PCR Decontamination Kit

- Reduces background and improves target detection
- No negative effect on PCR sensitivity
- Efficient for ordinary PCR and probe-based qPCR mixes

"For effective removal of DNA contamination from PCR master mixes"

PCR is a sensitive method for detecting presence of DNA in both research and diagnostics. Taq polymerases are frequently contaminated with *E. coli* DNA, which might cause reduced sensitivity and false positives when small amounts of bacterial DNA are targeted. Other sources of contamination might be dNTPs, buffer components and primers/probes, as well as DNA introduced during handling.

Description

ArcticZymes' PCR Decontamination Kit offers an easy and affordable solution for removal of contaminating DNA. It utilizes a double-stranded specific dsDNase to remove contaminating DNA. The specificity of dsDNase allows decontamination to occur with primers and probe present. In addition, it is efficient for some SYBR based qPCR mixes.

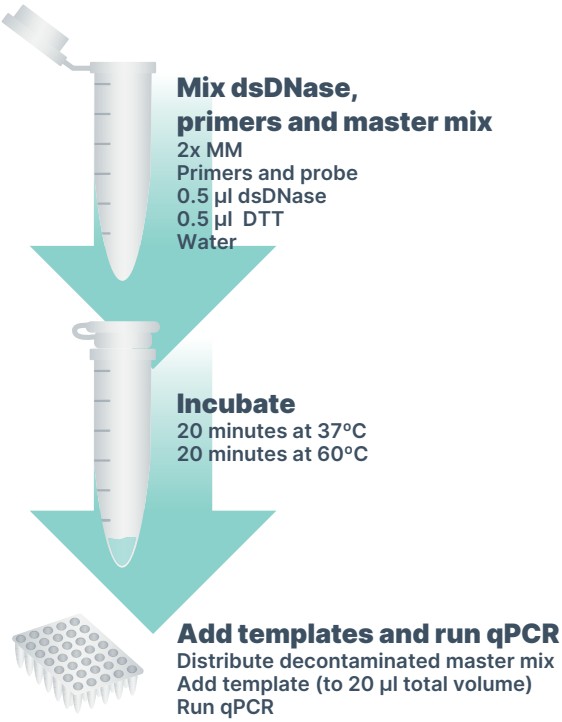
The dsDNase is irreversibly inactivated by heating to 60°C in presence of DTT, thus ensuring that any template added after inactivation remains safe from digestion.

Specifications

Source	dsDNase is recombinantly expressed in yeast
Contents	dsDNase (100/500 reactions) DTT (Inactivation aid)
Quality control	Tested for absence of RNase
Storage	Store at ≤ -20°C

Protocol

The PRC decontamination protocol is designed for removing contaminating DNA from 20 µl reactions but can be scaled to other convenient volumes.



Contaminating bacterial DNA is present in most 2x qPCR master mixes

Contaminating bacterial DNA in commercial qPCR master mixes might cause false positive results when using qPCR for detection or quantification of minor amounts of bacterial DNA. We used an *E. coli* 23S primer/probe set to detect the presence of bacterial DNA in probe-based qPCR 2x master mixes from several suppliers. As shown in figure 1, contaminating bacterial DNA was found in all master mixes tested.

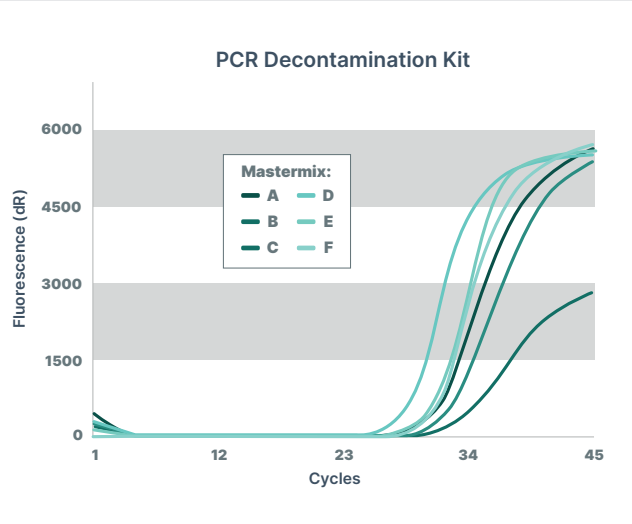


Fig 1. PCR master mixes are contaminated

PCR master mixes are contaminated. The presence of *E. coli* 23S DNA in 2x probe master mixes from various suppliers was quantified by using water as a no template control (NTC) and following the manufacturer's instructions. The figure shows plots acquired from several separate experiments. Traces of *E. coli* 23S DNA were found in all master mixes tested, with Cq values generally ranging from 30 – 35.

Decontamination of master mixes without reduction of sensitivity

Contaminating DNA is mainly a problem in high-sensitivity applications, where low-abundant DNA are targeted. Because of this, any loss of sensitivity in the qPCR assay caused by the decontamination protocol is unacceptable.

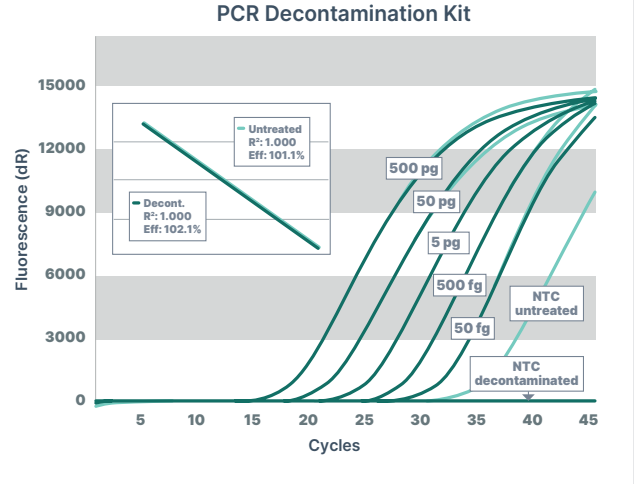


Fig 2. Decontamination with no impact on PCR sensitivity

Decontamination with no impact on PCR sensitivity. Untreated and decontaminated qPCR 2x master mix was used for analysis of an *E. coli* gDNA 10-fold serial dilution with 5 steps. NTC samples were included, and all plots of the serial dilution show an average of three replicates. Inset: Standard curves calculated from Cq values obtained from analysis of serial dilution.

In figure 2, the performance of decontaminated master mix was compared to untreated master mix.

A 5-step 10-fold serial dilution of *E. coli* gDNA was analysed using qPCR, which returned positive NTC. The PCR Decontamination Kit reduced the amount of contaminating DNA to levels below the detection limit of a 45-cycle qPCR experiment in the NTC samples. Treatment with the PCR Decontamination Kit did not significantly alter the Cq-levels obtained when analysing any of the dilutions of *E. coli* gDNA.

The Cq values presented was used to create standard curves (inset graph). No significant changes in either efficiency or R^2 between untreated and decontaminated master mix were observed.

No license required

At ArcticZymes, we pride ourselves on always offering seamless accessibility to our high-quality products. Produced under ISO 13485, our enzymes are sold under a “no license required” policy to ensure that our customers are not restricted by legal burdens, now or with their future use. In addition, we offer our kits in a flexible format and are readily available to discuss your custom needs.

Ordering information

	Article No.	Pack size
PCR Decontamination Kit	80400-100	100 rxn
	80400-500	500 rxn

Your OEM Partner to deliver novel solutions for genomics and proteomics

Quality

ArcticZymes is dedicated to the quality of our products and certified according to ISO 13485:2016.

Nous contacter

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