



\*\*\*\*\***SAMPLE PACK**\*\*\*\*\*

## 2.0X Hot Start Master Mix (1.5mM MgCl<sub>2</sub>)

Cat #: SMP42-198

Contents: 20 Reactions

Storage: -20°C.

Reagent for *in vitro* laboratory use only

### General Description

Apex Hot Start Master Mix is a Ready-to-Use 2.0X master mix. Simply add primers, template and water to successfully carry out primer extensions and other molecular biology applications. Apex Hot Start DNA Polymerase, the NH<sub>4</sub><sup>+</sup> buffer system, dNTPs and magnesium chloride are present in Hot Start Master Mix with Buffer I. Each reaction requires 25 µL of the 2.0X reaction mix. Simply add primers, template and water to a total reaction volume of 50 µL.

Apex Hot Start DNA Polymerase is a modified form of Apex Taq DNA Polymerase, which is activated by heat treatment. A chemical moiety is attached to the enzyme at the active site, which renders the enzyme inactive at room temperature. Thus, during setup and the first ramp of thermal cycling, the enzyme is not active and misprimed primers are not extended. The result is higher specificity and greater yields when compared to standard DNA polymerases.

Apex Hot Start 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 2.0X Apex Taq Master Mix

- Tris-HCl pH 8.5, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 3.0mM MgCl<sub>2</sub>, 0.2% Tween 20<sup>®</sup>
- 0.4 mM dNTPs
- Apex Hot Start DNA Polymerase
- Stabilizer

### Protocol

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.

**Important:** Mix the solutions completely before use to avoid localized concentrations of salts.

1. Set up each reaction as follows:

Component	Vol./reaction	Final Conc.
Apex Hot Start Master Mix with Buffer I	25µl	1X
Primer A	Variable	0.1–1.0µM
Primer B	Variable	0.1–1.0µM
PCR Grade Water	Variable	----
Template DNA	Variable	Variable
<b>TOTAL volume</b>	50µl	----

2. Mix gently by pipetting the solution up and down a few times.
3. Program the thermal cycler according to the manufacturer's instructions.
4. Each program must start with an initial heat activation step at 95°C for 15 minutes.

For maximum yield and specificity, temperatures and cycling times should be optimized for each new template target or primer pair.

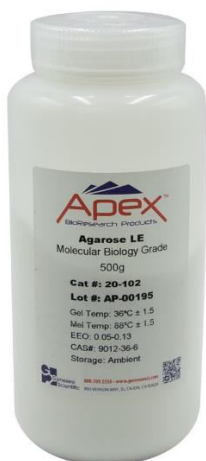
A typical thermal cycling program is shown below:

95°C for 15 min.		Activate Apex Hot Start Polymerase
<b>30-40 cycles:</b>		
95°C	30 sec.	Denature template
45-65°C	30 sec.	Anneal primer
72°C	1-5 min.	Elongation
72°C for 5 min.		Elongation

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

## Apex AGAROSE guarantee

- Low EEO (=0.12) - This means biological macro-molecules such as proteins or nucleic acids as well as larger particles such as viruses and subcellular fragments can migrate through gel's neutral properties.
- Sharp, finely resolved banding resolution as well as excellent transparency for easy reading.
- Extraordinarily low gel background after applying staining agents.
- Superior mechanical resistance for more reliable and easier handling.



Description	Cat#
General Purpose Agarose (500 g)	20-102

## Ethidium Bromide Dropper Bottle

Adding Ethidium Bromide has never been easier and safer! For the recommended final concentration of 0.5 µg/ml, simply add one drop for every 50 ml of solution.



Concentration:  
0.625mg/ml  
EtBr Capacity: 5mg

Description	Cat#
EtBr Dropper Bottle, 10ml	20-276

## Ethidium Bromide Destaining Bags



Solutions and gels for safe and easy disposal. Now with our activation solution (included) our destaining bags demonstrate increased absorption efficiency speed relative to other similar products. Simply add ~5 ml of activation solution to the bag

Description	Cat#
EtBr Destaining Bags, 25 Bags	20-277

prior to use.

## Related Products

Taq Polymerase kits (500 units)	Cat#
With 10X Standard and Ammonium Reaction Buffer	42-800B1
With 10X Combination Buffer	42-800B3
Glycerol Free	42-800B4

Hot Start DNA Polymerase (500 units)	Cat#
With 10X Ammonium and Combination Reaction Buffer	42-106

All polymerases are also available in kits, Mg<sup>2+</sup> free buffers and 50 mM MgCl<sub>2</sub>.

Master Mixes (500 reactions)	Cat#
2X Taq DNA Polymerase Master Mix, 1.5 mM MgCl <sub>2</sub>	42-132
2X Taq RED Master Mix, 1.5 mM MgCl <sub>2</sub>	42-138
2X Hot Start Master Mix Buffer I, 1.5 mM MgCl <sub>2</sub>	42-198

The shown master mixes are ammonium based. Also available with balanced ammonium and potassium based buffers.

Real-time PCR (400 reactions)	Cat#
qPCR 2X Master Mix for Probe, without ROX™	42-116P
qPCR 2X Master Mix for Probe, low ROX™	42-118P
qPCR 2X Master Mix for Probe, high ROX™	42-120P
qPCR 2X GREEN Master Mix, without ROX™	42-116PG
qPCR 2X GREEN Master Mix, low ROX™	42-118PG
qPCR 2X GREEN Master Mix, high ROX™	42-120PG

Ultrapure dNTPs	Cat#
dNTP set, 100 mM each: 250 µl of each dA, dC, dG and dT	42-410
dNTP Set, 100 mM each: 1 ml of each dA, dC, dG and dT	42-403
dNTP Mix 40 mM (1 x 500 µl): 10 mM each dA, dC, dG, dT	42-411
dNTP Mix 100 mM (2 x 1 ml): 25 mM each dA, dC, dG, dT	42-405
dNTP Mix 10 mM (10 x 1 ml): 2.5 mM each dA, dC, dG, dT	42-406

Other concentrations and Single dNTPs are available.

DNA Ladders	Cat#
Apex 100 bp-Low DNA Ladder, 250 applications	19-109
Apex 1 kb DNA Ladder, 333 applications	19-115
Apex 200 bp DNA Ladder, 200 applications	19-111
Apex ECON Mini DNA Ladder, 100 applications	19-130
Apex ECON Low DNA Ladder, 100 applications	19-131
Apex ECON PCR Ladder, 100 applications	19-132

Accessory reagents	Cat#
50 mM MgCl <sub>2</sub> , 3 x 1.5 ml	42-303
Nuclease-Free Water, PCR Grade, 6 x 5 ml	42-710

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