

QIAGEN® Multiplex PCR Kit

For fast and successful multiplex PCR in advanced genotyping applications

The QIAGEN Multiplex PCR Kit is designed for easy and sensitive multiplex PCR without the need for optimization. QIAGEN's Multiplex PCR Master Mix makes the development of multiplex PCR assays both simple and fast and the kit is highly suited for many types of multiplex PCR applications.

The QIAGEN Multiplex PCR Kit provides:

- Successful multiplex PCR for genotyping applications with a unique multiplex PCR master mix
- High specificity and sensitivity with a built-in hot start
- Rapid establishment of multiplex PCR assays without the need for optimization — saving time and money

Critical factors for successful multiplex PCR — obtain consistent results with QIAGEN

Multiplex PCR saves time and reagents for researchers performing large number of PCRs, and is widely used in genotyping and DNA testing applications in research, forensic, and diagnostic laboratories (Table 1, next page). Factors influencing the success or failure of multiplex PCR are the quality of the gDNA template and the establishment of optimal PCR parameters. Not addressing these factors may lead to inconsistent results, such as low yields or missing or artifactual amplicons. ▷

The Best Way to Successful Multiplex PCR

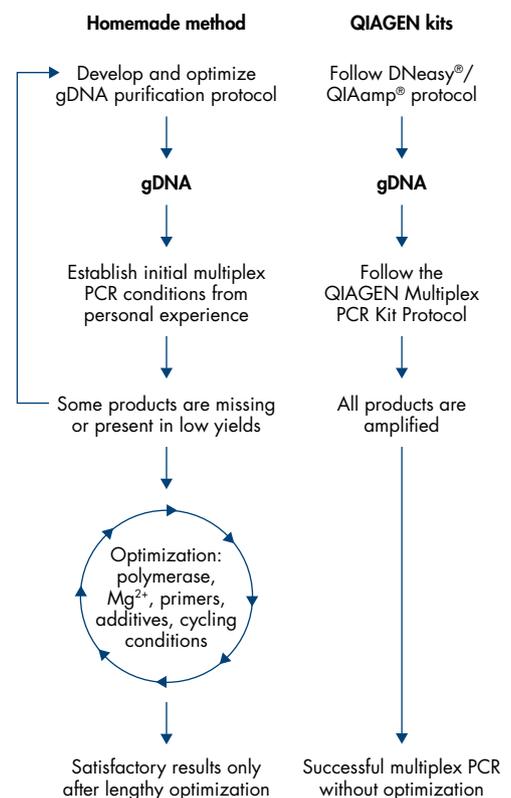


Table 1. Applications of Multiplex PCR

Source of DNA	Application	Recommended kits
Plants, animals/human	Analysis of satellite DNA (e.g., STR or VNTR analysis)	DNeasy Plant/Tissue kits
	Typing of transgenic plants/animals	QIAamp kits
	Lineage analysis (e.g., of farm animals)	QIAGEN Multiplex PCR Kit
	GMO analysis	
	Detection of pathogens	
	Food analysis	
	Sex determination	
	Detection of mutations	
	Amplification of SNP loci	
Bacteria/viruses	Hygiene analysis	DNeasy Tissue kits
	Detection of pathogens/diagnostics	QIAamp kits
		QIAGEN Multiplex PCR Kit

QIAGEN Multiplex PCR Kit for fast and successful multiplex PCR

The QIAGEN Multiplex PCR Kit is designed for easy and sensitive multiplex PCR. The novel QIAGEN Multiplex PCR Master Mix provides high specificity for each amplicon and a convenient ready-to-use format.

The QIAGEN Multiplex PCR Kit provides:

- Successful multiplex PCR without optimization — easy assay development with a novel, convenient, ready-to-use master mix
- High specificity and sensitivity — through a stringent hot start with HotStarTaq® DNA Polymerase and increased sensitivity for all products in parallel
- Versatility — highly suited for multiplex PCR genotyping applications
- Ease of use and cost-effectiveness — simple reaction setup for fast and reproducible results

No optimization required

Typically, establishing multiplex PCR assays is a tedious and time-consuming procedure that requires lengthy parallel optimization of multiple parameters, such as concentrations of primers, Mg²⁺ ions, Taq DNA polymerase, dNTPs, and additives. Additionally, buffer composition and cycling parameters frequently need to be optimized, and results may still be dissatisfying. Optimized QIAGEN Multiplex PCR Master Mix makes the development of multiplex PCR assays both simple and fast. The master mix contains preoptimized concentrations of HotStarTaq Polymerase and MgCl₂, plus dNTPs and a PCR buffer containing factor MP, which was specially developed to enable parallel amplification of all products of a multiplex PCR. In contrast to conventional PCR reagents, this buffer ensures comparable annealing and extension efficiencies for all primers in the reaction. Time consuming optimization of reaction conditions is eliminated and excellent results can be achieved first time (Figure 1).

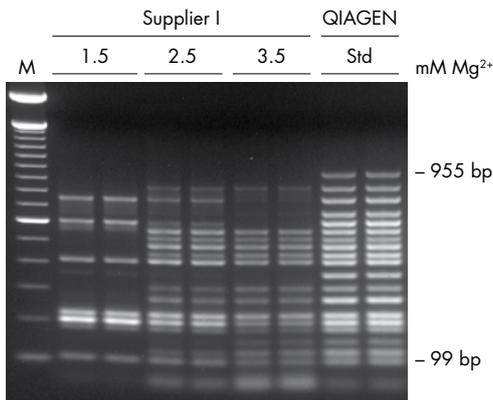


Figure 1. Successful 19-plex PCR without optimization. Multiplex PCR of 19 targets (99–955 bp) was carried out for 35 cycles using standard conditions (Std) for the QIAGEN Multiplex PCR Kit (QIAGEN) without optimization, or using the indicated Mg²⁺ concentrations with a hot-start enzyme and supplied KCl-based buffer from Supplier I (Supplier I). Equal volumes of each multiplex PCR were analyzed on a 1.7% agarose gel stained with ethidium bromide. **M**: markers.

High specificity and sensitivity

The master-mix solution contains HotStarTaq DNA Polymerase, whose stringent hot start increases specificity and yield and allows reaction setup at room temperature without generating nonspecific PCR products and primer-dimers. Sensitivity of the reaction is further increased by the reaction buffer developed specifically for multiplex PCR. Q-Solution® provided with the kit allows amplification of GC-rich targets or targets with complex secondary structure.

Highly versatile

The QIAGEN Multiplex PCR Kit has been used for the typing and analysis of animals (Figure 2), plants, bacteria and viruses, amplification of multiple regions for SNP analysis, amplification and analysis of microsatellites, and in gene expression studies using cDNA as a template.

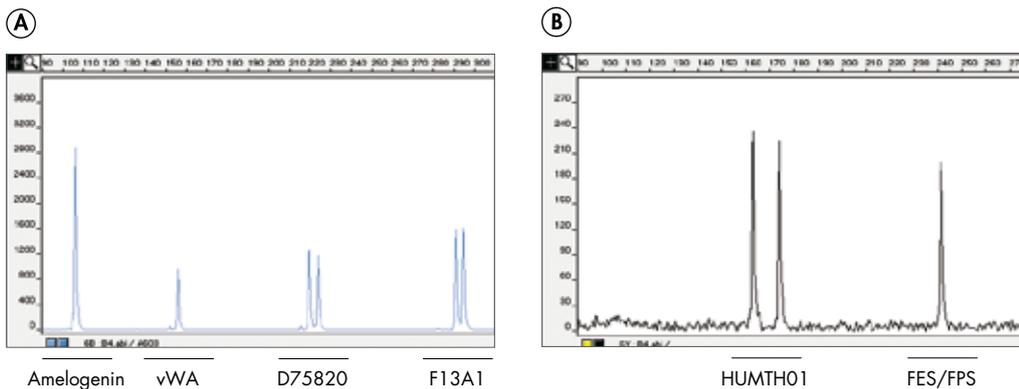


Figure 2. STR analysis using multiplex PCR. The amelogenin gene and the indicated STR loci were amplified in a 6-plex PCR using primers labeled with FAM™ and HEX™ fluorescent dyes and template DNA purified from whole blood using the QIAamp DNA Blood BioRobot® Kit. Fluorescent peak traces were obtained using the **A** FAM or **B** HEX channel of a DNA sequencer.

Ordering Information

Product	Contents	Cat. no.
QIAGEN Multiplex PCR Kit (100)	For 100 x 50 µl multiplex PCR reactions: 2x QIAGEN Multiplex PCR Master Mix* (3 x 0.85 ml), 5x Q-Solution (1 x 2.0 ml), RNase-free water (2 x 1.7 ml)	206143
QIAGEN Multiplex PCR Kit (1000)	For 1000 x 50 µl multiplex PCR reactions: 2x QIAGEN Multiplex PCR Master Mix* (1 x 25 ml), 5x Q-Solution (1 x 10 ml), RNase-free water (1 x 20 ml)	206145

* Providing a final concentration of 3 mM MgCl₂

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Order online at www.qiagen.com/goto/PCR.

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