

## Taq DNA Polymerase Master Mix RED

### 2.0 Master Mix Kit (1.5mM MgCl<sub>2</sub>)

Catalogue no.: 180306 (2500 reactions)

Cat. No.	Size reactions	Taq DNA Polymerase Master Mixes RED	MgCl <sub>2</sub> Conc.
160301	100	1.1x Master Mix RED	1.5 mM
160303	500	1.1x Master Mix RED	1.5 mM
160306	2.500	1.1x Master Mix RED	1.5 mM
170301	100	1.1x Master Mix RED	2.0 mM
170303	500	1.1x Master Mix RED	2.0 mM
170306	2.500	1.1x Master Mix RED	2.0 mM
180301	100	2.0x Master Mix RED	1.5 mM
180303	500	2.0x Master Mix RED	1.5 mM
180306	2.500	2.0x Master Mix RED	1.5 mM
190301	100	2.0x Master Mix RED	2.0 mM
190303	500	2.0x Master Mix RED	2.0 mM
190306	2.500	2.0x Master Mix RED	2.0 mM

Store at -20°C. Reagent for in-vitro laboratory use only

### General Description

Taq DNA Polymerase Master Mix RED is a ready-to-use 2.0x reaction mix. Simply add primers, template, and water to successfully carry out primer extensions and other molecular biology applications.

Ampliqon Taq polymerase, the NH<sub>4</sub><sup>+</sup> buffer system, dNTPs and magnesium chloride are conveniently present in the Taq DNA Polymerase Master Mix RED. An inert red dye and a stabilizer are also present to allow direct loading of the final products onto a gel for analysis.

Taq DNA Polymerase Master Mix RED offers several advantages. Set up time is significantly reduced. There is no need to buy and use separate loading dyes to load reaction products onto agarose gels for electrophoresis and subsequent visualization. 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 2x Taq Master Mix RED

- 150 mM Tris-HCl pH 8.5, 40 mM (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 3.0 or 4.0 mM MgCl<sub>2</sub>\*, 0.2% Tween 20®
- 0.4 mM dNTPs
- 0.05 units/μL Ampliqon Taq DNA polymerase
- Inert red dye and a stabilizer

\*Taq DNA Polymerase Master Mix RED is offered in two final MgCl<sub>2</sub> concentrations: 1.5mM and 2.0mM.

### Suggested Protocol using Taq Master Mix RED

This protocol serves as a guideline for primer extensions. Optimal reaction conditions such as incubation times, temperatures, and amount of template DNA may vary and must be individually determined.

#### Notes:

- Set up reaction mixtures in an area separate from that used for DNA preparation or product analysis.
- The table below shows the reaction set up for a final volume of 50 μL.
- After primer extension, a sample (10 to 30% of the reaction) can be loaded directly on a gel for analysis.
- Important:** Spin Taq Master Mix RED vials briefly before use.

- Set up each reaction as follows:

Component	Vol./reaction	Final Conc.
Taq Master Mix RED	25 μL	1X
Primer A	Variable	0.1–1.0 μM
Primer B	Variable	0.1–1.0 μM
Distilled Water	Variable	----
Template DNA	Variable	Variable
<b>TOTAL volume</b>	50 μL	----

- Mix gently by pipetting the solution up and down a few times.
- 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.

- Place the tubes in the thermal cycler and start the reaction.

### Three-step PCR Programme

Cycles	Duration of cycle	Temperature
25-35	20 - 30 seconds <sup>a</sup>	95 °C
	20 – 40 seconds <sup>b</sup>	50-65 °C
	30 seconds <sup>c</sup>	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 DNA 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 degrees Celsius 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.

### Related products

Description	Cat. no.
Taq DNA Polymerase (1000 units) Glycerol free	<b>100103</b>
Taq DNA Polymerase (500 units) with 10X Ammonium Reaction Buffer with 10X Standard Reaction Buffer	<b>110303</b>
Taq DNA Polymerase (500 units) with 10X Combination Buffer	<b>110403</b>
Taq DNA Polymerase (500 units) with 10X Mg <sup>++</sup> Free Ammonium Buffer	<b>110503</b>
Taq DNA Polymerase 2.0X Master Mix (100 r) with 2.0 mM MgCl <sub>2</sub>	<b>150301</b>
Taq DNA Polymerase 2,0X MaMi RED (100 r) with 1.5 mM MgCl <sub>2</sub> ,	<b>180301</b>
Taq DNA Polymerase 2.0X MaMi RED (100 r) with 2.0 mM MgCl <sub>2</sub>	<b>190301</b>
AccuPOL DNA Polymerase (500 units)	<b>210303</b>
TEMPase Hot Start DNA Polymerase (500 units) with 10X TEMPase Buffer I with 10X TEMPase Buffer II	<b>220303</b>
TEMPase Hot Start 2 x Master Mix with TEMPase Buffer I (100 r)	<b>230301</b>
TEMPase Hot Start 2 x Master Mix with TEMPase Buffer II (100 r)	<b>230701</b>
TEMPase Hot Start 2 x Master Mix Blue With TEMPase Buffer I (100 r)	<b>230301</b>
TEMPase Hot Start 2 x Master Mix Blue With TEMPase Buffer II (100 r)	<b>230701</b>
RealQ PCR 2 x Master Mix (200 reactions) for probe	<b>250407</b>
RealQ PCR 2 x Master Mix (200 reactions) With green dye	<b>250507</b>
dNTP Mix (2 x 500µl) (12.5 mM of each dA, dC, dG and dT)	<b>501004</b>
dNTP Mix, (2 x 500 µl) (10 mM of each dA, dC, dG and dT),	<b>502004</b>

(Other product sizes available)

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#### NOTICE

In certain countries, patents cover the PCR process. This product is intended for researchers having a license to perform PCR or those not required to obtain a license.

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