



Zeinabossadat Ebrahimzadeh Mousavi

Technology Centre:	DPTC - Dairy Processing Technology Centre
Academic Mentor:	Prof. Francis Butler
Company Partner:	Aurivo Dairy Ingredients
Company Mentor:	Dr. Robert Hosey

Dr. Zeinabossadat Ebrahimzadeh Mousavi completed her PhD (2014) in Biosystems Engineering at UCD, MSc (2007) in Food Science & Technology - at University of Tehran, and a BSc (2002) in Food Science and Engineering at University of Tehran in Iran. Zeinab started her academic carrier as assistant professor at the department of Food Science and Engineering, University of Tehran in 2015. She has been awarded a three year Career-FIT PLUS fellowship co-funded by Enterprise Ireland and the EU under H2020 Marie Sklodowska-Curie Actions in 2020.

Professor Francis Butler

Professor Butler is a Principal Investigator in the UCD Institute for Food and Health and the UCD Centre for Food Safety. Professor Butler's main research interests are in food safety with a particular focus on food chain integrity and quantitative risk assessment of microbiological and chemical hazards in foods. Increasingly he is using next generation sequencing techniques to identify the sources and routes of transmission of pathogens through the food chain to control their occurrence in foods. Professor Butler is an active partner in EU funded research projects in the area of food chain integrity.

Dr. Robert Hosey

Robert is currently the technical manager at Aurivo, a leadership in producing dairy ingredients in Ireland. He has expertise in food processing, animal behaviour and nutrition, and veterinary. He has considerable experience in training and mentoring early career graduates and managers at Aurivo.

Host Institution: Centre for Food Safety, University College Dublin

In the years since its launch, UCD-CFS is now recognized as an academic centre of excellence in food safety research within the UCD Institute of Food & Health. The UCD Centre for Food Safety has developed close collaborations with global Irish food companies, regulators and other stakeholders.

Technology Centre/ Technology Gateway: DPTC

The DPTC is a centre of excellence for dairy processing research and innovation, providing the Irish dairy sector with world class research and innovation capabilities as well as human capital and expertise through knowledge transfer and training activities. The DPTC translates learning and know-how from other industrial sectors to the Irish dairy sector.

Industry Partner: Aurivo

Aurivo Co-operative Society Limited is an innovative, multipurpose agricultural co-operative with business interests in Dairy Ingredients, Consumer Foods, Sports Nutrition, Agri and Lifestyle Retail Stores, Animal Nutrition and Livestock Marts & Trading. Aurivo has an award winning portfolio of regional, national and international consumer food brands, including For Goodness Shakes sports nutrition; Connacht Gold; Organic for Us; Donegal Creameries and exports butter and enriched milk powder to almost 50 countries worldwide.

Aurivo operates a network of agri-retail and lifestyle stores under the Homeland brand, and its scientifically formulated animal nutrition brand is Nutrias. Aurivo has a turnover of around €400m and has a team of approximately 650 employees.

Zeinabossadat's project

“Use of genomic technologies for rapid identification and control of microbial pathogens in dairy process facilities ”

Food safety is of paramount importance to the reputation of Irish food. The Irish dairy industry is the largest Irish exporter of food products valued at over 4 billion euro in 2018. A significant proportion of this is in the form of high value dairy ingredients. Bacterial pathogens can contaminate dairy powders causing illness and severe economic negative consequences for the manufacturer. The point of entry of the pathogens is frequently through initial contamination of the process environment. The objective of this research is to use advanced genomic techniques to rapidly identify, track and control bacterial pathogens in a dairy process environment. Novel PCR based techniques will be used with genome sequencing to develop an environmentally monitoring program for pathogens which combines the rapid testing associated with PCR with the fingerprint identification afforded by sequencing to develop a blueprint for a best in field approach to pathogen surveillance in dairy manufacturing facilities. The work will be undertaken in collaboration with Aurivo as a major Irish dairy processor and an international diagnostics solutions company who will make available free of charge and advanced PCR systems for rapid detection of bacterial pathogens. The central challenge of the research will be to optimize the combination of advanced PCR-based methods as the first line of rapid surveillance with the power of whole genome sequencing to give the ultimate fingerprinting and characterization of any pathogen detected in the process environment before any product becomes contaminated. For dairy companies, the cost of failure is very high in terms of brand reputation, extensive product recall or rejection in the market place. This research significantly enhances the safety of Irish produced dairy ingredients and will provide the Irish dairy industry with a major competitive boost, by providing a high level of evidence based assurance for their dairy ingredients.

