



Síle GRIFFIN

Technology Centre: Food for Health Ireland (FHI)
Academic Mentor: Professor Phil Jakeman
Company Partner: Marigot Ltd.
Company Mentor: Dr. Denise O’Gorman

Dr. Síle Griffin received her BSc in Neuroscience from the University College Cork, Ireland in 2009, MSc in Stem Cells and Regeneration from the University of Bristol, United Kingdom in 2010, and PhD in Neuroscience from Keele University, United Kingdom in 2015. Her doctoral research focused on stem cell therapies for neurodegenerative diseases, in particular the role of vitamins in brain development and repair. Following this, Síle worked as a Scientist on the Brain Health Platform at Dupont Nutrition & Biosciences Finland, conducting pre-clinical trials to establish nutritional therapies for cognitive health. In 2021 Síle was awarded a Marie Skłodowska Curie Career-FIT PLUS Fellowship to work on a nutritional strategy using a multi-mineral aquamarine and plant-based dietary supplement to support skeletal health.

Professor Phil Jakeman

Professor Phil Jakeman Professor Phil Jakeman is a foundation member of the Health Research Institute (<https://www.ul.ie/hri/>) at the University of Limerick. A graduate of biochemistry and human exercise science, he acts as lead Principal Investigator to the Human Science Research Group at the University of Limerick (UL) and Food for Health Ireland’s (FHI) ‘Healthy Ageing and Performance Nutrition’ Health Pillar (<https://www.fhi.ie/>).

The UL-based FHI research group comprises specialists in cell and molecular biology, nutrition and dietetics and human physiologists supported by clinical research staff. Through close collaboration with food industry sponsors, Professor Jakeman has extensive experience in applying an innovative “cell to society” approach to screen and evaluate the bioefficacy of nutrient bioactives *in vitro* (e.g., real-time cell analysis) pertinent to musculoskeletal health, and where appropriate, translating to small-scale randomized controlled trials of bioefficacy in selected human populations (<https://orcid.org/0000-0002-1199-080X>).

Dr. Denise O’ Gorman

Dr Denise O’Gorman, a Research & Development Manager at Marigot Ltd., holds a BSc in Biotechnology from the National University of Ireland, Galway, and a PhD in Biochemistry from University College Cork. Following her postdoctoral studies, Dr. O’ Gorman transitioned to industry as sales manager with MWG Biotech, Ireland, before joining Johnson & Johnson as a Territory Manager in France. Dr. O’Gorman joined Marigot Ltd. in 2008 and has extensive expertise in undertaking commercial research and development collaboratively between academia and industry to provide scientific clinical evidence on the company’s product range that can be translated to the global food market.

Food for Health Ireland - FHI

Food for Health Ireland (FHI) (<https://www.fhi.ie/>) is a collaborative model aimed at improving global health and wellbeing through health food innovation and commercialisation. FHI's principal objective is research and development support to industry in the discovery and evaluation of novel nutrient bioactives in line with current global food trends and challenges; to demonstrate bioefficacy by human randomized controlled trials that can be translated into commercially viable products with clear market focus. Human skeletal health is one of the principal areas of research conducted by FHI.

Marigot Ltd.

Marigot Ltd. was established in 1993 with its headquarters, R&D and application laboratory currently based in Cork, Ireland. Marigot Ltd. fosters an entrepreneurial approach to discover, evaluate, and deliver unique natural ingredients for the enhancement of human, animal, and plant health. The product range includes Aquamin™ (<https://aquamin.com/>), a unique aquamarine multi-mineral complex derived from calcified "Lithothamnion" species of red algae, harvested sustainably and with maximum sensitivity to the environment. The company have established a dedicated scientific program to evaluate product bioefficacy in global human nutrition intervention studies, resulting in over 60 peer-reviewed publications reporting the beneficial effects of Aquamin™ on skeletal, joint, and digestive health (<https://aquamin.com/science/>). Today, Marigot Ltd. products are sold globally in over 40 countries and used to add nutritional value to a wide range of food & nutraceutical applications. In line with current global trends promoting a transition towards sustainable food systems, Marigot Ltd. have recently developed a new range of plant-based protein isolates under the ATURA brand name (www.aturaproteins.com).

Host Institution – University of Limerick (UL)

University of Limerick (UL) is one of the leading public research organisations of the National Technology Centre, Food for Health Ireland (FHI) and has received sustained funding of state-of-the-art infrastructure and laboratory facilities. UL-based FHI researchers have an exemplary track record of isolation and characterization of novel, health-based nutrient bioactives for human health and well-being, and the translation/evaluation of bioefficacy in short and long-term human nutrition intervention studies.

“Bioactivity and Bioefficacy of Aquamarine and Plant-Based Supplements for Skeletal Health”

Skeletal function develops to maturity in the 3rd decade of life and declines thereafter. This fellowship proposal recognizes the pivotal role of “bone turnover” in the maintenance of skeletal health, a term used to describe the normally balanced rate of bone resorption and bone formation. This activity causes 5-10% of the skeleton to be remodeled per annum for repair and maintenance, an important component of skeletal health. However, when overall rates of bone turnover are high, dysregulation of the balanced resorption and formation processes can cause a greater deterioration in skeletal health or increased fracture risk. Integral to bone turnover is the rate of collagen turnover and this is reported to be highly nutrient sensitive. In this context, nutrient intake of calcium and protein intake interact constructively to affect skeletal health. This fellowship proposal also recognizes that habitual dietary intake of these nutrients is suboptimal and that appropriately timed nutritional supplements containing bioactive calcium and protein are required to fully realize the benefit of each nutrient on bone. A sustainable nutritional intervention that positively modulates the linked remodeling processes of bone resorption and formation is an attractive option in the maintenance of skeletal health.

This fellowship project sets out to use state-of-the-art technology to isolate and characterize bioactive ingredients sustainably sourced from natural, aquamarine (<https://aquamin.com/>) and plant-based (www.aturaproteins.com) sources in support of skeletal health. Optimizing skeletal health with a bioactive dietary supplement fits with the ambitious European Food 2030 promotion of sourcing and developing new protein alternatives.