



# Anita PAX

**Institution:** Teagasc Food Research Centre Moorepark and DPTC

**Academic Mentor:** Dr Diarmuid Sheehan

**Commercial Partner:** Kerry

**Commercial Mentor:** Mr Cal Flynn

Anita has a significant number of years experience in dairy science and research. She has worked with many Australian dairy manufacturers and completed her PhD on the microstructure and functional properties of Mozzarella cheese at The University of Melbourne, Australia.

Her work studied the effect of shredding and freezing on cheese properties to guide manufacture and handling of quality products. She also applied and developed advanced microscopy techniques such as synchrotron Fourier transform infrared microspectroscopy to provide new information on cheese structure.

Anita's Marie Skłodowska-Curie project will develop new processes and technology to provide dairy products with tailored texture and sensory properties for new export markets. This project will use fundamental research on the interactions between components in order to tailor texture or sensory properties for the emerging Asian market to grow Ireland's dairy product export.

## Diarmuid Sheehan

Dr. Sheehan is a Senior Research Officer based at the Teagasc Food Research Centre Moorepark and is a Principal Investigator (PI) for both the Dairy Processing Technology Centre and the Food Health Ireland programme. He has licensed IP protected technologies to industrial partners and was programme manager from 2010 to 2014 for a public private partnership focused on converting research expertise into the development of products for market launch. Diarmuid has published 50 peer reviewed publications, is an Associate Editor for the International Journal of Dairy Technology and co-lead of the European based Cheese Symposium series.

## Cal Flynn

Cal Flynn initially managed the quality assurance team in the milk processing plant in Listowel before moving to the product development area several years ago. He has managed a number of product development teams over the years, mainly in the dairy products area. Cal has also established and managed a product innovation team, now based in the Global Technical Centre in Naas, Ireland. In recent years, Cal has been the Kerry representative in Technology. He was actively involved in the construction of these centres and continuous monitoring of their research programmes. He is also responsible for the development and management of Kerry's external research programme.

## Teagasc Food Research Centre Moorepark

The Teagasc Food Research Centre Moorepark supports and delivers science-based solutions to the agri-food sector by developing innovative technologies for the Irish food industry. The Food Chemistry and Technology department, in particular, provides research in the area of cheese science, dairy chemistry, dairy processing, novel technologies and ingredients.

## Kerry

Kerry is a global leader in the food and beverage industry. Worldwide it is the largest and most technologically advanced developer of taste and nutrition solutions. Kerry is a leading supplier of added value brands and customer branded foods to Ireland, the UK and international markets.

## Anita's project

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### **“Investigating casein-hydrocolloid interactions to underpin innovation in fermented dairy products with bespoke sensory, textural and functional properties desirable to Asian consumers.”**

Asian markets, particularly China, are currently experiencing enormous growth in dairy consumption with the yoghurt category growing 24% annually in China alone (Mintel 2017). In addition, yoghurt is expected to become the largest dairy category by retail value in the next ten years (Euromonitor, 2017).

To date, there has been limited research using fundamental scientific information on interactions between proteins and carbohydrates in dairy systems such as yoghurt to develop new dairy products. By exploiting the interactions between these ingredients, new scientific knowledge to underpin innovation and product development in industry may be developed. This project will undertake fundamental research on the interactions between proteins and carbohydrates to tailor texture or sensory properties for products specifically applicable to the Asian market.

Development of processes or technology platforms will facilitate new insights through an improved understanding of the interactions between individual components in dairy products. For this, a wide range of analytical techniques will be employed to assess the structure and textural properties of dairy products. These will include advanced microscopy techniques to determine sample microstructure with a specific emphasis on determining chemical data and interactions at a molecular level.

The project will deliver substantial benefits to the Irish economy and specifically the dairy sector by leveraging opportunities in the emerging Asian export markets. In particular, it is expected that the fellowship will underpin technology development and innovation in dairy products including drinking yoghurt tailored to the Asian market.

It is also anticipated that the fundamental research will contribute to our understanding of dairy ingredient interactions and provide a basis for further research in the field of dairy science.

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