PCRBIOSYSTEMS
simplifying research

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PCRBIO HS Taq Mix Red

Product description

PCRBIO HS Taq Mix Red uses advanced antibody-mediated hot start technology for high sensitivity and specificity. The enzyme and buffer system allow for superior PCR performance on complex templates such as mammalian genomic DNA.

This 2x mix contains PCRBIO HS Taq DNA Polymerase, a robust enzyme ideal for all your everyday PCR applications including genotyping, screening, library construction and multiplex PCR. The enzyme is particularly resistant to PCR inhibitors and is suitable for direct PCR from unprocessed samples including bacterial culture, bacterial colonies, blood and urine. The mix also contains an inert red dye that enables direct gel loading of PCR reactions, further simplifying routine PCR workflows.

PCRBIO HS Taq Mix Red has an error rate of approximately 1 error per 2.0 x 10^5 nucleotides incorporated. PCR products generated with PCRBIO HS Taq DNA Polymerase are A-tailed and may be cloned into TA cloning vectors.

High-throughput screening has resulted in a buffer system that allows efficient amplification from GC-rich and AT-rich templates, under fast and standard cycling conditions.

Quality control

PCR Biosystems operates under an ISO 13485 certified Quality Management System. Our products are extensively tested and undergo a comprehensive, multi-step quality control process according to ISO 13485 standards, to ensure optimum performance, consistency and traceability.

Pack size	PCRBIO HS Taq Mix Red
200 reactions	5 x 1 mL
1000 reactions	25 x 1 mL

Shipping and storage

On arrival the kit should be stored between -30 °C and -20 °C. If stored correctly, the kit will retain full activity until the indicated expiry date. The kit can be stored at 4 °C for 1 month.

Technical support

Scan or click the QR code for our primer Tm calculator and answers to frequently asked technical questions. For further technical support, please email technical@pcrbio.com with the following information:

- Amplicon size
- Reaction setup
- Cycling conditions
- Screen grabs of amplification traces and melting profile

TM CALCULATOR

FAQS

Product Use: Unless we agree otherwise in writing, the Goods we supply are provided:

1. For research purposes only and you should not use or rely on the Goods for diagnostic purposes. If you wish to use the Goods in a regulatory approved medical device, please contact us so that we may consider this and discuss it further with you.
2. Subject to our standard terms and conditions found at https://pcrbio.com/terms-conditions/.

Important considerations

2x PCRBIO HS Taq Mix: The 2x mix contains PCRBIO HS Taq DNA Polymerase, 6 mM $MgCl_2$, 2 mM dNTPs, enhancers, stabilizers and a red dye for tracking during agarose electrophoresis. Further addition of PCR enhancers or $MgCl_2$ to the reaction is not recommended. The buffer's composition has been optimised to maximise PCR success rates.

Template: For eukaryotic DNA use between 5 ng and 500 ng per reaction, for cDNA use below 100 ng per reaction.

Primer design: Primers should have an approximate Tm of ~60 ˚C using default Primer 3 settings (https://bioinfo.ut.ee/primer3/). The final primer concentration in the reaction should be between 0.2 µM and 0.6 µM.

Annealing: To verify the best annealing temperature for your primers in our products, please visit https://pcrbio.com/resources/tm-calculator/. If troubleshooting indicates issues with primer annealing, we recommend performing a temperature gradient to experimentally determine the optimal annealing temperature. Alternatively, we recommend a 55 ˚C annealing temperature then increase in 2 ˚C increments if non-specific products are present.

Extension: Optimal extension is achieved at 72 ˚C. The optimal extension time is dependent on amplicon length and complexity of template. 20 seconds per kilobase (kb) is recommended for amplification from eukaryotic DNA for amplicons between 1 kb and 6 kb. For shorter amplicons, faster cycling is possible.

Multiplex PCR: When first performing multiplex PCR it is recommended to run an annealing temperature gradient from 55 ˚C to 65 ˚C. The annealing temperature that results in the best specificity should be used in subsequent experiments. Fast cycling conditions should not be used for multiplex PCR. Initially, we recommend a 90 second extension time. This time may be further extended to increase yield.

Colony PCR: From bacterial colonies use a sterile tip to pick a colony and resuspend into a 50 µL reaction as described below. From liquid culture add 5 µL of overnight culture to the final mix. Increase initial denaturation time to 10 minutes.

Direct blood/urine PCR: Add 2 µL mammalian blood or urine to a 50 µL reaction as described below.

Agarose gel electrophoresis dye migration: The 2x mix contains a red dye for tracking during agarose gel electrophoresis. In a 2% agarose TAE gel the dye migrates at a rate equivalent to 50-100 bp of DNA. In a 1% agarose TAE gel the dye migration rate is equivalent to 200-300 bp of DNA.

Reaction setup

1. Prepare a master mix based on the following table:

Reagent	50 µL reaction	Final concentration	Notes
2x PCRBIO HS Taq Mix Red	25 µL	1x	
Forward primer (10 µM)	2 µL	400 nM	See above for optimal primer design
Reverse primer (10 µM)	2 µL	400 nM	
Template DNA	<100 ng cDNA, <500 ng genomic	variable	See above for template considerations
PCR grade dH_2O	Up to 50 µL final volume		

2. Cycle using conditions based on the following table:

Cycles	Temperature	Time	Notes
1	95 ˚C	1 - 2 min	Initial denaturation and enzyme activation. For colony PCR increase denaturation time to 10 minutes
40	95 ˚C 55 ˚C - 65 ˚C 72 ˚C	15 seconds 15 seconds 1 - 120 seconds	Denaturation Anneal Extension (20 seconds per kb). For multiplex PCR use 90 seconds