Listeria: Integration of genomic technologies for detection and surveillance

On behalf of CMSA, Tineke Jones attended a Genome Canada/CFIA workshop entitled "Listeria: Integration of genomic technologies for detection and surveillance". Below is a brief summary of the February 28th workshop.

There was a good mix of representation from the management and scientific community of CFIA (14), AAFC (4), Health Canada (2), Public Health Agency of Canada (2), Industry (9; which includes CMC), Academia (13), Provincial Agencies (2), Genome Canada and Genome Centres (9) and CIHR (1).

The objectives were to identify research gaps that support both regulatory agencies and the food industry in the areas of traceback and epidemiological investigations in the event of *Listeria* disease outbreak and monitoring programs and to identify high priority research areas within the context of genomics that could be achieved within a 18 month timeframe.

The research presentations and discussions were very scientific and focused on next generation whole genome sequencing technologies and bioinformatics which have the potential to improve the identification and typing of bacterial pathogens. These next generation sequencing technologies are expected to play an important role in the future of detection and surveillance of disease outbreaks of bacterial pathogens. Topics included the discovery and application of DNA markers associated with microbial pathogenicity and virulence, presently indistinguishable by current typing techniques, and which could serve as indicators of risk and be used by routine testing laboratories to characterize foodborne isolates; the development of bioinformatics tools for processing and interpreting complex data derived from genomics based testing; and development of tools to assess the complex interactions and population dynamics through gene expression profiles of organisms in different environments. The potential benefits of integrating genomics into the CFIA inspection tool kit to control *Listeria* are more powerful and timely detection, support for traceback investigations, and increased monitoring capacity for risk factors affecting regulated parties by facilitating industry access to reliable, real time technologies. The pitfalls of molecular detection and industry needs were also discussed.

The potential funding available for this initiative includes a maximum investment of $250K from Genome Canada, $250K from a successful genome centre, $100K from CFIA specifically for CFIA scientists, and potential funding from other government departments and industry. The project must be led by academia but government researchers can participate as Co-PIs and at least 50% of funding must obtained from sources other than CFIA. The consensus at the workshop was to move forward with a consortium application versus a competitive application. The next steps are the completion and distribution of a report on the outcomes of the workshop followed by a future workshop to develop the proposal. The proposed time timeline suggests a launch of the request for application in May 2012, a deadline for submission by Aug. 2012, a decision from Genome Canada and other funders in late September 2012 with a possible start date of Dec. 2012.

If you are interested in possibly participating or provide funding for this initiative, Tineke would be happy to put you in contact with the organizers of this initiative.

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