

PrepSEQ™ Rapid Spin Sample Preparation Kit

Fast, Efficient Sample Preparation for PCR-Based Assays

- Optimal performance on a wide range of sample types
- Simple protocol reduces time-to-results
- Microcentrifuge based—no additional equipment required
- Ideal for low-to-medium sample throughput



Meeting a Growing Need

For laboratories involved in food safety and environmental monitoring, PCR-based methods are rapidly becoming the standard for accurate, sensitive bacterial detection. This has created the demand for a sample preparation method that is fast, cost-effective, and capable of extracting high-quality DNA from a broad range of sample types. While such methods have been developed for dedicated high-throughput laboratories, there is a growing need for methods suitable for low- to medium-throughput applications. The PrepSEQ™ Rapid Spin Kit meets this need.

The Key First Step in PCR-Based Detection

PCR makes it possible to amplify and detect DNA target sequences with a high degree of sensitivity and specificity. As a result, leading companies have

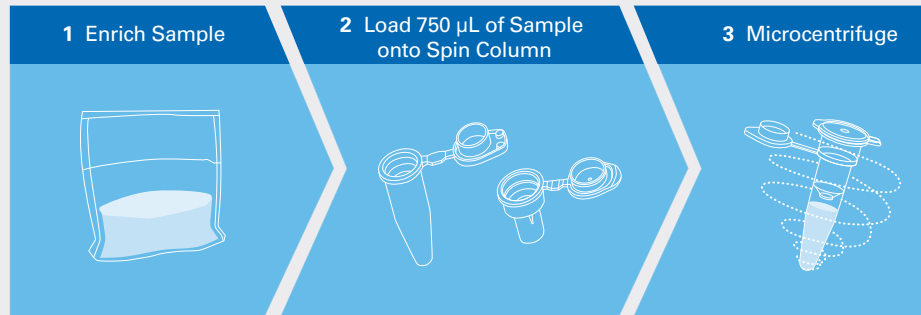
adopted real-time PCR for the detection of bacteria in food and other biological and environmental samples. Key to the success of this detection method is the quality of bacterial DNA used to perform the assay, which is highly dependent on the sample preparation procedure.

Defining the Need

Biological and environmental samples often contain PCR inhibitors that interfere with target DNA amplification and compromise assay results. For optimal assay performance, these inhibitors must be removed from the sample during the sample preparation procedure. From the standpoint of productivity, it is also essential that the sample preparation method is fast, cost-effective, and easily applied to a broad range of sample types—with one simple workflow.

Simplified Protocol

The PrepSEQ™ Rapid Spin Sample Preparation Kit produces high-quality bacterial DNA samples for PCR-based detection using a simple protocol that can be quickly integrated into the laboratory workflow, with minimal operator training. The protocol has been tested on a wide range of samples, including chocolate, soft cheeses, and soil. Even samples with difficult-to-lyse bacteria, such as *Listeria monocytogenes*, produce excellent results with the addition of a Proteinase K step.



Conventional Approaches

Conventional sample preparation methods for PCR-based assays include chemical-based extraction and magnetic bead-based methods, neither of which is ideal for low- to medium-throughput applications.

- Chemical-based extraction methods offer low-cost sample preparation, but only limited removal of PCR inhibitors. They also tend to be complex, labor-intensive, and require the use of hazardous materials.
- Magnetic bead-based methods provide effective PCR inhibitor removal and high-quality results for a broad range of sample types. However, these methods require specialized equipment and associated expenses, making them better suited to automated, high-throughput applications.

A Happy Medium

Based on proprietary spin-column filtration media, the PrepSEQ Rapid Spin Kit combines the cost-effectiveness of chemical-based preparation methods with the PCR inhibitor removal efficiency of magnetic bead-based methods. The result is a high-quality DNA sample preparation method that is ideally suited for low- to medium-throughput requirements:

- Applicability across a broad range of sample types
- Simple, easy-to-learn protocol
- Minimal sample enrichment time
- Minimal cost per sample
- No additional equipment requirements

Complete and Ready to Use

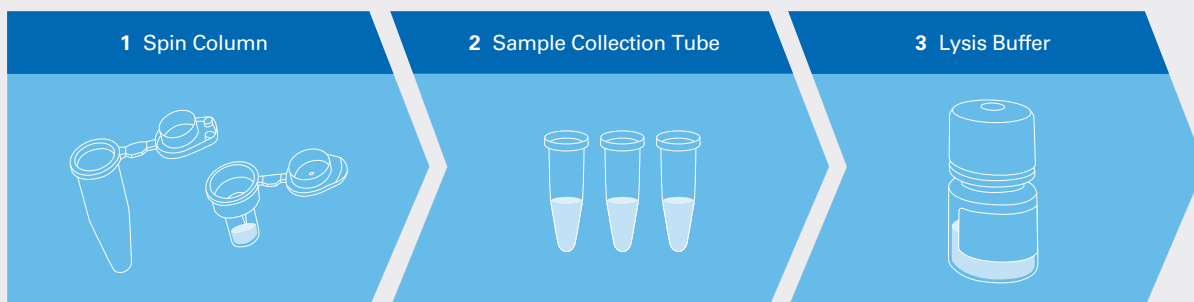
The PrepSEQ Rapid Spin Kit includes everything required to prepare 100 samples. The kit is provided ready to use; the only equipment required is a standard microcentrifuge.

Optimized Performance

The PrepSEQ Rapid Spin Kit is optimized to reduce sample enrichment requirements and overall time-to-results. All components have been designed for immediate implementation and performance-verified on a wide variety of samples with the Applied Biosystems MicroSEQ® and TaqMan® Food Pathogen Detection Kits and RapidFinder™ Express Software.

The PrepSEQ™ Rapid Spin Sample Preparation Kit

Designed for laboratories that routinely prepare up to 100 samples a day, the PrepSEQ Rapid Spin Sample Preparation Kit offers a simple, cost-effective way to prepare DNA from broth cultures. During the extraction process, the proprietary media inside the spin column removes PCR inhibitors from the sample, allowing the bacteria to pass through into the sample collection tube where they can be stored or used for PCR.



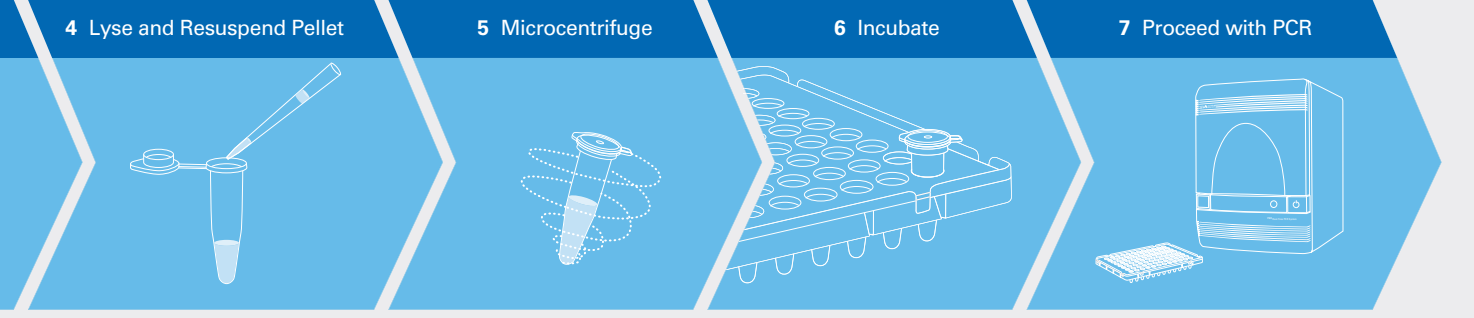


TABLE 1. TESTED ON COMPLEX SAMPLES

<i>Salmonella</i> spp.	<i>Listeria monocytogenes</i>
• Ground beef	• Deli roast beef
• Raw chicken	• Cured bacon
• Raw egg	• Smoked salmon
• Dry infant formula	• Milk
• Brie cheese	• Brie cheese
• Cantaloupe	• Ice cream
• Chocolate	• Lettuce
• Dry pet food	• Dry infant formula
• Shrimp	• Mayonnaise
• Black pepper	• Salad dressing

Performance of the PrepSEQ™ Rapid Spin Kit has been tested in combination with MicroSeq® and TaqMan® Food Pathogen Detection Kits for a wide range of pathogens in complex food matrices.

Rapid, Efficient Sample Preparation
 The PrepSEQ™ Rapid Spin Kit can process up to 750 µL of sample, with DNA recovery comparable to magnetic bead-based methods. Typical sample preparation time for most samples is approximately 30 minutes. (Samples with high lipid content or targets that are difficult to lyse may require additional materials, preparation time, or use of the PrepSEQ Rapid Spin Extra Clean Protocol.)

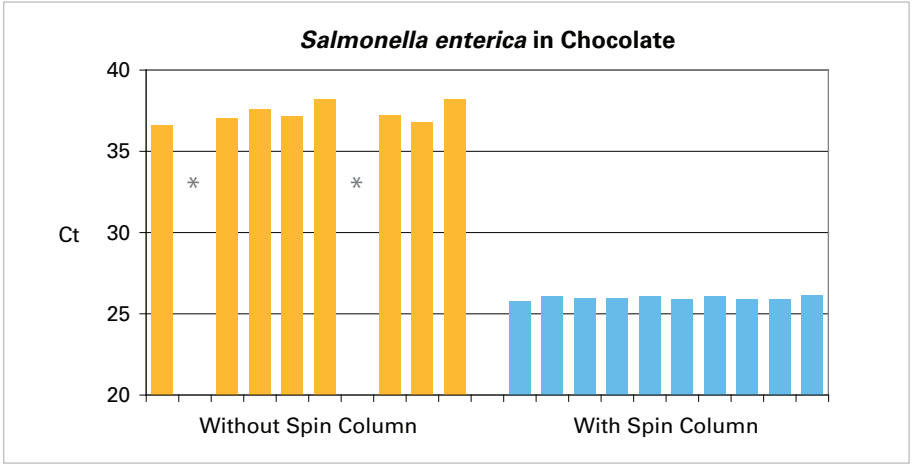


Figure 1. Number of PCR cycles required to detect *Salmonella enterica* in chocolate without sample preparation and with the PrepSEQ™ Rapid Spin Sample Preparation Kit.
 * No detection observed due to inhibitors present.

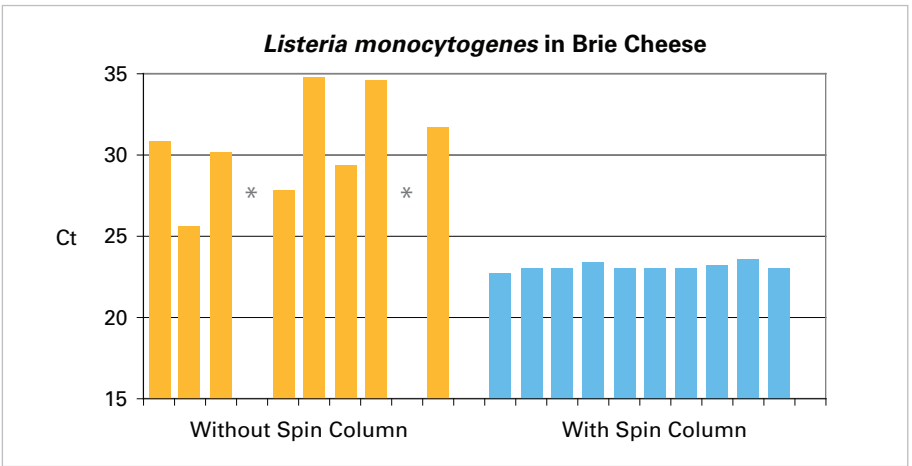


Figure 2. Number of PCR cycles required to detect *Listeria monocytogenes* in brie cheese without sample preparation and with the PrepSEQ™ Rapid Spin Sample Preparation Kit.
 * No detection observed due to inhibitors present.

Resources for PCR-Based Detection

As the world leader in real-time PCR, Applied Biosystems is committed to improving tools for bacterial detection. The PrepSEQ™ Rapid Spin Sample Preparation Kit is part of a growing family of products that includes optimized pathogen detection and sample preparation kits, application-specific software, and proven real-time PCR instrumentation. We also provide responsive, knowledgeable applications consulting, support, training, and technical service.

For more information about the PrepSEQ Rapid Spin Sample Preparation Kit and our other solutions for food pathogen testing, please contact your local Applied Biosystems sales representative or visit us at www.appliedbiosystems.com/foodsafety.

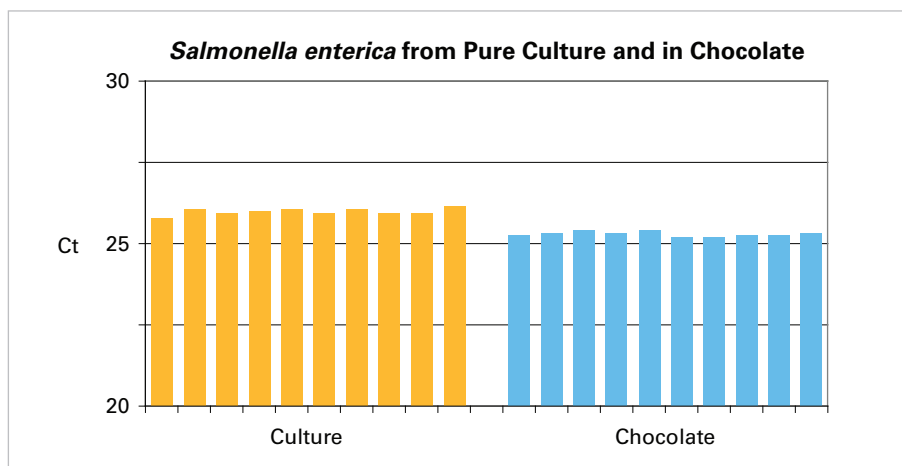


Figure 3. Demonstration that the PrepSEQ™ Rapid Spin Sample Preparation Kit retains a minimal amount of bacteria in the spin column. The detection of the same quantity of *Salmonella enterica* organisms from pure culture versus using the PrepSEQ Rapid Spin Sample Preparation Kit to extract DNA from a chocolate sample is very similar.

ORDERING INFORMATION

Description	P/N
PrepSEQ Rapid Spin Sample Preparation Kit	4407760
PrepSEQ Rapid Spin Sample Preparation Kit with Protocol	4409735
PrepSEQ Rapid Spin Sample Preparation Kit – Extra Clean	4413269
PrepSEQ Rapid Spin Sample Preparation Kit with Proteinase K	4426714
PrepSEQ Rapid Spin Sample Preparation Kit – Extra Clean with Proteinase K	4426715

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