

DuPont Qualicon RiboPrinter® System

APPLICATION PROFILE

When Results of Four Popular Tests Show *Salmonella* Contamination, BAX® And RiboPrinter® Systems Prove Them Wrong And Product Recall Is Avoided

Product recall shouldn't depend on anything but the most definitive microbial information available. No biochemical test is as accurate as genetic information for definitively determining if *Salmonella* contamination has occurred. One food producer learned this lesson one hair-raising weekend.

The makers of high-value, refrigerated and ready-to-use foods learned at 2 p.m. on a Friday that they could have a problem so serious it would be necessary to recall one of their products from four European countries.

Company microbiologists determined that the meat-and-vegetable salads the company sold to hundreds of vendors were probably contaminated with *Salmonella*. Over a three-day period, samples from the product had been tested using ELISA (enzyme-linked immunosorbent assays), latex agglutination, biochemical screening (with a 97% certainty) and a serology assay for examining antigens. All these tests told the company they had a *Salmonella* contamination. Product recall, company executives believed, was their only option.

Confirming with BAX® System

But before withdrawing product from both distributors and retailers—a process that would be costly to the company's image and finances—managers chose to have an out-side, independent laboratory confirm the contamination.

At mid-afternoon Friday, motor bike couriers rushed samples across town to a large laboratory that uses both BAX® for Screening/*Salmonella* and the RiboPrinter® Microbial Characterization System. By the early hours of Saturday morning, the BAX® assay had produced startling results: There were no *Salmonella* present in the tested samples

RiboPrinter® System Differentiates

Isolates were then run on the RiboPrinter® Microbial Characterization System to determine what the bacteria were. Within eight hours, RiboPrint® patterns (Figure 1) of the isolate had been generated and matched to the system database pattern of *Citrobacter freundii*, a close cousin of *Salmonella* that has a history of mimicking its relative when tested using biochemical assays.



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The salad company's processing lab had experienced problems of false results before, but none had ever gotten this far. The near-calamity of a product recall had been narrowly averted and the company realized a savings of nearly \$350,000 in lost product alone. This figure didn't take into account untold savings in market share, customer/ retailer confidence, national television and newspaper advertising and the overall impact on the industry that would have resulted from a product recall.

Solutions

A test that was merely supposed to confirm the results of many other assays had rescued the company from what might have been a disaster. It proved to the food company's microbiologists just how far from accurate their conventional testing could be.

The incident confirmed for the independent laboratory that their reliance on genetics-based, automated and speedy technology from DuPont Qualicon was well placed.

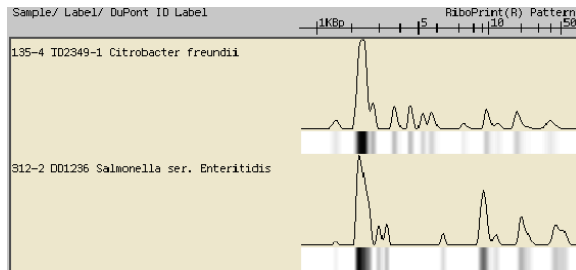


Figure 1. RiboPrinter® patterns for a common *Salmonella* species and *Citrobacter freundii* show how genetically similar the two organisms are. The RiboPrinter® system can clearly discriminate between the similarities in the 1 to 3 kilobase pair region and the pronounced differences in the 4 to 10 Kbp regions. Biochemical tests could not distinguish between the pathogenic *Salmonella* and the innocuous *Citrobacter*. The genetics-based RiboPrinter® system could and, in so doing, saved the manufacturer from a costly error.

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