

DuPont Qualicon RiboPrinter® System

APPLICATION PROFILE

When Your Product Is Implicated In A Contamination Outbreak, The RiboPrinter® System May Be Your Company's Best Ally

No company wants to be blamed for product contamination. Even more frustrating, is the chance that these accusations are wrong. The RiboPrinter® Microbial Characterization System can help ensure a strong defense when your product is under suspicion. Without it, the vagaries of microbial information can condemn and irreparably damage your hard-earned reputation.

Listeriosis outbreak investigated

A recent outbreak of food-borne *Listeria monocytogenes* triggered an epidemiological investigation into suspected food sources. Clinical isolates were obtained from one patient who exhibited classical symptoms of Listeriosis. Isolates were also obtained from several suspected food types.

Initially, the investigators used conventional (biochemical) tests, which provided species level information on *Listeria monocytogenes*. Serological techniques, which allow for distinguishing among 13 serotypes of *Listeria monocytogenes*, were also used. Since several of the isolates (both clinical and food) turned out to be of the same serotype, the results were inconclusive, and it was not clear whether a given food could be implicated as the agent causing illness.

Need for more discrimination

The investigators realized that they needed a better method to gauge the relatedness between the food isolates and the clinical isolates. Because of liability issues surrounding the case, they also needed a method that delivered reliable, reproducible results. These investigators were aware of the Qualicon™ Molecular Typing Service and the RiboPrinter® Microbial Characterization System, which is able to distinguish among 40 distinct RiboPrint® pattern types of *Listeria monocytogenes*. They proceeded to send all isolates associated with this investigation to the Qualicon™ lab for RiboPrint® pattern analysis.

Results were available in a matter of hours, and when the investigators compared results from the clinical sample with the suspected food sample, it was clearly evident that the patterns were different (see Figure 1). The RiboPrinter® system technology allowed investigators to prove that, even though the food and clinical isolates were both *Listeria monocytogenes* and both of the same serotype, they **were not the same**.



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To ensure that the RiboPrinter® system results were reproducible, all samples concerned were run in triplicate. Each replicate was processed on a completely independent run of the instrument. All results were consistent and highly reproducible (see Figure 1).

Conclusion

Conventional microbiological techniques provided insufficient information in this situation. Other genetic typing techniques, which take days with practiced hands to execute properly, were rejected in favor of a first pass with the RiboPrinter® system. The automated nature of the RiboPrinter® system made it an obvious choice for this epidemiological study, where speed and reproducibility were required. Needless to say, the manufacturer of the implicated food was greatly relieved to have its product exonerated as the causative agent of this patient's Listeriosis.

Run No. 1



Listeria monocytogenes (from clinical sample)



Listeria monocytogenes (from food sample)

Run No. 2



Listeria monocytogenes (from clinical sample)



Listeria monocytogenes (from food sample)

Run No. 3



Listeria monocytogenes (from clinical sample)



Listeria monocytogenes (from food sample)

Figure 1. *Listeria monocytogenes* RiboPrinter® Patterns. By comparing the patterns from clinical isolates with those from food samples, investigators were able to exonerate the food as the culprit in the outbreak of Listeriosis.

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