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PCR BIO Classic Taq

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Product description

PCR BIO Classic Taq is a highly purified recombinant Taq DNA Polymerase. The latest developments in buffer chemistry allow for enhanced PCR speed, yield and specificity. The enzyme and buffer system allow for superior PCR performance on complex templates such as mammalian genomic DNA. For added convenience the 10x PCR BIO Classic Buffer contains 30mM $MgCl_2$.

PCR BIO Classic Taq is a robust enzyme for all your everyday PCR applications including genotyping, screening and library construction. PCR BIO Classic Taq performs consistently well on a broad range of templates (including both GC and AT rich). PCR BIO Classic Taq has 5'-3' exonuclease activities, but no 3'-5' exonuclease (proofreading) activity.

The enzyme has an error rate of approximately 1 error per 2.0×10^5 nucleotides incorporated. PCR products generated with PCR BIO Classic Taq are A-tailed and may be cloned into TA cloning vectors.

Component	1000 units	2000 units	6000 units
PCR BIO Classic Taq (5U/ μ L)	2 x 100 μ L	4 x 100 μ L	12 x 100 μ L
10x PCR BIO Classic Buffer + 30mM $MgCl_2$	4 x 1mL	8 x 1mL	24 x 1mL

Shipping and storage

On arrival the kit should be stored between -30°C and -15°C. If stored correctly the kit will retain full activity for 12 months. The kit can be stored at 4°C for 1 month.

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

10x PCR BIO Classic Buffer: The 10x reaction buffer contains enhancers, stabilizers and 30mM MgCl₂. It is not recommended to add further PCR enhancers to the reaction. The buffer composition has been optimised to maximise PCR success rates.

MgCl₂ and dNTPs: A final reaction concentration of 3mM MgCl₂ to 1mM dNTPs (0.25mM each) is recommended. 30mM MgCl₂ is included in the 10x PCR BIO Classic Buffer. Additional MgCl₂ is not necessary.

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
10x PCR BIO Classic Buffer + 30mM MgCl ₂	5.0µL	1x Buffer, 3mM MgCl ₂	
100mM dNTPs (25mM each)	0.5µL	1mM (0.25mM each)	
Forward primer (10µM)	2.0µL	400nM	See above for primer design considerations
Reverse primer (10µM)	2.0µL	400nM	
Template DNA	<100ng cDNA, <500ng genomic	variable	See above for template considerations
PCR BIO Classic Taq (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	1 minute	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)