



Mahmoud ABDELHAMID

Technology Centre: Dairy Processing Technology Centre (DPTC)
Academic Mentor: Professor Gavin Walker
Company Partner: Dairygold
Company Mentor: Dr. Susan Maye

Dr. Mahmoud has completed his PhD (2011) in Dairy science and Technology at Cairo University (Egypt), MSc (2006) in Dairy science and Technology at Cairo University, and a BSc (2001) in Agriculture (Dairy Science and Technology) at Cairo University - Egypt. Mahmoud worked as a lecturer at Faculty of Agriculture, Cairo University (Egypt) (2011-2016). He conducted a research period as a postdoctor in many countries including Spain (2012), Denmark (2014-2015), Japan (2017) and China (2018-2020). Mahmoud also worked as Assistant professor at Faculty of Agriculture, Cairo University (Egypt) (2016-2021).

Professor Gavin Walker

Professor Walker holds the Bernal Chair in Pharmaceutical Powder Engineering at UL and is a Visiting Research Professor at Queen's University in Belfast (UK). His interests are in chemical engineering, process engineering, and mathematical aspects for materials processing. Prof. Walker is the director of SSPC "the SFI research centre for pharmaceuticals", as well as director of H2020 MSCA Co-Fund PROCESS. Prof. Walker had led Process Theme (Pillar-2) during DPTC phase 1 (2015-2020). Also, he is Project Lead of EU-SFI Co-Funded Centre for Smart Manufacturing (CONFIRM) and acts as an academic for the EI-funded Pharmaceutical Manufacturing Technology Centre (PMTTC). To date, he has been awarded more than €35,000,00 as Principal Investigator on more than 35 research projects on process engineering and advanced manufacturing from EU H2020, UK government, EPSRC, Irish Government, UK Charities, and Industrial sources.

Dr. Susan Maye

Dr. Susan Maye got her MSc in applied Food Science graduate in University College Cork (UCC) in 2010. She subsequently completed a Ph.D. in the Food Chemistry Department in Teagasc and the School of Microbiology in UCC on her project titled, "Structure-function changes and their effects in the biological activity of milk fat globule membrane (MFGM) based ingredients".

On completion of her PhD she then transferred her experience to a position in the food industry where she has leveraged her academic experience to lead high profile projects in the areas of new infant formula development, recipe harmonization, dairy fermentation and probiotics. Dr. Maye worked as part of the Infant Formula Technologies team for H&H Global (formerly Biostime Group) where her focus was on New Product Development, ingredients assessment and troubleshooting of products with European manufacturers. Following this, she joined the Research and Development team for Wyeth (Nestle) as a Product Development Specialist where she worked on Infant formula recipes for a number of Global markets. In July 2018 she joined Dairygold and is currently the Product & Proposition Development Manager leading commercially driven cross functional projects.

Dairy Processing Technology Centre - DPTC

DPTC has been established as a centre of excellence for dairy processing research and innovation. The foundation of the DPTC is a strong, long-term industry-academic collaborative partnership that can develop, build and translate the knowledge and capabilities in dairy processing that are needed today and for the long-term growth development of the sector. Current Irish dairy industry members of the centre are Arrabawn Co-op, Aurivo Co-op, Carbery Group, Dairygold Co-op, Glanbia Ingredients Ireland, Kerry Group, Lakeland Dairies, and Tipperary Co-op.

Dairygold

Dairygold are Ireland's leading Farmer owned Co-Operative with state-of-the-art cheese and nutritional powder manufacturing facilities located in the heart of the Golden Valleys in the South of Ireland. Their close proximity to the University of Limerick lends itself to close relationships between the researchers and staff in Dairygold. Dairygold have also recently invested in their milk powder manufacturing capabilities to produce to the highest quality and food safety standards and are now considering ways in which to add value to their Ingredient portfolio by combining technical expertise and application insight.

University of Limerick – UL

UL offers a full spectrum of research support services and facilities including library, HR training, IT support, research office and technology transfer office (TTO), particularly to get trained and familiar with the process of commercializing research findings. UL runs a new staff induction course to facilitate staff in becoming familiar with the University. In addition, UL is one of only two universities in Ireland to have received an Athena Swan bronze award for gender equality practice and policies.

Mahmoud's project

“Development of next generation nutritionally fortified fermented milk”

Elevated blood pressure is considered to be one of the most important risk factors for cardiovascular diseases. According to the World Health Organization the leading risk factor for global mortality is hypertension. However, synthetic antihypertensive drugs are known to have side effects. Therefore, natural antihypertensive components are in high demand. Consumption of functional foods has been rising in popularity and has become a way of life for many.

The aim of this work is to develop novel fermented milk that is capable to efficiently regulate blood pressure. Fermented milk rich in gamma-aminobutyric acid (GABA) shows significant positive impact in decreasing blood pressure. Additionally, food protein hydrolysate with antihypertensive peptide is another tool to control blood pressure.