USER GUIDE

ARROW Taq DNA Polymerase

Cat. ADP0150500
Qty. 500 U

Content and Storage

ARROW Taq DNA Polymerase
Cat. ADP0150500

Store at -20 ℃

Contents

Cat.ADP0150500

ARROW Taq DNA Polymerase .... ***500 U***
Storage : 50mM Tris-HCl pH7.9, 50mM KCl, 0.1mM EDTA, 1mM DTT, 0.5mM PMSF , 50% Glycerol

10X reaction buffer .... ***1.5 ml***
100 mM Tris-HCl (pH 9.0), 500 mM KCl, 0.1% (w/v) gelatin, 15 mM MgCl2, 1% Triton X-100, 0.5 mg/ml BSA

Unit Definition:
One unit incorporate 10 nmole of dNTP into acid-insoluble material in 30 min at 70˚C.

Introduction

ARROW Taq DNA polymerase is a thermostable DNA polymerase isolated and purified from E.coli strain that carries a plasmid with cloned Taq DNA polymerase. It is lacks 3'-5' proofreading activity and there is a 5'-3' exonuclease activity in the same polypeptide as the DNA polymerase. Taq is designed for use in DNA amplification, primer extension reaction and DNA sequencing.

Standard Protocol

Set up each reaction as follows:

component	Vol./reaction
ARROW Taq DNA Polymerase	0.5 - 2 U
10X Reaction Buffer	5 µl
2.5 mM dNTP	4 µl
5-50 µM forward primer	1 µl
5-50 µM reverse primer	1 µl
* template DNA	10 pg - 1 µg
DNase Free water to **50 µl**	

*: The amount of DNA template varies according to complexity of its sequence. In the case of mammalian DNA, up to 1µg is used per reaction. Typical amount of yeast, bacterial, and plasmid DNAs used per reaction are 10ng, 1ng, and 10pg, respectively.

Standard Protocol (continued)

Program your instrument as follows :

Step	Time	Temp
First Denature:	5 min	95˚C
Denature:	15-30 sec	95˚C
Anneal:	30 sec	Tm-5 ˚C
Extend:	35-65 sec/1kbp	72˚C
Number of cycle : 35 - 40 cycles		
Final extension: 5 min 72°C		

ARROW Hi Fi DNA Polymerase

Cat. ADP0350500
Qty. 500 U

Content and Storage

ARROW* Hi Fi *DNA Polymerase
Cat. ADP0350500
Store at -20 ℃

Contents

Cat.ADP0150500

ARROW Hi Fi DNA Polymerase	**.................**	***500 U***
10X reaction buffer	**.................**	***1.5 ml***

Unit Definition:
One unit incorporate 10 nmole of dNTP into acid-insoluble material in 30 min at 70˚C.

Introduction

Hi Fi polymerase are thermostable enzymes formulation specifically developed for synthesizes length up to 30 kb and low error rate PCR product.

Hi Fi polymerase synthesizes higher yields of product from genomic DNA, cDNA, bacterial cultures. It is contain a 2.5 hours half life at 96˚C and easy to amplify PCR product at G-C rich and secondary structure.

Standard Protocol

Template :
Hi Fi Polymerase is suitable for amplifying targets up to 15 kb from the following templates :

Genomic DNA: 10–200 ng
Plasmid DNA : 1–5 ng
cDNA : ~100 ng starting total RNA

Amplification of longer targets (up to 15 kb) may be possible, but may require more template and longer elongation times.

Primers :
Use 0.3 µM per primer as a general starting point. For larger amounts of template (e.g., 200 ng genomic DNA), increasing the concentration up to 0.5 µM per primer may improve yield.

Annealing Temperature :
The annealing temperature is slightly higher than with typical PCR. The optimal annealing temperature should be ~2˚C lower than the Tm of the primers used. A range of 58–68˚C is recommended.

Extension Time :
As little as 30 seconds per kb is suitable for most targets. Use up to 60 seconds per kb for maximum yield.

PCR Protocol

1. The following procedure is suggested as a starting point when using Hi Fi Polymerase in any PCR amplification
2. Add the following components to an autoclaved micro centrifuge tube at room temperature. Mix of common components to enable accurate pipetting):

Step	Volume
Hi Fi DNA Polymerase	0.5 - 1 µl
10X Buffer	10 µl
10 mM dNTP	2 µl
Primer1 (20 pmol)	2-4 µl
Primer2 (20 pmol)	2-4 µl
Template	1-10 µl
ddH2O	UP to 100 µl
Total	100 µl

Program the thermal cycler as follows:

Step	Time	Temp	Cycle
Initial denaturation	30 sec - 2 min	94-96˚C	1
Denature:	15 sec – 2 min	94-96˚C	
Anneal:	15 sec – 2 min	Tm-5˚C	15-30
Extend:	2 min /1kbp	68-75˚C	
Final extension: 1 - 10 min 68 - 72°C			

ARROW Hot Start DNA Polymerase

Cat. ADP0350500
Qty. 500 U

Content and Storage

ARROW* Hi Fi *DNA Polymerase
Cat. ADP0350500
Store at -20 ℃

Contents

Cat.ADP0350500

ARROW Hot Start DNA Polymerase	***.................***	***500 U***
10X reaction buffer *Tris-HCl (pH 8.3),KCl, (NH4)2SO4, 15mM MgCl2, Stabilizers.*	***.................***	***1 ml***
50mM MgCl2	***.................***	***1 ml***

Unit Definition:
One unit incorporate 10 nmole of dNTP into acid-insoluble material in 30 min at 70˚C.

Introduction

ARROW Hot Start DNA polymerase is a modied form of the recombinant Taq DNA polymerase and is provided in an inactive state with no polymerase activity at ambient temperature. This prevents the formation of misprimed products and primer-dimers at low temperature.

ARROW Hot Start DNA polymerase is activated by a 10 minute, 95˚C. incubation step. It provides high DNA Polymerase specicity and increases the yield of the specic DNA polymerase product. DNA polymerase setup is quick and convenient as all reaction components can be assembled at room temperature.

Standard Protocol

Set up each reaction as follows:

component	Vol./reaction
ARROW Hot Start DNA Polymerase (5U/µl)	1.25 – 2.5 U
10X Reaction Buffer	5 µl
2.5 mM dNTP	4 µl
5-50 µM forward primer	1 µl
5-50 µM reverse primer	1 µl
* template DNA	10 pg - 1 µg
DNase Free water to **50 µl**	

Standard Protocol (continued)

The optimal conditions for the concentration of ARROW Hot Start DNA polymerase, MgCl2, primers and template DNA will depend on the system being utilized. It may be necessary to determine the optimal conditions for each individual component.

Program your instrument as follows :

Step	Time	Temp
Activation	10 min	95˚C
Denature:	30-60 sec	94˚C
Anneal:	30-60 sec	Tm-5 ˚C
Extend:	120 sec/1kbp	72˚C - 78˚C
Number of cycle : 30 – 40 cycles		
Final extension: 3 min 72°C		

ARROW pfu DNA Polymerase

Cat. ADP0550500
Qty. 500 U

Content and Storage

ARROW pfu DNA Polymerase
Cat. ADP0550500

Store at -20 ℃

Contents

Cat.ADP0550500

ARROW pfu DNA Polymerase .... ***500 U***
Storage : 50mM Tris-HCl pH7.9, 50mM KCl, 0.1mM EDTA, 1mM DTT, 0.5mM PMSF , 50% Glycerol

10X reaction buffer .... ***1.5 ml***
200 mM TrisHCl (pH 8.8 at 25 ℃), 100 mM KCl, 100mM (NH4)2 SO4, 20 mM MgSO4, 1.0% Triton X-100

Unit Definition:
One unit incorporate 10 nmole of dNTP into acid-insoluble material in 30 min at 70°C.

Introduction

ARROW Pfu DNA polymerase is isolated from the Pyrococcus furiosus. The multifunctional thermostable enzyme possesses both of 5' to 3'-DNA polymerase and 3'-to 5'- exonuclease activity, which results in a 12-fold increase in fidelity of DNA synthesis over Taq DNA polymerases. Pfu DNA polymerase has a temperature optimum between 72℃ and 78°C. remains more than 95% active following one hour incubation at 95°C.

Standard Protocol

Set up each reaction as follows:

component	Vol./reaction
ARROW pfu DNA Polymerase	0.5 - 2 U
10X Reaction Buffer	5 µl
2.5 mM dNTP	4 µl
5-50 µM forward primer	1 µl
5-50 µM reverse primer	1 µl
* template DNA	10 pg - 1 µg
DNase Free water to **50 µl**	

*: The amount of DNA template varies according to complexity of its sequence. In the case of mammalian DNA, up to 1µg is used per reaction. Typical amount of yeast, bacterial, and plasmid DNAs used per reaction are 10ng, 1ng, and 10pg, respectively.

Standard Protocol (continued)

Program your instrument as follows :

Step	Time	Temp
First Denature:	5 min	95°C
Denature:	15-30 sec	95°C
Anneal:	30 sec	Tm-5 °C
Extend:	120 sec/1kbp	72°C - 78°C
Number of cycle : 25 – 35 cycles		
Final extension: 5 min 72°C		