

AccuPower[®] TLA PCR PreMix is covered by Korea Pat. No. 162770 and US Pat. No. 5861251 & 6153412.

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I. Introduction

The AccuPower[®] TLA PCR PreMix contains TLA DNA polymerase, dNTPs, and reaction buffer in a premixed format that is freeze-dried into individual tubes. The patented chemical stabilizer maintains the activity of the premixture for over a month even when stored at room temperature (25°C) and over 2 years in the freezer.

II. Advantages

1. High fidelity

AccuPower[®] TLA PCR PreMix shows the superior fidelity than Pfu DNA polymerase or Vent DNA polymerase and has the amplification efficiency like Taq DNA polymerase.

2. High purity

AccuPower[®] TLA PCR PreMix 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[®] TLA PCR PreMix contains a patented stabilizer, which can maintain the stability of the polymerase up to 2 years at -20°C, for over a month at room temperature, 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[®] TLA PCR PreMix 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.

6. High Processivity

AccuPower[®] TLA PCR PreMix can reduce reaction setup time because it has the advanced processivity as three times as Pfu DNA polymerase.

7. Long PCR

AccuPower[®] TLA PCR PreMix enables to amplify PCR products up to 20kb.

III. Application

AccuPower[®] TLA PCR PreMix 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

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

V. Experimental Protocol

1. Add template DNA and primers to AccuPower[®] TLA PCR PreMix tube.
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 ~2.0 pmole	10 ~ 50 pmole

3. Add distilled water to AccuPower[®] TLA PCR PreMix tubes to the final volume of 20 µl or 50 µl.
4. Dissolve the lyophilized blue pellet by 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.

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VI. PCR Cycling condition

1. Typical PCR amplification.

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

- The extension time of AccuPower[®] TLA PCR PreMix is needed approximately 1~2minutes for every 1kb to be amplified.
- 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 1~2min/1kb).

VII. Quality test

1. Template Range & Sensitivity test.



Fig 1. Test of working range & sensitivity of AccuPower[™] TLA PCR PreMix for Lambda DNA template (1kb Amplification).

M : 1kb DNA Ladder(Bioneer, D-1040), Lane 1 : 10ng, Lane 2 : 1ng, Lane 3 : 100pg, Lane 4 : 10pg, Lane 5 : 1pg, Lane 6 : 100fg, Lane 7 : 10fg



Fig 2. Test of working range & sensitivity of AccuPower[™] TLA PCR PreMix for Human DNA template (1kb Amplification).

M : 1kb DNA Ladder(Bioneer, D-1040), Lane 1 : 50ng, Lane 2 : 5ng, Lane 3 : 500pg, Lane 4 : 50pg

2. Long kb test.

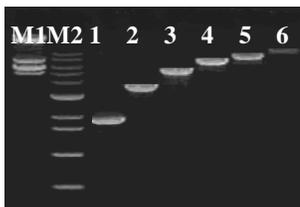


Fig 3. Amplification of Lambda DNA of 2 kb to 15kb with AccuPower[™] TLA PCR PreMix

M1 : Lambda DNA/EcoR I (Bioneer, D-1060),
M2 : 1kb DNA Ladder (Bioneer, D-1040)
Lane 1 : 2kb fragment, Lane 2 : 4kb fragment, Lane 3 : 6kb fragment
Lane 4 : 8kb fragment, Lane 5 : 10kb fragment , Lane 6 : 15kb fragment

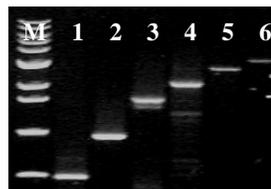


Fig 4. Amplification of Human DNA of 500bp to 3kb with AccuPower[™] TLA PCR PreMix

M : 1kb DNA Ladder(Bioneer, D-1040)
Lane 1 : 0.5kb fragment, Lane 2 : 1kb fragment, Lane 3 : 1.5kb fragment,
Lane 4 : 2kb fragment, Lane 5 : 2.5kb fragment, Lane 6 : 3kb fragment

Trademark

AccuPower and TLA are trademarks of Bioneer Corporation.

VIII. Ordering Information

Tube type	Reaction	Cat. No.	Description
0.2ml Tube	20ul	K-3201	0.2 ml thin-wall 8-strip tubes with attached cap / 96 tubes
		K-3203	0.2 ml thin-wall 8-strip tubes with attached cap / 480 tubes
	50ul	K-3202	0.2 ml thin-wall 8-strip tubes with attached cap / 96 tubes
		K-3204	0.2 ml thin-wall 8-strip tubes with attached cap / 480 tubes
0.5ml Tube	50ul	K-3205	0.5 ml thin-wall tubes with attached cap / 100 tubes
MasterMix	—	K-3210	1 ml of 2 X Master mix solution

A complete product list appears on our web site at www.bioneer.com.