

# DuPont Qualicon RiboPrinter® System

## APPLICATION PROFILE

## Understand the source of contamination and target cleanup to prevent persistent contamination incidents

Routine or sporadic contamination of product with bacteria such as *Listeria* frustrates most food manufacturers. They know all too well the endless hunt for the source of troublesome organisms can be fruitless unless examiners have a reliable source of information about flora in the process surroundings. Accurate, reproducible data can direct effective decontamination instead of forcing manufacturers to rely on scattershot cleaning. A European food company became concerned about contamination in its finished products. Quality control personnel found that the "ready-to-eat" sliced meats were often contaminated with *Listeria seeligeri*. From time to time, they also isolated *Listeria monocytogenes*. The company decided to use the RiboPrinter® Microbial Characterization System to help them understand how *Listeria* was getting into the cooked, sliced meat.

### Variety of *Listeria*

QC personnel were able to isolate strains of *Listeria* from a variety of locations in the factory. Raw ingredients yielded many different species of *Listeria*, but the QC team was critically concerned with the post-cooking environment of the bulk meat sausages. They found that, although cooking destroyed all the vegetative bacteria, contamination showed up when the meat was subsequently exposed for honey glazing and smoking.

Analysis showed that the RiboPrint® patterns for *Listeria seeligeri* found in the finished product were the same as patterns from *Listeria seeligeri* found in the drainage conduits of the smoke rooms. Clearly, these conduits were a source of contamination. But how was the organism making its way from the conduits to the sausage?

### Investigating the source

The QC team investigated the trolleys used for transport of the cooked and smoked sausages from room to room. Perhaps these trolleys picked up the contamination from the floor and transported it. Analysis of samples from the greasy wheels of these trolleys confirmed that the RiboPrint® patterns matched those of the *Listeria seeligeri* found in the finished product (see Figure 1).

Next, the QC team observed how the trolleys were used by production staff in the slicing room. Interestingly, the trolleys were wheeled over a stainless steel platform, and then the sausages were off-loaded onto the same area!

Swabs showed that *Listeria seeligeri* was also contaminating the platform—which was how the sliced meat became contaminated.



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## Conclusion

With this information, the company immediately took engineering measures to remove the problems in the smoking rooms. These measures were coupled with a thorough cleaning and sanitation program, as well as improved hygiene training for production staff, to eliminate the *Listeria seeligeri* contamination.

An additional benefit was that these measures also eliminated the occasional isolations of *Listeria monocytogenes*, thus suggesting that the route of contamination for the two bacteria may have been the same.



*Listeria seeligeri* (from finished product)



*Listeria seeligeri* (from drainage conduit)



*Listeria seeligeri* (from trolley wheels)

Figure 1. *Listeria seeligeri* RiboPrint® Patterns  
Samples taken from the contaminated product (top) produced patterns that were a match for samples from both the drainage conduit and the trolley wheels. This information allowed investigators to track the path of the contamination so that the area could be effectively cleaned up. The information also allowed QA/QC personnel to monitor the process for future problems.

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