

SIGNALMAN: Autonomous in-line biosensors for detection of microorganisms

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SIGNALMAN is an industrial collaboration between MiCRA Biodiagnostics and the Dairy Processing Technology Centre, a University of Limerick based dairy industry consortium. The project involves the engineering of automated biosensors to detect and enumerate spore-forming bacteria in milk and dairy processing lines. Quality control of processed milk and associated products is of extreme importance to the dairy industry since a variety of micro-organisms is responsible for product quality issues, reduced shelf life and spoilage. Spore-forming bacteria such as *Bacillus cereus* are identified in milk products by traditional culture and colony counting techniques. These procedures require three days to process samples resulting in serious and costly production delays. It has therefore become essential to develop new technologies to rapidly detect *B. cereus* during dairy processing. MiCRA Biodiagnostics is involved in the advancement of electronic biochip technology for the rapid detection of *B. cereus* spores. This biosensor technology relies on immunoassay-ELISA principles and comprises sample-reagent microfluidics and redox-measuring electrodes. The *B. cereus* BIOCHIP is currently being adapted for biosensor applications in SIGNALMAN.

Biography

Sonia Yadav has completed her Master's at University College Dublin, Ireland and Bachelor's degree at Amity University, India. She is a Bioassay Development Scientist at MiCRA Biodiagnostics (an Enterprise Ireland Technology Gateway). She is currently working on the development & optimization of bioassay methods within a DPTC project for *Bacillus cereus* spores. Previously, she has worked in the Quality Department of Perfetti Van Melle, where she performed food shelf-life studies and microbial analysis. Her R&D project experience at NEHU involved work on Hsp70 protein, analytical biochemical techniques and immunoassay.

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