VWR Taq DNA Polymerase Master Mix

2x Master Mix Kit (1.5 mM $MgCl_2$)

Cat. No.: 733-1316 (2500 Reactions)

Cat. No.	No. of 50 µl Reactions	Taq DNA Polymerase 2x Master Mix
ID No. Cap colour	**-**	**5200100 Red**
733-2542	500	10 x 1.25 ml
733-1316	2500	50 x 1.25 ml
733-1830 Sample	20	1 x 0.5 ml

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

General Description

VWR Taq DNA Polymerase Master Mix is a ready-to-use 2x reaction mix. Simply add primers, template, and water to successfully carry out primer extensions and other molecular biology applications.

VWR Taq DNA Polymerase, the NH_4^+ buffer system, dNTPs and magnesium chloride are present in VWR Taq DNA Polymerase Master Mix. Each reaction requires 25 µl of the 2x reaction mix. Simply add primers, template and water to a total reaction volume of 50 µl.

VWR Taq DNA Polymerase 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 2x Taq Master Mix

- Tris-HCl pH 8.5, $(NH_4)_2S0_4$, 3.0 or 4.0 mM $MgCl_2$*, 0.2 % Tween® 20
- 0.4 mM of each dNTP
- 0.2 units/µl VWR Taq polymerase
- Stabilizer

*VWR Taq DNA Polymerase Master Mixes are available in two final $MgCl_2$ concentrations: 1.5 mM and 2 mM.

Quality Control

Each lot of VWR Taq DNA Polymerase is tested for contaminating activities, with no trace of endonuclease activity, nicking activity, exonuclease activity or priming activity.

Suggested Protocol Using Taq Master Mix

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

Notes:

- Set up reaction mixtures in an area separate from that used for DNA preparation or product analysis.
- Table 1 shows the reaction set up for a final volume of 50 µl.

1. Thaw 2x 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.

   Important: Spin Taq Master Mix vials briefly before use.

2. Set up each reaction as shown in table 1:

Table 1. Reaction components: Master mix and template DNA

Component	Vol./reaction*	Final concentration*
Taq 2x Master Mix	25 µl	1x
25 mM $MgCl_2$**	X µl	1.5 mM (0.5 – 5 mM)
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_2O	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)
TOTAL volume	50 µl	-

* Suggested starting conditions; theoretically used conditions in brackets
** Not included in the kit

3. Mix gently by pipetting the solution up and down a few times
4. 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 target template or primer pair.

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

Version: VWR 9/2013
Issued: 9/2013

Made in Denmark

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Three-step PCR Program

Cycles	Duration of cycle	Temperature
1	2 minutes[a]	95 °C
25 – 35	20 – 30 seconds[b] 20 – 40 seconds[c] 30 seconds[d]	95 °C 50 – 65 °C 72 °C
1	5 minutes[e]	72 °C

a. Initial denaturation step (optional).

b. 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.

c. 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_m of the primers used.

d. Extension/elongation step: Taq polymerase has its optimal activity 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.

e. 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.
VWR Taq DNA Polymerase:	
VWR Glycerol Free Taq DNA Polymerase (1000 units) with 10x Key Buffer with 10x Extra Buffer	**733-1817**
VWR Taq DNA Polymerase (500 units) with 10x Key Buffer with 10x Extra Buffer	**733-1301**
VWR Taq DNA Polymerase (500 units) with 10x Extra Buffer (Mg^{2+} free and Triton free)	**733-1304**
VWR Taq DNA Polymerase (1000 units) with 10x Key Buffer (Tween free) with 10x Extra Buffer (Tween free)	**733-1307**
VWR Taq DNA Polymerase (500 units) with 10x Key Buffer (Mg^{2+} free)	**733-1311**
VWR Red Taq DNA Polymerase (2500 units) with 10x Key Buffer with 10x Extra Buffer	**733-1323**
VWR Taq DNA Polymerase Master Mix:	
VWR Taq DNA Pol., 1.1 x Master Mix, 1.5 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1314**
VWR Taq DNA Pol., 1.1 x Master Mix, 2 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1315**
VWR Taq DNA Pol., 2 x Master Mix, 1.5 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1316**
VWR Taq DNA Pol., 2 x Master Mix, 2 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1317**
VWR Red Taq DNA Pol., 1.1 x Master Mix, 1.5 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1318**
VWR Red Taq DNA Pol., 1.1 x Master Mix, 2 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1319**
VWR Red Taq DNA Pol., 2 x Master Mix, 1.5 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1320**
VWR Red Taq DNA Pol., 2 x Master Mix, 2 mM $MgCl_2$ (final concentration) (2500 reactions)	**733-1321**
High Fidelity DNA Polymerase:	
AccuPOL DNA Polymerase (250 units) with 10x Key Buffer	**733-1324**
AccuPOL DNA Polymerase (250 units) with 10x Key Buffer (Mg^{2+} free and Tween free)	**733-1328**
Enhancer and dNTP:	
Betaine Enhancer Solution (5M), 5 ml (500 reactions)	**733-1361**
dNTP Mix, 40 mM (10 mM of each dATP, dCTP, dGTP & dTTP) (40 µmol, 2x 500 µl)	**733-1363**
dNTP Set, 100 mM of each dATP, dCTP, dGTP & dTTP (4x 25 µmol, 4x 250µl)	**733-1364**

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