Datasheet

Taq DNA Polymerase

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Taq DNA Polymerase

Cat. No.	Pack size	Conc.	Supplied buffer
E011	500 u	5 u/µl	x10 Taq Buffer, 25mM Mg^{2+} x10 Taq Buffer, without Mg^{2+} 25 mM $MgCl_2$ solution
E012	5'000 u	5 u/µl	x10 Taq Buffer, 25mM Mg^{2+} x10 Taq Buffer, without Mg^{2+} 25 mM $MgCl_2$ solution

Description:

Taq polymerase is a thermostable enzyme with mass of approx. 94kDa. The source of the enzyme is a strain of *E.coli* with plasmid encoding the sequence of Taq DNA polymerase. The enzyme has activity maximum at 70-74 °C (although the enzyme is able to work at lower temperatures of about 25 °C). Enzime's half-life at 94 °C is at least 45 min. The enzyme catalyzes DNA synthesis in 5'→3' direction in the presence of Mg^{2+} and at the appropriate pH. It also has a 5'→3' exonuclease activity (this activity is realized only on double- stranded DNA). The presence of the 5'→3' exonuclease activity makes the enzyme suitable for use in RealTime PCR. Taq polymerase adds extra adenines at the 3'-end of PCR products. It does not create interferences with cloning. If it is necessary to obtain PCR products without extra adenines we recommend using Pfu polymerase. The maximum length of PCR products that can be obtained using Taq polymerase is approx. 5,000 bp.

Applications:

- PCR, RealTime PCR
- DNA labeling
- DNA sequencing

Buffers:

- **x10 Taq Buffer, 25 mM Mg^{2+}**
  700 mM Tris-HCl, pH 8.8 at 25 °C,
  166 mM $(NH_4)_2SO_4$,
  25 mM $MgCl_2$
- **x10 Taq Buffer, without Mg^{2+}**
  700 mM Tris-HCl, pH 8.8 at 25 °C,
  166 mM $(NH_4)_2SO_4$

Storage buffer:

50% glycerol (v/v),
20 mM Tris-HCl, pH 7.5 at 25 °C,
100 mM NaCl,
0.1 mM EDTA,
2 mM DTT,
0.2% Tween 20

Concentration:

5 u/µl

Unit definition:

One unit is defined as the amount of enzyme required to catalyze the incorporation of 10 nmol of dNTPs into an acid-insoluble form in 30 minutes at 70 °C.

Quality control:

The enzyme is tested for the absence of nicking activities, of endo-, exodeoxyribonucleases and ribonucleases. Activity and thermostability tested in PCR.

Storage conditions:

Store at -20 °C

Shipping conditions:

No special conditions required.

Safety and precautions:

Avoid contact with eyes, skin and clothing.
In case of contact with eyes, rinse immediately with plenty of water for at least 15 minutes and seek medical advice. Make the rinsing more thorough by separating the eyelids with fingers. If symptoms such as redness and irritation persist, seek medical attention.
In case of contact with skin, immediately wash the skin with soap and plenty amounts of water.

Recommended PCR protocol:

(the protocol can be modified according to use of another components or volume)

Mix the following components (total volume - 25 µl):	
x10 Taq Buffer, 25mM Mg^{2+}	2.5 µl
or	
x10 Taq Buffer, without Mg^{2+}	2.5 µl
25 mM $MgCl_2$	2.5 µl
2.5 mM dNTP Mix	2.5 µl
Primer 1 (10 pmol/µl)	0.5 µl
Primer 2 (10 pmol/µl)	0.5 µl
Template DNA (10 ng)	2.0 µl
Taq polymerase (5 u/µl)	0.5 µl
ddH_2O	up to 25 µl

PCR cycles:

Step	Temp.	Time	
Initial denaturation	94 °C	1 min	
Denaturation	94 °C	10 sec	30 cycles
Annealing	60 °C	10 sec	
Elongation	72 °C	10 sec	

Note: Annealing temperature, step duration and cycles number can be modified according to the actual tasks.