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MOLECULAR HIGH-RESOLUTION MONITORING OF LISTERIA MONOCYTOGENES ON FOOD PRODUCTS AND FOOD-ASSOCIATED ENVIRONMENTS

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We present the latest insights concerning molecular methods for qualitative and quantitative foodborne pathogen detection and characterization, with a focus on *Listeria monocytogenes*, a facultative intracellular human pathogen. The high mortality rate of listeriosis (around 20%) and the persistence of *Listeria monocytogenes* in food-associated environments makes its elimination or reduction a compulsory step before marketing potentially contaminated products. Besides methods based on cultural, immunological, or biochemical identification and enumeration of *Listeria monocytogenes*, a number of molecular methods with strain-level resolution have been developed in recent years for epidemiological investigations. These methods mainly include real-time quantitative PCR (qPCR), pulsed-field gel electrophoresis (PFGE), multi-locus variable number tandem repeat analysis (MLVA), multi-locus sequence typing (MLST), multilocus genotyping (MLGT) and whole genome sequencing (WGS). Subtyping of *L. monocytogenes* strains can prove to be crucial to point source outbreaks in food processing plants. The emergence of WGS as a routine method should assist in the development of prospective epidemiological surveillance programs for *L. monocytogenes* and other pathogens relevant to public health.

Biography

Olivier Jousson has completed his PhD at the age of 28 years from the University of Geneva (Switzerland) and postdoctoral studies from University Hospital Lausanne. He is Associate Professor and PI of the Microbial Genomics Laboratory at CIBIO. He is director of teaching of undergraduate biotechnology programs at the University of Trento. He has published more than 60 papers in international, peer-reviewed journals. He is interested in the study of bacterial pathogens, including genome-wide identification and functional characterization of virulence factors, development of molecular typing systems, and population biology and epidemiology. He has been serving as a reviewer or invited editor for a number of reputed journals in the field.

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