Taq DNA Polymerase, recombinant

invitrogen by life technologies

Print Options

Package Contents

Catalog Number	Size
10342-053	100 units
10342-020	500 units
10342-038 (EU only)	2 × 500 units
10342-046	1,500 units
10342-178	5,000 units

Kit Contents

Storage Conditions

- Store all contents at -20°C.

Required Materials

- Template: cDNA, gDNA, λDNA
- Forward and reverse gene-specific primers
- 10 mM dNTP mix (Cat. no. 18427-088)
- Autoclaved, distilled water
- E-Gel® General Purpose Gels, 1.2% (Cat. no. G5018-01)
- TrackIt™ 1 Kb Plus DNA Ladder (Cat. no. 10488-085)
- 0.2 or 0.5-mL nuclease-free microcentrifuge tubes

Timing

Varies depending on amplicon length

Selection Guide

PCR Enzymes and Master Mixes
Go online to view related products.

Product Description

- *Taq* DNA Polymerase is isolated from *E. coli.* expressing a cloned *Thermus aquaticus* DNA polymerase gene.
- This enzyme has a 5' to 3' DNA polymerase exonuclease activity but lacks a 3' to 5' exonuclease activity.
- *Taq* DNA polymerase is heat-stable and synthesizes DNA at elevated temperatures from single-stranded templates in the presence of a primer.

Important Guidelines

- Select the correct polymerase, PCR instrument, and cycling conditions for your application.
- Take precautions to avoid cross-contamination by using aerosol-resistant barrier tips and analyzing PCR products in a separate area from PCR assembly.
- To use a "hot-start" method, ensuring high specificity of the products being synthesized, do not add the *Taq* DNA Polymerase until after the initial denaturation, after the reaction reaches 80°C.

Online Resources

Visit our product page for additional information and protocols. For support, visit www.lifetechnologies.com/support.

For Research Use Only. Not for use in diagnostic procedures.

Enzyme Characteristics

Hot-start: None
Length: Up to 5 kb
Fidelity vs. *Taq*: 1X
Format: Separate components

PCR Reaction Setup

Use the measurements below to prepare your PCR experiment, or enter your own parameters in the column provided.

Component	25-µL rxn	50-µL rxn	Custom	Final Conc.
Autoclaved, distilled water	to 25 µL	to 50 µL	to µL	–
10X PCR Buffer, -Mg	2.5 µL	5 µL	µL	1X
50 mM $MgCl_2$	0.75 µL	1.5 µL	µL	1.5 mM
10 mM dNTP Mix	0.5 µL	1 µL	µL	0.2 mM each
10 µM forward primer	1.25 µL	2.5 µL	µL	0.5 µM
10 µM reverse primer	1.25 µL	2.5 µL	µL	0.5 µM
Template DNA	varies	varies		1–500 ng
Taq DNA Polymerase (5 U/µL)	0.1 µL	0.2 µL	µL	1.0–2.5 U/rxn*

* Use up to 2.5 U for longer targets.

PCR Protocol

See page 2 to view a procedure for preparing and running your PCR experiment.

Optimization Strategies

Refer to the pop-up for guidelines to optimize your PCR reactions.

Limited Warranty, Disclaimer, and Licensing Information

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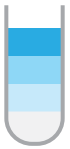
Taq DNA Polymerase Protocol

The example PCR procedure below shows appropriate volumes for a single **50-µL** reaction. For multiple reactions, prepare a master mix of components common to all reactions to minimize pipetting error, and then dispense appropriate volumes into each 0.2–0.5 mL PCR reaction tube prior to adding template DNA and primers.

Timeline	Steps	Procedure Details
1 	**Thaw reagents**	Thaw, mix, and briefly centrifuge each component before use.
2 	**Prepare PCR master mix**	Add the following components to a microcentrifuge tube sitting on ice. **Note:** Consider the volumes for all components listed in steps 2 and 3 to determine the correct amount of water required to reach your final reaction volume.
3 	**Add template DNA and primers**	Mix and briefly centrifuge the components.
4 	**Incubate reactions in a thermal cycler**	Cap each tube, mix, and then briefly centrifuge the contents.
5 	**Analyze with gel electrophoresis**	Analyze 10 µL using agarose gel electrophoresis. Use your PCR reaction immediately for down-stream applications, or store it at -20°C.

Component	50-µL rxn	Final Concentration
Autoclaved, distilled water	to 50 µL	
10X PCR Buffer, minus Mg	5 µL	1X
50 mM $MgCl_2$	1.5 µL	1.5 mM
10 mM dNTP mix	1 µL	0.2 mM each
Taq DNA Polymerase (5 U/µL)*	0.2 µL	1.0–2.5 U/rxn**

* For the "hot-start" method, leave out the *Taq* DNA Polymerase until Step 4, when the reaction temperature is at 80°C.

** Use up to 2.5 U for longer targets.

Component	50-µL rxn	Final Concentration
10 µM forward primer	2.5 µL	0.5 µM
10 µM reverse primer	2.5 µL	0.5 µM
Template DNA	varies	1–500 ng

Step		Temperature (°C)	Time
Initial Denaturation		94	3 minutes*
25–35 PCR Cycles	Denature	94	45 seconds
	Anneal	~55 (depending on primer T_m)	30 seconds
	Extend	72	90 seconds/kb
Final Extension		72	10 minutes
Hold		4	indefinitely

* To use the "hot-start" method, after initial denaturation at 94°C, maintain the reaction at 80°C, and add 0.1–0.25 µL of *Taq* DNA Polymerase to each 50-µL reaction. Then, proceed with 3-step cycling.