

LIFE TECHNOLOGIES™  
FOOD SAFETY



**Minimize risk. Maximize competitive edge.**

Innovative food and environmental safety solutions optimized for your unique needs

*life*  
technologies™

# It's time to put your pathogen testing to the test

When the world's biggest brands can't afford to be wrong, there's one company they consistently turn to—Life Technologies. That's because our partnerships help provide the competitive edge your company expects, with the risk reduction your lab demands.

From fast, accurate, and intuitive tools built on an open-design platform, to dedicated global service and support, the Life Technologies team specializes in workflows that help labs work smarter. It's all about enabling you to make more informed decisions in the most efficient way.

**FAST COMPANY**  
**THE WORLD'S**  
**50 MOST**  
**INNOVATIVE**  
**COMPANIES**

• Many of the assays from Life Technologies are performance tested and certified by the leading regulatory bodies for food safety, such as the AOAC (aoac.org), AFNOR (afnor.org), and NPIP ([www.aphis.usda.gov/animal\\_health/animal\\_dis\\_spec/poultry/](http://www.aphis.usda.gov/animal_health/animal_dis_spec/poultry/)).  
• Life Technologies was recently listed among Fast Company's "50 Most Innovative Companies" for 2012, including the #1 Most Innovative Biotech Company.<sup>1</sup>

1. Issue 163, March 2012.

## Understanding your needs

- Rapid time-to-result
- Unquestionable accuracy
- Validated workflows
- Workflow optimization and customization
- Open instrumentation and sample preparation
- Scalable, flexible, and easy-to-use platforms

## Synthesizing the situation

Life Technologies has leveraged its assay design, high-speed sequencing, and bioinformatics expertise to develop food safety solutions that deliver results you can trust. With customized solutions designed for your specific workflow and food testing requirements, no company is better equipped to respond with answers when you need them most.

## Building a partnership

The dedicated team of Life Technologies food safety professionals partners with some of the world's most respected labs and food producers to protect their brands and bottom line. We understand the demands on your business and the importance of achieving rapid time-to-results without compromising accuracy.

## Life Technologies has a history of partnering with a variety of food testing labs and brands to help them through critical times.

*E. coli* O157:H7 outbreak response in record time

In only five days, Life Technologies sequenced and identified the deadly strain of *E. coli* ravaging Europe, helping to develop a screening test that delivered results within 24 hours.



*Salmonella* detection for a leading pet food producer

Life Technologies designed and validated a complete streamlined workflow to detect *Salmonella* in pet food in less than 14 hours with an automated real-time PCR method, cutting time-to-result by days.



Rapid recall response for large US turkey producers

During a recent ground turkey recall, Life Technologies partnered with two of the largest turkey producers in the US to find a rapid detection solution for the *Salmonella* serovar of interest.



# Simplified workflow

From enrichment to analysis, our integrated workflow is optimized to ensure you get the answers you need, when you need them. These flexible sample prep options scale from less than 50 samples to high-throughput runs of 100 or more samples, and the protocols have been tested on a wide variety of food types. And by automating the amplification, detection, data collection, and analysis elements of the molecular detection workflow, Life Technologies drastically cuts hands-on time and time-to-results, which is critical to protecting your brand and your bottom line.

## Intuitive software solutions simplify data interpretation

RapidFinder™ Express Software is easy to use and guides you through each step of the assay—from run file setup to final results.

The software utilizes flags, notifications, and prompts that enable you to quickly interpret data, while a helpful export feature supports convenient data transfers to an Excel® spreadsheet or your lab management system.



## Sample prep

Rather than taking a one-size-fits-all approach, Life Technologies provides multiple validated sample prep options for pathogen testing that easily integrate into laboratory workflows with minimal operator training. The protocols have been tested on a wide range of samples, including environmental, chocolate, infant formula, and soft cheeses. Even samples with difficult-to-lyse bacteria, such as *Listeria monocytogenes*, produce excellent results.

### Less than 50 samples

#### PrepSEQ® Rapid Spin Sample Preparation Kit

- Works on a wide range of sample types
- Reduces pre-enrichment time
- Minimal training required



### More than 50 samples

#### PrepSEQ® Nucleic Acid Extraction Kit and MagMAX™ Express-96 Processor

- Works on a wide range of sample types
- Reduces pre-enrichment time
- Ready for automation—less hands-on time



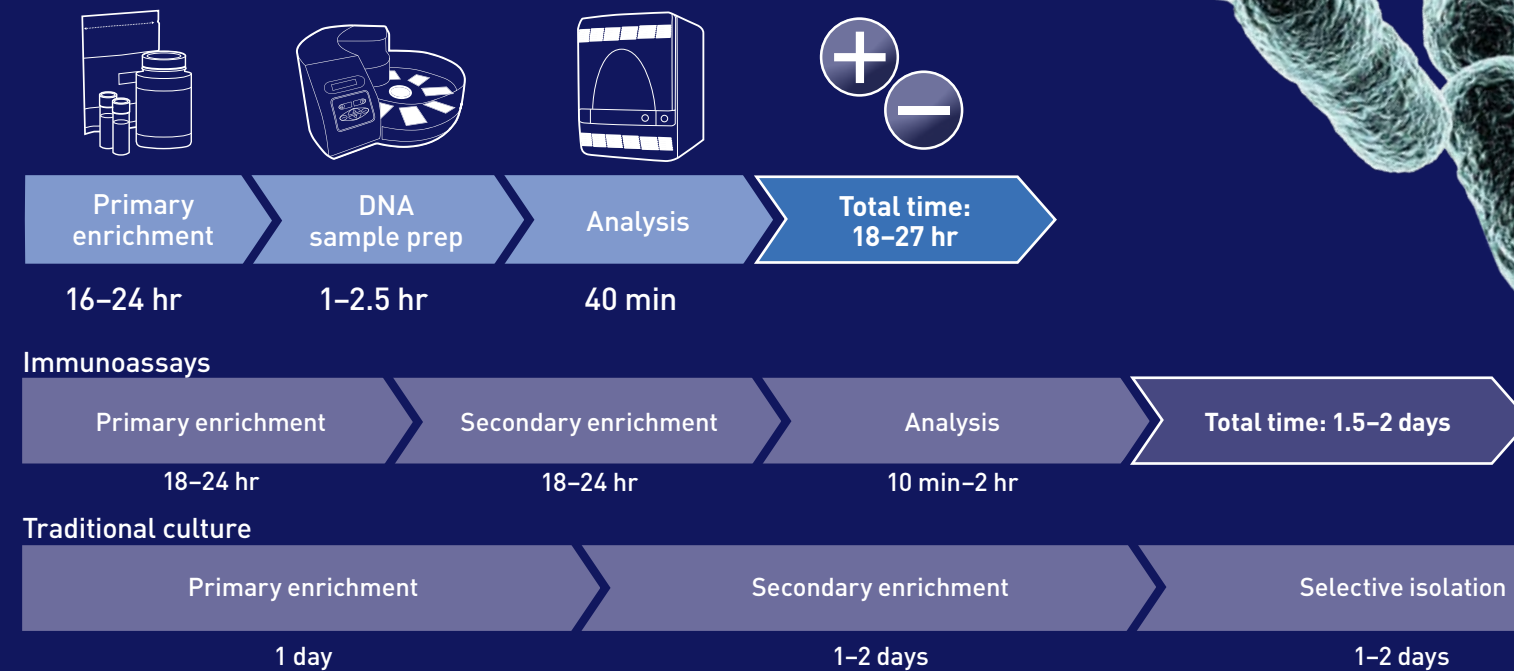
### High throughput

#### Pathatrix® Auto System and Kits

- Cuts downstream detection costs up to 90%
- 15-minute, fully automated run time for faster time-to-results
- Fully compatible with a wide range of detection methods



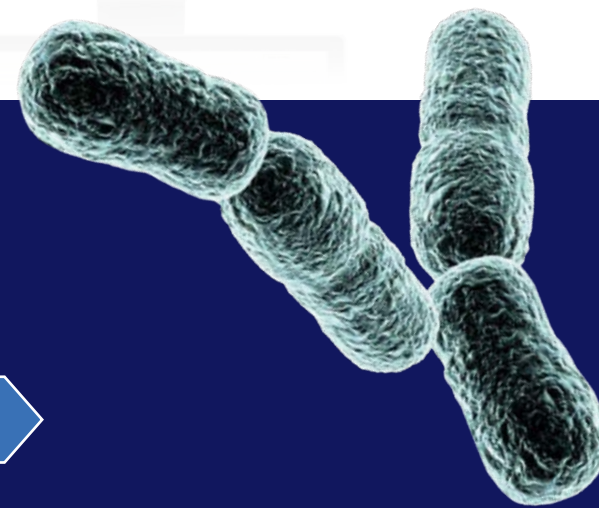
## The Life Technologies pathogen detection solution



## Exceptional speed and sensitivity

Our complete pathogen detection solution offers one of the fastest and most sensitive methods available, detecting cell concentrations as low as  $10^3$ – $10^4$  CFU/mL after enrichment. This level of sensitivity enables the detection of many pathogens in less than 24 hours, as compared to several days with conventional methods.

Moreover, in cases of emergencies related to new foodborne pathogens, the ultrafast DNA sequencing technologies that are part of our pathogen detection solution, combined with our bioinformatics expertise, allow us to respond quickly to these kinds of crises and design highly specific assays to detect the pathogens that may be involved.



## Validated detection kits

Built on years of molecular expertise, MicroSEQ® kits from Life Technologies deliver exceptional accuracy and time-to-results for the detection of various pathogens in one easy-to-use platform. Selected kits have been validated and certified by the leading global quality assurance organizations including AOAC, AFNOR, and NPIP.

These optimized kits are built with lyophilized reagents into preformatted assay beads with an internal positive control, so no mixing is required. Specially designed reaction tubes remain closed during the assay process until detection is complete, greatly reducing the risk of contamination.

- Internal positive control in every bead minimizes false negatives
- Typically 40-minute time-to-results using TaqMan® Fast real-time PCR chemistry
- Universal PCR cycling conditions offer flexibility to run multiple pathogen assays simultaneously
- 100% specificity for confidence in results
- Easy-to-use lyophilized format for testing consistency
- Optimal performance with a wide range of sample types



MicroSEQ® *Salmonella* spp.  
Detection Kit



MicroSEQ® *E. coli* O157:H7  
Detection Kit



MicroSEQ® *Listeria monocytogenes*  
Detection Kit



MicroSEQ® *Listeria* spp.  
Detection Kit

The RapidFinder™ STEC Detection Workflow is a complete, validated screening system for *E. coli* O157:H7 and the six non-O157 STECs. Developed in collaboration with the USDA, the RapidFinder™ STEC workflow detects the presence of multiple strains of *E. coli* in raw beef in as little as 10 hours, providing meat producers with a simple, accurate, and fast solution for efficiently responding to new screening regulations for these pathogens.

- Low probability for false results through use of high-quality DNA prep and proprietary assay design
- Validated workflow detects as few as 1–5 cfu of pathogenic STEC in a sample

## Versatile TaqMan® pathogen detection kits

Our TaqMan® pathogen detection kits offer many of the same features as our lyophilized MicroSEQ® detection kits, including inclusion of an internal positive control to minimize false negatives and universal standard cycling conditions. They are provided in solution with enzyme, primer, and probe sets provided in separate tubes. The growing portfolio of kits includes:

- *Salmonella enterica*—certified by AOAC and AFNOR
- *Campylobacter jejuni*
- *Cronobacter sakazakii*
- *E. coli* O157:H7
- *Listeria monocytogenes*
- *Pseudomonas aeruginosa*
- *Staphylococcus aureus*
- *Salmonella* Enteritidis



For more information on Life Technologies solutions for food safety, go to [lifetechnologies.com/foodsafety](https://lifetechnologies.com/foodsafety)





#### References

Balachandran P, Friberg M et. al. [2012] Rapid Detection of *Salmonella* in Pet Food: Design and Evaluation of Integrated Methods Based on Real-Time PCR Detection. *Journal of Food Protection* 75, 2: 347-352

For testing of Food and Environmental samples only.

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