ladder
Line 1 : 1 kb fragment
Line 2 : 2 kb fragment
Line 3 : 3 kb fragment
Line 4 : 4 kb fragment
Line 5 : 5 kb fragment
Line 6 : 6 kb fragment
Line 7 : 7 kb fragment
Line 8 : 8 kb fragment
Line 9 : 9 kb fragment
Line 10 : 10 kb fragment

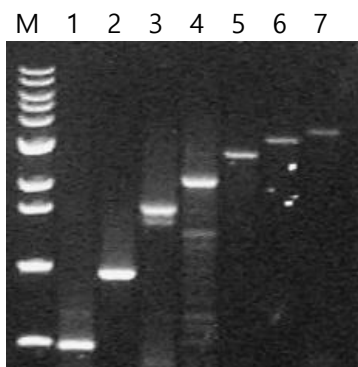


Fig 4. Amplification of Human DNA of 500 bp to 3.5 kb with *AccuPower*® *Pfu* PCR Master Mix.

M : 1 kb DNA Ladder
Line 1 : 0.5 kb fragment
Line 2 : 1 kb fragment
Line 3 : 1.5 kb fragment
Line 4 : 2 kb fragment
Line 5 : 2.5 kb fragment
Line 6 : 3 kb fragment
Line 7 : 3.5 kb fragment

VIII. Ordering Information

Tube	20 µl	K-2022	0.2 ml thin-wall 8-strip tubes with attached cap / 96 tubes
		K-2024	0.2 ml thin-wall 8-strip tubes with attached cap / 480 tubes
	50 µl	K-2023	0.2 ml thin-wall 8-strip tubes with attached cap / 96 tubes
		K-2025	0.2 ml thin-wall 8-strip tubes with attached cap / 480 tubes
		K-2027	0.5 ml thin-wall tubes with attached cap / 100 tubes
Master Mix	—	K-2026	1 ml of 2 X Master Mix solution

IX. Notice

Bioneer corporation reserve the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice. All information provided here is subject to change without notice.