



Limited liability company

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BioMaster HS-qPCR (2x)

Cat. number MH020-400, MH020-2040

Product description:

BioMaster HS-qPCR (2x) kit includes 2x **BioMaster HS-qPCR** reaction mix and sterile water. **BioMaster HS-qPCR (2x)** reaction mix is developed for quantitative real-time PCR with fluorescently labeled probes. **BioMaster HS-qPCR (2x)** contains all components necessary for performing PCR (except for DNA template, primers and probe):

- highly processive recombinant *HS-Taq* DNA polymerase;
- deoxynucleoside triphosphate mix;
- PCR buffer;
- Mg^{2+} .

The mix is optimized for consistent and efficient real-time hot start PCR of genomic, plasmid and viral DNA samples. The master mix is supplemented with additives that increase half-life and processivity of *HS-Taq* DNA polymerase by enhancing its stability during PCR. **BioMaster HS-qPCR (2x)** does not contain substances affecting primer annealing temperature and characteristics of template melting.

The included DNA polymerase is inactive at room temperature and its activation requires preheating at 95 °C for 5 min. Use of the kit saves time and minimizes contamination risk due to reduced number of pipetting steps.

Product composition

Cat. #	BioMaster HS-qPCR (2x)	Water	Number of reactions (25 µl)
MH020-400	4 × 1.25 ml	4 × 1.25 ml	400
MH020-2040	17 × 1.5 ml	3 × 1.8 ml	2040

BioMaster HS-qPCR (2x) contains:

100 mM Tris-HCl (pH 8.5 at 25 °C), 100 mM KCl, 0.4 mM each deoxynucleoside triphosphate, 10 mM $MgCl_2$, 0.1 U/µl *Taq* DNA polymerase, 0.025% Tween 20, stabilizers of *HS-Taq* DNA polymerase.

Applications:

- Real-time hot start PCR with fluorescently labeled probes;
- Conventional PCR;
- High throughput PCR;
- Multiplex PCR;
- Genotyping.

Taq DNA Polymerase features

Recombinant HS-*Taq* DNA polymerase possesses 5'→3' DNA-dependent polymerase activity and 5'→3' exonuclease activity of native *Taq* DNA Polymerase from *Thermus aquaticus*. The rate of DNA synthesis by *Taq* polymerase depends on the complexity of DNA template and is approximately 1 kbp/min. Recombinant *Taq* DNA Polymerase is ideal for conventional and real-time PCR.

Reaction mix features

- The mix is optimized for real-time hot start PCR with fluorescently labeled probes;
- The mix contains substances increasing its storage time (storage of **BioMaster HS-qPCR (2×)** for a month at room temperature does not reduce PCR efficiency), multiple freezing-thawing cycles.

Benefits of use

- The enzyme with hot start capability increases reaction specificity and sensitivity;
- HS-*Taq* DNA polymerase activation requires 5 min heating;
- Reduced preparation time;
- Low chance of contamination during preparation of PCR solution;
- Standardized conditions of the same-type reactions (reduced pipetting error during mixing PCR components in a series of experiments);
- Applicable for a wide range of PCR types;
- Minimized efforts.

Limits of use

- Not recommended for real-time PCR with intercalating dyes. **BioMaster qPCR ROX SYBR Blue (2×)** or **BioMaster HS-qPCR SYBR Blue (2×)** should be used for such purposes.

Amplification protocol

1. Defrost the reaction mixture and stir thoroughly.
2. Add the following components into the thin-wall PCR tubes considering the final volume of a reaction mixture equal to 25 µl:

Component	Volume	Final concentration
<i>BioMaster HS-qPCR (2×)</i>	12,5	1×
Forward primer	variable	0.1 – 600 nM
Reverse primer	variable	0.1 – 600 nM
Probe	variable	0.1 – 300 nM
DNA template	variable	1 pg – 1 µg
Sterile water	up to 25 µl	

3. Gently vortex and collect all droplets from the tube walls by brief centrifugation.
4. Conduct PCR using temperature conditions recommended below:

Step	Temperature, °C	Incubation time	Number of cycles
Preliminary denaturation	95	5 min	1
Denaturation	95	5-15 sec	
Annealing	50 - 68	5-15 sec	30-50
Elongation	58 - 72	5-30 sec	

Or:

Step	Temperature, °C	Incubation time	Number of cycles
Preliminary denaturation	95	5 min	1
Denaturation	95	5-15 sec	
Annealing/elongation	50 - 68	30-60 sec	30-50

5. PCR results are displayed as amplification curves.

Storage conditions: in a place protected from light at +25 °C - 7 days; at +4 °C - 4 months; at -20 °C - 18 months; not more than 50 thawing-freezing cycles.

Transportation: Transport in thermocontainers with cooling elements; the ambient temperature increment to the room temperature during the transportation up to 10 days is allowed.