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PCR BIO Taq DNA Polymerase

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Product description

PCR BIO Taq DNA Polymerase uses the latest developments in polymerase technology and buffer chemistry to enhance PCR speed, yield and specificity. The enzyme and buffer system allow for superior PCR performance on complex templates such as mammalian genomic DNA.

PCR BIO Taq DNA Polymerase is a robust enzyme for all your everyday PCR applications including genotyping, screening and library construction. The enzyme can perform consistently well on a broad range of templates including both GC and AT-rich sequences.

PCR BIO Taq DNA Polymerase has an error rate of approximately 1 error per 2.0×10^5 nucleotides incorporated. PCR products generated with PCR BIO 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.

Component	500 units	2000 units	4000 units
PCR BIO Taq DNA Polymerase (5U/ μ L)	1 x 100 μ L	4 x 100 μ L	8 x 100 μ L
5x PCR BIO Reaction Buffer	4 x 1mL	16 x 1mL	32 x 1mL

Shipping and storage

On arrival the kit should be stored between -30°C and -15°C. Avoid prolonged exposure to light. If stored correctly the kit will retain full activity for 12 months. The kit can be stored at 4°C for 1 month. The kit can go through 30 freeze/thaw cycles with no loss of activity.

Limitations of product use

The product may be used for in vitro research purposes only.

Technical support

Help and support is available on our website at <https://pcrbio.com/resources/> including answers to frequently asked technical questions. For technical support and troubleshooting you can submit a technical enquiry online, or alternatively email technical@pcrbio.com with the following information:

- Amplicon size
- Reaction setup
- Cycling conditions
- Screen grabs of gel images

Important considerations

5x PCR BIO Reaction Buffer: The 5x reaction buffer contains 15mM MgCl₂, 5mM dNTPs, enhancers and stabilizers. It is not recommended to add further PCR enhancers or MgCl₂ to the reaction. The buffer composition has been optimised to maximise PCR success rates.

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

Primers: Primers should have a predicted melting temperature of around 60°C, using default Primer 3 settings (<http://bioinfo.ut.ee/primer3/>). The final primer concentration in the reaction should be between 0.2µM and 0.6µM.

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 1kb and 6kb. For shorter amplicons, faster cycling is possible.

Reaction setup

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

Reagent	50µL reaction	Final concentration	Notes
5x PCR BIO Reaction Buffer	10.0µL	1x	
Forward primer (10µM)	2.0µL	400nM	See above for optimal primer design
Reverse primer (10µM)	2.0µL	400nM	
Template DNA	<100ng cDNA, <500ng genomic	variable	See above for template considerations
PCR BIO Taq DNA Polymerase (5U/µL)	0.25µL - 1.0µL		
PCR grade dH ₂ O	Up to 50µL final volume		

2. Cycle using conditions based on the following table:

Cycles	Temperature	Time	Notes
1	95°C	1min	Initial denaturation
40	95°C	15 seconds	Denaturation
	55°C to 65°C	15 seconds	Anneal
	72°C	1 to 120 seconds	Extension (20 seconds per kb)