

California Dept of Public Health wins IAFP Innovation Award for novel use of Pathatrix-RIMS

Matrix MicroScience is delighted to announce that one of its clients, the California Dept of Public Health (CDPH) has won the prestigious International Association for Food Protection (IAFP) Food Safety Innovation Award. The presentation was made to the Microbiology Laboratory Staff of the CDPH Food & Drug Laboratory Branch, Richmond, CA at the IAFP 2007 Annual Meeting in Orlando, FL.

In the IAFP citation, it was noted that the award is presented to an individual or organization for creating a new idea, practice or product that has improved public health and quality of life by making a positive impact on food safety. The Microbiology Lab Staff of CDPH was recognized for its innovation in optimizing the novel Pathatrix recirculating immunomagnetic separation (RIMS) technique for identifying *E. coli* outbreak strains from food and environmental samples.

The RIMS methodology development was originally a cooperative project between the CDPH Food & Drug Lab Branch, led by Sunee Himathongkham, and the US Food & Drug Administration's San Francisco District Laboratory team, led by David Lau.

The optimized method was used during the 2006 *E. coli* O157:H7 traceback investigation of the outbreaks implicating spinach, milk and lettuce. Using this method, the molecular pattern of the strains isolated from the environment matched the patient outbreak strains for the first time.

As a result of the studies carried out, the Pathatrix RIMS system has become a CDPH approved method for the isolation of *E. coli* O157:H7; and a paper which has been submitted to the *Journal of Food Protection* is in press.

Dr Jeff Farrar, Food & Drug Branch (FDB) Chief, said, "We appreciate the recognition for the Food and Drug Laboratory Branch and FDA-San Francisco District lab staff who have worked very hard to develop this new method. The

method was utilized during several recent outbreaks with outstanding success. We have already had numerous requests for the methodology.”

The Pathatrix RIMS technology is supplied exclusively by Matrix MicroScience and CEO Dr. Adrian Parton, said “It’s great to see a novel technology being used to solve real problems in the real world. CDPH and the FDA were among the first to recognize the potential for the application of the Pathatrix / RIMS methodology. And their foresight is now being acknowledged.”

Matrix MicroScience

Matrix MicroScience is a highly innovative company focused on the development of diagnostics for the rapid detection of food-borne pathogens such as *Salmonella spp.*, *Listeria spp.*, *Campylobacter spp.* *E.sakazakii*, MAP and *E.coli* O157. Matrix has achieved multiple AOAC RI approvals for a range of its products. Matrix MicroScience is an international organization with offices, research and production facilities in Newmarket, UK; Golden, CO and Los Angeles in the USA.

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Background Notes for Editors

1. PATHATRIX- Launched in 2002, the PATHATRIX system requires less than two minutes hands-on time per test and utilises a proven technology, which can be adopted in any microbiology laboratory, with the minimum of retraining. Viable cultures are produced during the test allowing full and detailed analysis of any positive results.

PATHATRIX is unique in that it is the only microbial detection system that can analyse the entire 225ml + 25g sample simultaneously by re-circulating the sample through a “capture phase” where the antibody coated magnetic beads are immobilised.

A standard 25g food sample is homogenised with 225ml of growth media in a stomacher. PATHATRIX capture reagent, which consists of antibody coated magnetic particles specific to the target pathogen, are then added directly to the sample. The sample is loaded onto the PATHATRIX workstation using a Matrix proprietary consumable pack, connecting the sample to the circulatory system in preparation for the Capture-Culture step.

Once loaded, the PATHATRIX workstation is typically pre-programmed to run for 30 minutes at the desired incubation temperature. Upon completion of the run, the target microorganisms are bound onto the phase by the capture reagent. Residual debris and non-specific binding are removed during a single wash step.

The capture phase is disconnected from the system and the capture reagent/pathogen complexes are eluted by washing the phase into a vessel. The captured pathogen complexes are then concentrated into a small volume. The sample can be plated directly onto selective media and incubated overnight for visualization the following morning or be directly analyzed by PCR for a very rapid result.

There are a variety of PATHATRIX tests that enable results to be obtained within as little as 5hrs to 24hrs from point of sample to result.

2. PATHATRIX Pooling

PATHATRIX pooling involves taking 50ml sub-samples from 5 individual samples, pooling them to create a 250ml wet composite sample which can then be analyzed by a single PATHATRIX run (see figure below). If the sample is “positive” the original individual samples can be re-tested separately by PATHATRIX to determine which sample(s) is/are positive. However if the wet composite sample is shown to be negative no further analysis of the 5 original samples is required. Thus the PATHATRIX pooling approach can be used as a rapid and cost effective screen for all samples.

