

AMPQX® Taq DNA Polymerase

Cat. no. LM203002

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Product Information

Product name	AMPQX® Taq DNA Polymerase
Cat.No.	LM203002
Size	1,000 U/10,000 U
Storage and shipping	The product is shipped with ice pack and can be stored at -25°C ~ -15 °C for 2 year.
Applications	Genotyping / Colony PCR / Other routine PCR applications
Definition of Activity:	One unit (U) of activity 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.

2. Product description

AMPQX® Taq DNA Polymerase is a thermostable recombinant DNA polymerase expressed from the thermophilic bacterium *Thermus aquaticus*, with a molecular weight of 94 kDa. It possesses 5'→3' polymerase activity and 5'→3' exonuclease activity, but lacks 3'→5' exonuclease activity. The amplification products have a 3'-dA overhang, making them suitable for direct use in TA cloning.

3. Product Components

Components No.	Components
LM203002-A	10×Taq Buffer (Mg ²⁺ Free)
LM203002-B	25 mM MgCl ₂
LM203002-C	AMPQX® Taq DNA Polymerase (5 U/μL)

4. Quality Control

4.1 Nuclease Residual Testing (Exonuclease): Incubate 10 U of this product with 0.5 μg of λDNA-Hind III at 37°C for 4 hours. The DNA electrophoresis pattern should show no change.

4.2 Nicking Activity Testing: Incubate 10 U of this product with 0.5 µg of IL23R plasmid at 37°C for 4 hours. The DNA electrophoresis pattern should show no change.

4.3 RNase Residual Testing: Incubate 10 U of this product with 0.5 µg of total RNA from 293T cells at 37°C for 1 hour. The RNA electrophoresis pattern should show no change.

5. Instructions

5.1 Recommended PCR Reaction System(Preparation on ice)

Components	Volume µL	Final concentration
ddH ₂ O	to 50	-
10×Taq Buffer (Mg ²⁺ Free)	5	1×
25 mM MgCl ₂	3	1.5 mM
dNTP Mix (10 mM each)	1 µL	0.2 mM
Template DNA:	optional	-
Primer 1(10 µM)	2 µL	0.4 µM
Primer 2(10 µM)	2 µL	0.4 µM
AMPQX® Taq DNA Polymerase (5 U/µL)	0.4 µL	0.04 U/µL

[Note]:

a.Final Concentration of Mg²⁺:

The optimal Mg²⁺ concentration is between 1.5-2 mM. If necessary, you can adjust the concentration in increments of 0.2-0.5 mM to find the optimal concentration.

b.Polymerase Addition:

Taq polymerase has some 5'→3' polymerase activity at room temperature. To prevent nonspecific amplification, it is recommended to add the polymerase as the final step in the reaction setup.

c.Polymerase Concentration:

The recommended concentration is 0.04 U/µL. Optimization can be performed within the range of 0.025-0.04 U/µL.

d.Recommended Template Amounts for a 50 µL Reaction:

Template Types	Amplification Fragments
Genomic DNA	50 ng-100 ng
Plasmid DNA	10 pg-20 ng
cDNA	1-5 µL (not exceeding 1/10 of the reaction volume)

5.2.Reaction program

Cycle step	Temp.	Time	Cycles
Initial denaturation	94 °C	30 sec -5 min	1
Denaturation	94 °C	30 sec	35
Annealing	50 - 60 °C	30 sec	
Extension	72 °C	60 sec/kb	
Final extension	72 °C	10 min	1

[Note]:

- e. Denaturation Temperature and Time: It is recommended to use 94°C for denaturation. Recommended denaturation times are: 30 seconds for simple templates like plasmid DNA, 3 minutes for complex templates like cDNA or genomic DNA. / 5-10 minutes for templates with high GC content.
- f. Annealing Temperature and Time: The recommended annealing temperature is 60°C, but you can establish a temperature gradient if needed to find the optimal annealing temperature for primers. The recommended annealing time is 20 seconds, adjustable within 10-30 seconds. Prolonged annealing times may cause smear on the gel for PCR products.
- g. PCR Products: Store PCR products at -20°C to prevent DNA degradation.
- h. These guidelines ensure optimal PCR conditions for efficient amplification of target DNA fragments, considering template complexity and GC content.

6. Notes

- 1. This product is for research use only.
- 2. Please operate with lab coats and disposable gloves for your safety.