



Arghya

Mukherjee

Technology Centre:	Food for Health Ireland (FHI)
Academic Mentor:	Professor Paul D. Cotter
Company Partner:	Carbery Group Ltd.
Company Mentor:	Dr. Kevin Turner

Arghya received his Bachelor's degree in Microbiology from the University of Calcutta, India in 2009. He obtained his Master's degree, also in Microbiology, from the University of Calcutta in 2011. Arghya received his Ph.D. from the University of Calcutta in 2018 for his research on the microbial response to petroleum hydrocarbon contamination in the environment. For his postdoctoral research, he has been involved in studying the impact of probiotics on the gut microbiome and understanding the benefits offered by probiotics and fermented foods in prevention of suboptimal health conditions.

Professor Paul D. Cotter

Prof. Paul Cotter is a leading expert in the study of the interactions between human and animal microbiota and health, microbiome of foods and the food chain, including fermented foods, dairy powders and food processing environments. He has been appointed in the top 1% scientists in the world by the Web of Science Group. Currently, Prof. Paul Cotter is a Senior Principal Research Officer and the Head of Food Biosciences Department at Teagasc. He is a Principal Investigator for VistaMilk with Science Foundation Ireland (SFI) and APC Microbiome Ireland, the coordinator of MASTER program H2020 and Platform Leader for Food for Health Ireland and Adjunct Lecturer at Cork Institute of Technology. Prof. Cotter has extensive collaborations and experience with more than 20 non-academic organisations and companies, working with PepsiCo, Coca-Cola, Danone, Danisco, Alimentary Health Ltd., Atlantia CRO, Biomin, Carbery, Dairygold among others.

Dr. Kevin Turner

Dr. Kevin Turner joined the Carbery Group in 2017 as the R&D Innovation Project Manager. Kevin's current role involves using biotechnology platforms for novel product development as well as using biotechnology as a means of adding value to existing product streams. He is also in charge of day to day mentoring of R&D staff as well as working in cross functional groups and leading projects with external research teams and customers. He has held numerous roles in diagnostics, biopharmaceutical, industrial biotechnology and food industries as well as spent time in academia. This has included work with a variety of small entities, academic institutions in Europe and North America and with large multinationals in Ireland, Europe, Asia, Canada and USA.

Food for Health Ireland

Food for Health Ireland is a collaborative model that attempts to bridge the gap between research organisations and industry needs, providing a gateway to academic research in Ireland and supporting open innovation. Food for Health Ireland is developing research and technology that uncovers ingredients and foods that improve health and wellness, as well as human-intervention trials that are helping to understand and tackle health problems such as diabetes, obesity or heart health. Overall, Food for Health Ireland's vision is to support healthier ageing.

Carbery Group Ltd

The Carbery Group Ltd is a Cork based company, specialising in dairy products. The Carbery Group employs nearly 700 people and has a presence around the world, with facilities in the UK, Italy, USA, Thailand, Brazil as well as Ireland. The Carbery Group invests heavily in Research and Development in three areas: nutrition, dairy technology and taste. The Carbery Group is recognised as a leading international manufacturer of speciality food ingredients, flavouring systems and as an award-winning cheese producer.

Host Institution - Teagasc

Teagasc, also known as the Irish Agriculture and Food Development Authority, is a state agency involved in research and development, training, and advisory services in the agri-food sector in the Republic of Ireland. Its activities are carried out at 17 advisory centres, colleges and research centers spread across the country. Teagasc maintains extensive collaborations with Irish universities and several global research organizations. Additionally, it supports more than 100 MSc and PhD students annually, and also participates in EU Framework Programmes. Research in the hosting Department of Food Biosciences at Teagasc, focuses primarily on bioactives, biocontrol, biotransformation and gut health.

Arghya's project

NEUROFOODS: Generation of Dairy-based Neuroactive Fermented Foods to Modulate the Microbiota-Gut-Brain Axis in Health and Disease

Increasing evidence suggests that the gut microbiota influences host behaviour through bi-directional communication, i.e., the microbiota-gut-brain axis, which includes key components such as the central nervous system, neuroendocrine and neuroimmune systems along with the gut microbiota. In recent years, a potentially causal relationship has been established between dysbiosis of the gut and conditions such as stress, anxiety and depressive symptoms. Fermented foods are considered healthier alternatives to typical Western diets, which include high fat/high sugar foods that negatively impact the gut microbiota. Recent studies indicate that fermented foods, including dairy fermented foods, can alleviate and/or provide protection from suboptimal health conditions such as metabolic syndromes, colorectal cancer and intestinal bowel syndrome, among others, through restoration of the gut microbiota.

NEUROFOODS will involve the generation of novel dairy functional fermented foods that can improve gut and neurological health, including depressive and anxiety-like symptoms. The project will not only provide new insights into the anti-depressive and anti-anxiety properties of fermented dairy, but also create a platform for the development of similar fermented foods in the future in other food matrices, thus contributing to overall health and wellbeing.