

INNOVATION VOUCHERS INITIATIVE
Teagasc – Moorepark Food Research Centre
DIRECTORY OF SKILLS AND EXPERTISE



College Contact Point for Innovation Voucher Enquires:

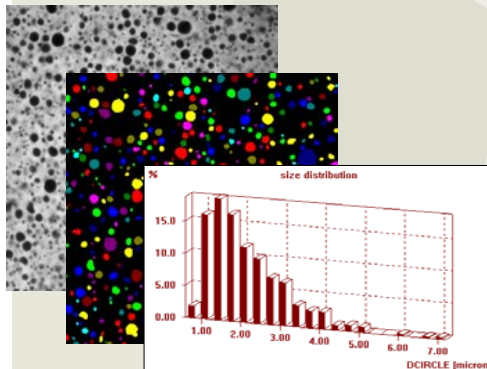
Name Kieran Downey	Phone number +353 (0)25 42677	email address kieran.downey@teagasc.ie
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Department/Unit	Specific services offered	Contact Name	Address	Telephone	E-Mail address
Food Processing and Functionality Department	<p>Technical advice for food companies, SMEs and entrepreneurs covers:</p> <ul style="list-style-type: none"> • Product Development • Food Formulation • Technical Troubleshooting • Technical Services for Start-ups <p>Research expertise</p> <ul style="list-style-type: none"> • Food chemistry • Food rheology • Food safety • Food processing and development <p>Facilities include</p> <ul style="list-style-type: none"> • BioFunctional food engineering facility (BFE) - see below • Moorepark Technology Ltd. – pilot plant services 	Kieran Downey	Teagasc – MFRC, Fermoy, Co. Cork	+353 (0) 25 42677	kieran.downey@teagasc.ie

Food research and innovation relies extensively on an improved understanding of **food microstructure** in order to create the diversity of textures, reduced fat content without sacrificing quality, and create an appropriate medium/environment for the

Establishment of National Food Imaging Centre (NFIC)

Advanced microscopic techniques based on *SEM*; *CLSM*; *AFM* provide unique insights into ingredient functionality and food formulation effects during processing and storage



FOOD PROCESSING & FUNCTIONALITY DEPT



Scanning Electron

Confocal Laser Scanning Microscope (CLSM)



Atomic Force Microscope (AFM)

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MOOREPARK FOOD RESEARCH CENTRE

Food Structure & Ingredient Functionality



Texture and **flavour** are central to one's enjoyment of food. Both attributes occur naturally, but are also adapted with the aid of modern technological techniques – these capabilities are key to the development of new, modern lifestyle products.

In addition, food selection on the part of the consumer is increasingly influenced by **health concerns** – needs addressed by the availability of an increasing range of foods with reduced fat and caloric variants as well as those that feature **ingredients that modulate certain physiological functions**.

BioFunctional Food Engineering (BFE) facility

Dedicated small scale processing is being created around a **BioFunctional Food Engineering (BFE)** facility which features state-of-the-art thermal, separation (membrane, chromatography, SFE) and particle formation (microfluidiser).

REALIZING VISION GOALS

With the launch of the Teagasc research programme on Food and Health, BFE will support the scale up of innovative opportunities relating to:

- Development of functional foods targeted at obesity and colon cancer.
- Discovery of Nutraceuticals

RESEARCH STAFF SKILLS

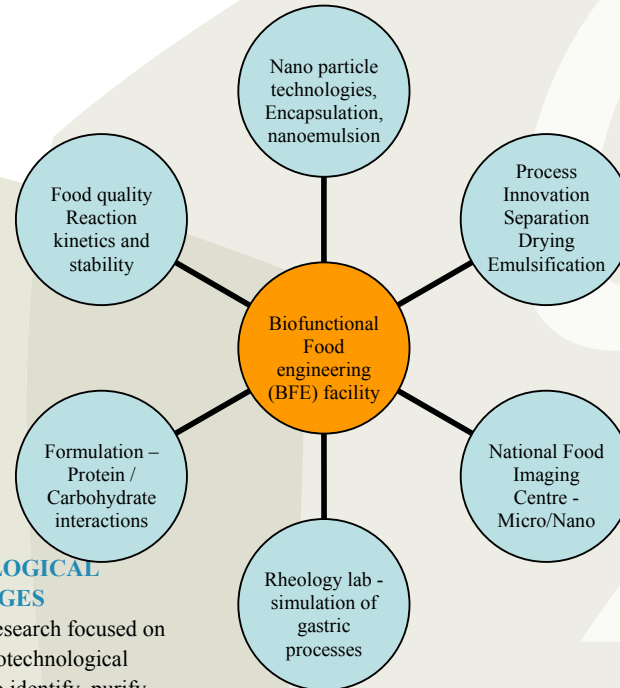
Staff in the Food Processing & Functionality Dept come from varied academic backgrounds



and experiences. The interdisciplinary team consists of Dairy and Food Technologists; Protein Technologists; Physical Chemist; Food Process Engineers, Food Imaging Researcher and Food Formulators

- Proteins and Hydrocolloids
- Dairy Ingredients
- Bioactivity
- Spray drying
- Nanotechnology
- Micrencapsulation

Food Microstructure to engineer functionality



TECHNOLOGICAL CHALLENGES

With much research focused on advancing biotechnological approaches to identify, purify and assay food constituents and polymers with biological activity, technologists and food engineers in turn are challenged to transform these concepts into novel ingredients for use by the food and beverage industries. Furthermore, technological innovation will be key not alone to ingredient delivery, but also to texture modification and sensory enhancement

NEW APPROACHES NEEDED

The increasing convergence of food and pharma, and the emergence of nanotechnological approaches are just some of the new tools being adopted by the research team which is already experienced in process technologies and ingredient

BFE FACILITIES

- **Thermal processes**
 - Microthermics
- **Separation**
 - Supercritical Fluid extraction
 - chromatography
- **Separation**
 - Multifunctional membrane (MF; UF; NF; RO)
- **Particle sizing**
 - Microfluidizer
 - Nanosizer
- **Encapsulation**
 - Droplet coating
- **Anhydro** 3-stage spray drier with wall sweep

