

Product Data Sheet

Product Name: 2×Taq PCR Master Mix(with blue dye)

Cat. No.: GK10034

Components

	GK10034-1 ml	GK10034-5 ml	GK10034-10 ml	GK10034-100 ml
2×Taq PCR Master Mix(with blue dye)	1 ml	5×1 ml	10×1 ml	100×1 ml
Nuclease-free ddH ₂ O	1 ml	5 ml	2×5 ml	20×5 ml

Features

Applications	1. Genetic testing: The error between different batches of this product is very small, and it is suitable for large-scale genetic testing, semi-quantitative PCR experiments and detection of trace DNA. 2. Used to amplify PCR products from complex templates such as genomes, such as cloning of expressed genes, site-directed mutagenesis of genes, and analysis of intracellular gene point mutations (SNPs).
Shipping	Ship with blue ice.
Storage	For long-term storage, please store at -20°C, valid for 24 months. For frequent use, store at 4°C for at least six months.
Usage	For Research Use Only! Not For Use in Humans.

Protocol

This protocol only provides a guideline, and should be modified according to your specific needs.

Prepare the PCR reaction system according to the following table (operate on ice):

Template DNA	<1 µg
2×Taq PCR Master Mix	10 µl
Primer 1 (10 µM)	0.5 µl
Primer 2 (10 µM)	0.5 µl
Nuclease-free ddH ₂ O Make up to	20 µl

Recommended PCR conditions:

95°C	3 min.
32-36 cycles of:	
94°C	25 sec.
55-64°C	25 sec.
72°C	1 min/1 kb DNA
72°C	5 min.
4°C	forever

Note: Template dosage: 10-1000 ng genomic DNA; 1 to 30 ng of plasmid or 1 to 2 µl of cDNA after RT-PCR reaction. The above example is a conventional PCR reaction system, which is for reference

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only. The actual reaction conditions vary with different structures such as templates and primers. The best reaction conditions should be set according to the characteristics of templates, primers and target fragments, and the reaction system should be enlarged or reduced according to the proportion.

Frequently Asked Questions (FAQs):

Common problem	Possible Causes	Solutions
Low or no PCR product.	Inappropriate primer design.	Choose appropriate primer design software for primer design.
	To obtain high GC content or long fragments.	Use more suitable DNA polymerase such as 2×Taq PCR Fusion-Fast Mix (with blue dye) (Catalog: GK10036).
	The annealing temperature is not appropriate; The extension period is short; The number of cycles is insufficient.	Optimizing PCR experimental conditions.

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	Low template concentrations; experimental sample is damaged or degraded.	Increase the template volume appropriately. Reprepare templates.
	The quality of the template is poor.	Purify template DNA by appropriate DNA purification methods (e.g. column purification).
	Inappropriate primer concentration and Mg ²⁺ concentration.	Adjust primer concentration and Mg ²⁺ concentration appropriately.
Amplification of nonspecific products in quantitative polymerase chain reactions (qPCR)	The primers showed nonspecific binding and dimerization.	Reduce the primer concentration and re-design the primer if necessary.
	The quality of the template is poor ; templates contaminated or degraded.	Check template integrity and concentration by Gel electrophoresis and repurify template if necessary.

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	Inappropriate cycling conditions.	If there are stray bands smaller than the target band, it can be adjusted by increasing the annealing temperature and lowering the number of cycles; if there are stray bands larger than the target band, shorten the elongation time and lower the number of cycles.
Amplification products appear in the blank control	Inappropriate primer design.	Amplified sequences are homologous to non-target amplified sequences, and PCR can also amplify sequences that are not target sequences, redesigning primers if necessary.
	PCR reaction system was contaminated.	If the amplification product band size is not consistent with the target band, it indicates contamination; Repeat the experiment by replacing the Mix, water or primer with a new one; Prepare the reaction system in an ultra-clean bench to reduce aerosol pollution.
No Band or Faint Band	Primer degradation.	Check primers for degradation due to improper storage conditions and replace primers if necessary.
	Poor Template quality.	Template quality should be confirmed before PCR reaction. Improper long-term storage and repeated freezing and thawing may cause template breakage, loop opening or degradation, and prepare DNA template freshly; if the templates are no longer usable, the products of the first amplification can be diluted in multiplicity to be used as templates for the second amplification.
	Enzyme concentration.	It is recommended to increase the amount of enzyme.

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	Inappropriate cycling conditions.	Perform the Touch Down program ; Optimize the Extension Time and set more cycles.
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Background

2×Taq PCR Master Mix (with blue dye) is a ready-to-use, rapid and simple PCR pre-mixed solution that contains blue loading buffer. This pre-mixed formulation saves time and reduces contamination due to a reduced number of pipetting steps required for PCR set up.

The reaction mixture only needs to add primers, template, and ddH₂O. 2×Taq PCR Master Mix contains blue loading buffer already, which saved the step of mix loading buffer, and could indicate the electrophoresis progress after the PCR reaction. The migration speed of the blue dye in 1% TAE agarose gel is similar to a 500 bp double-stranded DNA fragment.

Taq DNA polymerase has no 3'→5' exonuclease activity and generates PCR products with 3'-dA overhangs, which can be directly used for TA vector cloning after purification. It is recommended to use 2×Taq PCR Fusion-Fast Mix (with blue dye) (catalog number: GK10036) when the GC content of the target fragment is high (>60%) or the target fragment is too much long.

2×Taq PCR Master Mix (with blue dye) can be used for large-scale gene detection, semi-quantitative PCR experiments, and the detection of trace amounts of DNA after PCR amplification, as well as for amplifying PCR products from complex templates such as genomes, for example, for cloning expressed genes, gene point mutations (SNP) analysis, and gene targeted mutations.

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