
PowerQ® Taq DNA Polymerase

for qPCR
User Manual

Cat.Nos.ZP00102(1000 U)

ZP00103(5000 U)

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Storage condition: The undiluted enzyme solution is stable when stored at -20°C.

Storage and dilution buffer: 20mM Tris-HCl; 1mM dithiothreitol; 0.1mM EDTA; 0.1M KCl; Nonidet P40, 0.5%(v/v); Tween 20, 0.5%(v/v); glycerol, 50%(v/v); pH 8.0 (4°C).

Concentration:5U/ul

Unit definition: One unit is defined as the amount of enzyme required to catalyze the incorporation of 10mmols of dNTP into an acid-insoluble material in 30 minutes at 74°C. The reaction conditions are: 50mM Tris-HCl, (pH 9.0 at 25 °C), 50mM NaCl, 10mM MgCl₂, 200uM dATP, dCTP, dGTP and radiolabelled dTTP, and 12.5ug activated calf thymus DNA in a 50ul reaction.

10× Reaction buffer (without Mg²⁺) : 100mM Tris-HCl; 500mM KCl; pH 9.0 (20°C). Buffer is optimized for use with 0.2mM for each of dNTPs. A tube of 25mM MgCl₂ is supplied separately.

Reaction Mixture Set Up for qPCR

1. Gently vortex and briefly centrifuge all solutions after thawing.
2. Add, in a thin-walled PCR tube, on ice:

Reagent	Quantity, for 50µl of reaction mixture	Final concentration
Sterile deionized water	variable	-
10X <i>Taq</i> buffer	5µl	1X
10mM dNTP mix	1µl	0.2mM of each
25mM MgCl ₂	7ul	3.0-4.0mM
Primer I	variable	0.4-1µM
Primer II	variable	0.4-1µM
<i>Taqman probe/Sybr Green I</i>	variable	0.2-0.3uM/0.2 X
<i>Taq</i> DNA Polymerase	0.5	2.5u / 50µl
Template DNA	variable	10pg-1µg
Total	50ul	

Cycling Protocol for qPCR

1. Protocol using LightCycler with *Taqman* probe

93°C 2min → 93°C 5 sec → 60°C 30 sec

40cyclers

2、 Protocol using LightCycler with Molecular Beacon probe

93°C 2min → 93°C 5 sec → 60°C 20 sec → 72°C 20 sec

40cyclers

3、 Protocol using other instruments, e.g. from Applied Biosystems, Bio-Rad Laboratories, Corbett Research, ,and Stratagene. with Taqman probe

94°C 4min → 94°C 30sec → 60°C 60sec

40cyclers

4、 Protocol using other instruments, e.g. from Applied Biosystems, Bio-Rad Laboratories, Corbett Research, ,and Stratagene. with Molecular Beacon probe

94°C 4min → 94°C 30sec → 60°C 30sec → 72°C 30sec

40cyclers

Reaction Mixture Set Up for Electrophoresis PCR

1. Gently vortex and briefly centrifuge all solutions after thawing.

2. Add, in a thin-walled PCR tube, on ice:

Reagent	Quantity, for 50µl of reaction mixture	Final concentration
Sterile deionized water	variable	-
10X <i>Taq</i> buffer	5µl	1X
10mM dNTP mix	1µl	0.2mM of each
25mM MgCl ₂	4ul	1.5-2.0mM
Primer I	variable	0.4-1µM

Primer II	variable	0.4-1μM
Taq DNA Polymerase	0.5	2.5u / 50μl
Template DNA	variable	10pg-1μg
Total	50ul	

4. Gently vortex the sample and briefly centrifuge to collect all drops from walls of tube.
5. If using a thermal cycler without a heated lid, overlay the sample with a half volume of mineral oil or add an appropriate amount of wax.
6. Place samples in a thermal cycler preheated to 94°C and start PCR.

* Table for selection of 25mM MgCl₂ solution volume:

Final concentration of MgCl ₂ in 50 μl reaction mix(mM)	1.0	1.25	1.5	1.75	2.0	2.5	3.0	4.0
Volume of 25 mM MgCl ₂ (μl)	2	2.5	3	3.5	4	5	6	8

Recommended thermal cycling conditions for e-PCR:

Step	Temperature, °C	Time ,min	Number of cycles
Initial denaturation	94	4	1
Denaturation	94	0.5	
Annealing	50-68	0.5-1	25-40
Extension	72	0.5-2	
Final Extension	72	5	1

After cycling, maintain the reactions at 4°C or store at -20°C until ready for analysis.

Note: It is recommended to add dNTPs to this incubation mixture shortly before use.

This is to prevent decomposition of the deoxynucleoside triphosphate that occurs during prolonged storage at the alkaline pH values required for optimal enzyme activity.

Quality control

Each lot of Taq DNA Polymerase is tested for activity in PCR and efficient incorporation of digoxigenin-11-dUTP, and in DNA sequencing of M13mp18ssDNA. A minimum of 250 bases must be clearly legible in the sequencing gel. Each lot of Taq DNA polymerase is tested for contaminating activities as stated below.

Test buffer: 10mM Tris-HCl; 1.5mM MgCl₂; 50mM KCl; pH 9.0 (20°C). 0.1mg/ml gelatin.

Absence of endonucleases: 1ul lambda DNA is incubated with Taq Dna

polymerase in 50ul test buffer with a paraffin oil overlay at 65°C for 16 hours. The amount of enzyme showing no degradation of the lambda DNA is stated under "EndoI".

Related Products

ShinePrep® RNA Miniprep Kits

Cat.Nos.ZN00701(50 rxns)
ZN00702(100 rxns)

ShineProbe® Real Time qPCR Kits

Cat.Nos.ZK00713(50 rxns × 50ul)
ZK00714(100 rxns × 50ul)

FicoScript® M MLV Reverse Transcriptase

Cat.Nos.ZP00601(1000 U)
ZP00602(5000 U)

ShinePolo® One step RT-PCR qPCR Kits

Cat.Nos.ZK00102(50 rxns × 30ul)
ZK00103(100 rxns × 30ul)

EnergicScript cDNA First Strand Synthesis Kit

Cat.Nos.ZK00804(50 rxns × 20ul)
ZK00805(100 rxns × 20ul)



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