

DuPont Qualicon RiboPrinter® System

APPLICATION PROFILE

Your Lab Staff Has Enough to Manage Without The Confusion of Cross Contamination

Routine lab problems such as cross contamination can affect production and distribution unless they are resolved easily and quickly. The problems become acute, however, when pathogens such as *Salmonella* are involved. Now there is new technology that provides definitive microbial information that helps labs manage problems quickly and with confidence.

Quality control laboratories in food processing facilities often test finished product for *Salmonella*. To ensure that their test reagents and procedures function correctly, some labs run a *Salmonella* control at the end of the day, after regular samples have been processed.

Salmonella control run

Late one afternoon at a North American food processing facility, the delivery of finished product samples to the quality control lab was delayed. Lab personnel adjusted their work routine and ran their *Salmonella* control while they were waiting. When the day's product samples arrived, they were processed as usual and one sample was found to be positive for *Salmonella*. A "hold order" was immediately placed on all product associated with that one positive sample.

Time is of the essence in situations like this, and the company's QC management needed a fast yet definitive and reliable way to troubleshoot the problem.

Management decided to use the RiboPrinter® Microbial Characterization System to ensure that the organism isolated from that one sample was indeed *Salmonella* (identify it) and also to obtain a "genetic fingerprint" to help determine where it may have come from (characterize it). The RiboPrinter® system provided all this information in a matter of hours, thanks to its fully automated operation requiring no dependence on technique or subjective interpretation of results.

Catching cross contamination

The RiboPrint® pattern for the organism was generated and identified as being *Salmonella*. However, the RiboPrint® pattern for the control *Salmonella* had been generated several months before and automatically stored in the system's database. Using the RiboPrinter® system's sophisticated analysis software, the lab personnel could clearly see that the RiboPrint® pattern for the contaminated sample was a *Salmonella* strain of the exact same type as the lab's control *Salmonella* (see Figure 1).

The lab tested additional samples from the same finished product but detected no *Salmonella* either from the same lot, or from previous and subsequent lots.



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Conclusion

Based on the fast availability of identification and molecular typing information, this QC lab was able to infer that the *Salmonella* detected in that one sample must have come from the control *Salmonella* used earlier that day in the same lab. The fact that the control and the sample were both *Salmonella*, and further that they both had the same RiboPrint® pattern, made it clear that the samples had been contaminated in the lab.

This inference was further corroborated by the fact that no *Salmonella* was detected in any other samples. Clearly, this was a case of cross-contamination within the lab—something familiar to all microbiologists.

The product was released in a timely fashion, saving precious time, storage space, and money. What may have been a costly and lengthy investigation was resolved in a matter of hours using the powerful technology of the RiboPrinter® system.



Salmonella from sample



Salmonella from control

Figure 1. *Salmonella* RiboPrint® Patterns - The RiboPrinter® system had stored the pattern for the control *Salmonella* (bottom pattern) in its database. When isolates were run that matched them (top pattern), it wasn't hard to figure out that the problem was cross-contamination in the lab.

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