

## Taq DNA Polymerase 1.1x Master Mix

2 mM MgCl<sub>2</sub> final concentration

MADE IN DENMARK

Cat. No.: A130307

5000 Reactions



A130307

-	Taq DNA Polymerase 1.1x Master Mix, 2 mM MgCl <sub>2</sub>
ID No.	5200050
Cap colour	Clear
Content	45 x 5 ml

### Key Features

Taq DNA Polymerase 1.1x Master Mix is a ready-to-use 1.1x reaction mix with the Ampliqon Taq DNA polymerase, the NH<sub>4</sub><sup>+</sup> buffer system, dNTPs and magnesium chloride present. Each reaction requires 45 µl of the 1.1x Master Mix. Simply add primers, template and water to a total reaction volume of 50 µl to successfully carry out primer extensions and other molecular biology applications.

Taq DNA Polymerase 1.1x Master Mix offers several advantages. Set up time is significantly reduced. The chance of contaminating component stocks is eliminated. Reduction of reagent handling steps leads to better reproducibility. Standard tests can be set up with the confidence that results will be consistent every time.

### Composition of the Taq DNA Polymerase 1.1x Master Mix (2 mM MgCl<sub>2</sub> final concentration)

- Tris-HCl pH 8.5, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 2.2 mM MgCl<sub>2</sub>, 0.11% Tween® 20
- 0.22 mM of each dNTP
- Ampliqon Taq DNA polymerase
- Stabilizer

### Recommended Storage and Stability

Long term storage at -20 °C. Product expiry at -20 °C is stated on the label.

Option: Store at +4 °C for up to 6 months.

### Quality Control

Taq DNA Polymerase is tested for contaminating activities, with no traces of endonuclease activity, nicking activity or exonuclease activity.

### Protocol

This protocol serves as a guideline to ensure optimal PCR results when using Taq DNA Polymerase 1.1x Master Mix. Optimal reaction conditions such as incubation times, temperatures, and amount of template DNA may vary and must be determined individually.

1. Thaw Taq 1.1x Master Mix and primers. **It is important to thaw the solutions completely and mix thoroughly before use to avoid localized concentrations of salts.** Keep all components on ice.
2. Set up each reaction. Table 1 shows the reaction set up for a final volume of 50 µl. If desired, the reaction size may be scaled down. Use 18 µl of the Taq 1.1x Master Mix in a final volume of 20 µl.  
If your template DNA is very dilute, it might be an advantage to use the Ampliqon Taq 2x Master Mix. (See Related Products)

**Table 1. Reaction components (reaction mix and template DNA)**

Component	Vol./reaction	Final concentration
Taq 1.1x Master Mix	45 µl	1x
Primer A (10 µM)	1 µl (0.5 – 5 µl)	0.2 µM (0.1 – 1.0 µM)
Primer B (10 µM)	1 µl (0.5 – 5 µl)	0.2 µM (0.1 – 1.0 µM)
PCR-grade H <sub>2</sub> O	X µl	-
Template DNA	X µl	genomic DNA: 50 ng (10 – 500 ng) plasmid DNA: 0.5 ng (0.1 – 1 ng) bacterial DNA: 5 ng (1 – 10 ng)
<b>TOTAL volume</b>	50 µl	-

3. Mix the reaction mix thoroughly and dispense appropriate volumes into reaction tubes. Mix gently, e.g. by pipetting the reaction mix up and down a few times.
4. Add template DNA to the individual tubes containing the master mix.
5. Program the thermal cycler according to the manufacturer's instructions.  
For maximum yield and specificity, temperatures and cycling times should be optimized for each new template target or primer pair.
6. Place the tubes in the thermal cycler and start the reaction.

### Three-step PCR program

Cycles	Duration of cycle	Temperature
1	2 – 5 minutes	95 °C
25 - 35	20 – 30 seconds <sup>a</sup> 20 – 40 seconds <sup>b</sup> 30 seconds <sup>c</sup>	95 °C 50 – 65 °C 72 °C
1	5 minutes <sup>d</sup>	72 °C

<sup>a</sup>. Denaturation step: This step is the first regular cycling event and consists of heating the reaction to 95 °C for 20 – 30 seconds. It causes melting of the DNA template by disrupting the hydrogen bonds between complementary bases, yielding single-stranded DNA molecules.

<sup>b</sup>. Annealing step: The reaction temperature is lowered to 50 – 65 °C for 20 – 40 seconds allowing annealing of the primers to the single-stranded DNA template. Typically, the annealing temperature is about 3 – 5 °C below the T<sub>m</sub> of the primers used.

<sup>c</sup>. Extension/elongation step: Taq polymerase has its optimum activity temperature at 72 °C. At this step the DNA polymerase synthesizes a

new DNA strand complementary to the DNA template strand. The extension time depends on the length of the DNA fragment to be amplified. As a rule of thumb, at its optimum temperature the DNA polymerase will polymerize a thousand bases per minute.

- <sup>d</sup> Final elongation: This single step is occasionally performed at a temperature of 72 °C for 5 minutes after the last PCR cycle to ensure that any remaining single-stranded DNA is fully extended.

## Two-step PCR program

Fast 2-step PCR protocols are available using this link:

<https://ampliqon.com/en/pcr-technology/application-notes/>

## Related Products

<b>Taq Master Mixes (500 x 50 µl reactions) *</b>	<b>Cat. No.</b>
2x Master Mix, 1.5 mM MgCl <sub>2</sub> final concentration	<b>A140303</b>
2x Taq OptiMix CLEAR, 1.5 mM MgCl <sub>2</sub> final concentration	<b>A370503</b>
2x Master Mix RED, 1.5 mM MgCl <sub>2</sub> final concentration	<b>A180303</b>

<b>TEMPase Hot Start Master Mixes (500 x 50 µl reactions) *</b>	<b>Cat. No.</b>
2x Master Mix A**, 1.5 mM MgCl <sub>2</sub> final concentration	<b>A230303</b>
2x Master Mix A**BLUE, 1.5 mM MgCl <sub>2</sub> final concentration	<b>A290403</b>

\*Master mixes available also in 1.1x variants as well as 2 mM MgCl<sub>2</sub> variants, \*\*Mix A is Ammonium Buffer based, also available as Mix C based on Combination Buffer.

<b>Special TEMPase Master Mixes (500 x 50 µl reactions)</b>	<b>Cat. No.</b>
Multiplex 2x Master Mix, 3 mM MgCl <sub>2</sub> final concentration	<b>A260303</b>
GC TEMPase 2x Master Mix I – for GC-rich templates	<b>A331703</b>
GC TEMPase 2x Master Mix II – for GC-rich templates	<b>A332703</b>

<b>Taq DNA Polymerase (500 units) *</b>	<b>Cat. No.</b>
Taq DNA Polymerase 5 U/µl	<b>A110003</b>
• with 10x Ammonium Buffer	<b>A111103</b>

\*Available in kits including one or two buffers (Ammonium Buffer, Standard Buffer or Combination Buffer). All kits include extra 25 mM MgCl<sub>2</sub>

<b>Hot Start DNA Polymerase (500 units) *</b>	<b>Cat. No.</b>
TEMPase Hot Start DNA Polymerase, 5 U/µl	<b>A220003</b>
• with 10x Ammonium Buffer	<b>A221103</b>

\*Available in kits including one or two buffers (Ammonium Buffer, Standard Buffer or Combination Buffer). All kits include extra 25 mM MgCl<sub>2</sub>

<b>Buffers for DNA polymerases *</b>	<b>Cat. No.</b>
10x Ammonium Buffer, 3 x 1.5 ml	<b>A301103</b>
10x Standard Buffer, 3 x 1.5 ml	<b>A302103</b>
10x Combination Buffer, 3 x 1.5 ml	<b>A303103</b>
5x PCR Buffer RED, 6 x 1,5 ml **	<b>A301810</b>
PCR Grade Water, 6 x 5 ml	<b>A360056</b>

\*Ammonium Buffer, Standard Buffer and Combination Buffer are also available as Mg<sup>2+</sup> free buffers, detergent free buffers and Mg<sup>2+</sup> and detergent free buffers.

\*\*For direct gel loading and visualisation.

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

Other product sizes, combinations and customized solutions are available. Please look at [www.ampliqon.com](http://www.ampliqon.com) or ask for our complete product list for PCR Enzymes. For customized solutions please contact us.

**Made in Denmark**

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