

New!

Fecal DNA is PCR-Ready in 50 Minutes Using the ExtractMaster™ Fecal DNA Extraction Kit

Introduction

The New ExtractMaster™ Fecal DNA Extraction Kit is specifically designed to recover PCR-ready DNA from the feces of a variety of animals, including bird, cat, cow, human, and rat. The kit uses a detergent lysis process to extract DNA from small fecal samples (50 mg or less) in about 50 minutes. A simple spin column chromatography step removes enzymatic inhibitors (i.e., heme, bilirubin, bile salts) that often co-extract with DNA from fecal samples.¹ Extracted DNA is PCR-ready, and can be used with the FailSafe™ PCR System to amplify bacterial, protist, or animal DNA templates.

DNA obtained from fecal samples provides a window into animal pathophysiology. For example, changes in the methylation patterns in fecal DNA may be a promising marker for human colorectal cancer screening.² In rural watersheds, *E. coli* typing can help track the animal sources of fecal water pollution.³ PCR can be used to detect intestinal protozoan infections in avian wildlife populations⁴ or in humans.⁵ Fecal DNA also provides a non-invasive method for genotyping animals, which is especially useful when studying species in their natural habitat.⁶

Eubacterial 16S rRNA amplification

The ExtractMaster DNA Extraction Kit was used to extract DNA from human, rat, and rooster fecal samples. Figure 1 shows the PCR amplification products from the ExtractMaster DNA template for a eubacterial 16S rRNA gene. Bacterial DNA was detected by PCR using eubacterial rRNA gene primers⁷ (5'-CTG CTG CCT CCC GTA GGA GT and 5'-AGA GTT TGA TCC TGG CTC AG), the FailSafe™ PCR Enzyme Mix and FailSafe™ PCR PreMix B. Cycling conditions were 96°C (3 minutes), followed by 24 cycles of 96°C (30 seconds), 54°C (30 seconds), and 72°C (45 seconds). After 24 cycles, the samples were diluted ten-fold into fresh reaction mix and amplified for an additional 3 cycles. Because the PCR products obtained could be derived from one or more bacterial species, this two-stage PCR is used to reduce heteroduplex formation between 16S rRNAs from dif-

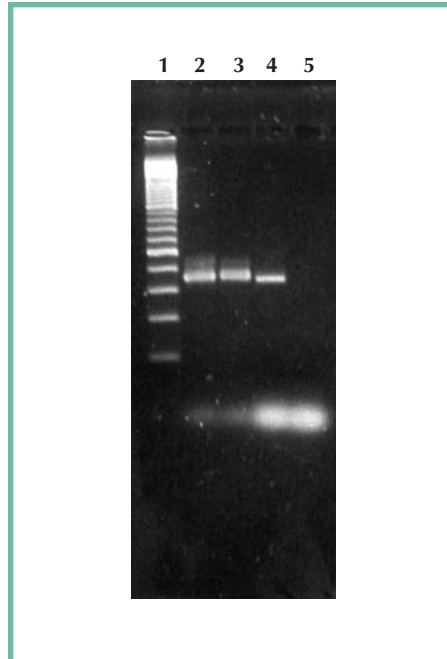


Figure 1. Amplification of a eubacterial 16S rRNA gene obtained from the fecal samples of several animals using the ExtractMaster™ Fecal DNA Extraction Kit. Lane 1, 100-bp ladder; Lane 2, human; Lane 3, rat; Lane 4, rooster; Lane 5, no template. The amplicon is approximately 350 bp long.

ferent species.⁸ To further identify the specific bacteria, amplicons would be sequenced and compared to a database of known bacterial 16S rRNA genes.

Conclusion

Fecal samples could provide a non-invasive source of DNA for a variety of analyses, but, until recently, extracting quality DNA from these samples was difficult. Now the ExtractMaster Fecal DNA Extraction Kit provides a rapid method to process multiple samples and obtain PCR-ready DNA.

References

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7. Brow, M.A.D., *et al.* (1996) *J. Clin. Microbiol.* **34**, 3129.
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www.EpiBio.com/extractmaster.asp

ExtractMaster™ Fecal DNA Extraction Kit

FD05005 5 Purifications
FD05025 25 Purifications

Contents:

Fecal DNA Extraction Buffer
Proteinase K (50 µg/µl)
Protein Precipitation Reagent

FailSafe™ PCR PreMix Selection Kit

FS99060 60 Units

Contents:

FailSafe™ PCR Enzyme Mix
12 FailSafe™ PCR 2X PreMixes.

FailSafe™ PCR System with PreMix Choice

FS99100 100 Units

Contents:

FailSafe™ PCR Enzyme Mix
Choice of 1 FailSafe PCR 2X PreMixes

FailSafe™ PCR System with PreMix Choice

FS99250 250 Units

Contents:

Includes FailSafe™ PCR Enzyme Mix
Choice of 2 FailSafe PCR 2X PreMixes

FailSafe™ PCR System with PreMix Choice

FS9901K 1,000 Units

Contents:

Includes FailSafe™ PCR Enzyme Mix
Choice of 8 FailSafe PCR 2X PreMixes

FailSafe™ Enzyme Mix Only⁺

FSE51100 100 Units
FSE5101K 1,000 Units

⁺ Note: We can only guarantee the failsafe nature of this system if the FailSafe Enzyme Mix is used with a FailSafe PCR 2X PreMix that is selected using the FailSafe PCR PreMix Selection Kit.