

# Welcome from Professor Ian Charles

Thank you for your interest in joining the Quadram Institute.

This is a unique opportunity to work at the forefront of integrated food and health research in the new state-of-the-art Quadram Institute building, which is at the heart of the Norwich Research Park. The Quadram Institute brings together Quadram Institute Bioscience (QIB research groups with others from the University of East Anglia (UEA, and Norfolk and Norwich University Hospitals (NNUH to deliver world-leading expertise in food science, microbiology, bioinformatics and clinical research.

With the recent appointment of a number of world-leading Group Leaders, QIB is strengthening its position and delivering fundamental and translational food and health research.

We are seeking an individual who will join the Quadram Institute, bringing with them a track record of delivering high-profile and high-impact science in the area of Food, Microbiome and Health, and who has the outstanding leadership skills to take ownership of, direct, and deliver this vital workstream.

This information pack has been developed to provide you with more information about us, our research and the Norwich Research Park. For more information, please browse our website at https://quadram.ac.uk/ and for further information about the recruitment process please contact our recruitment team at nbi.recruitment@nbi.ac.uk.

Yours faithfully,

Professor Ian Charles Director, Quadram Institute

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### Background

The vision for the Quadram Institute was developed in partnership between Quadram Institute Bioscience (QIB), the University of East Anglia (UEA), the Norfolk and Norwich University Hospital (NNUH) and the Biotechnology and Biological Sciences Research Council (BBSRC).

The vision combined excellent patient care and clinical research from the NNUH with the scientific expertise in food and health on the Norwich Research Park, in particular in the QIB.

QIB's research themes expand on the research strengths from the Institute of Food Research (IFR), and on its long history of food research. Created in November 1986 the IFR became independent in 2011, and in April 2017 IFR transitioned into Quadram Institute Bioscience as a first step towards realising the vision of the Quadram Institute.

The Quadram Institute is the £multi-million state-of-the-art food and health research and endoscopy centre in which the QIB is now based. It is at the forefront of the new interface between food science, gut biology and health, developing solutions to worldwide challenges in food-related disease and human health.

The mission of the Quadram Institute is to understand how food and the gut microbiota are linked to the promotion of health and the prevention of disease, with an emphasis on diet- and age- associated diseases. Scientists and clinicians use this knowledge to develop evidence-based strategies to maximise positive impacts of food on health, from early life to the extension of a healthy lifespan in old age and reduce the economic and societal costs of chronic diseases.

The future is exciting. The new Quadram Institute building is home to Quadram Institute Bioscience, the Norfolk and Norwich University Hospitals gastrointestinal endoscopy centre and the QI Clinical Research Facility (CRF).







### About Norwich Research Park

The Norwich Research Park, located just outside the historic city of Norwich, England, is a community of independent research organisations with world-leading science credentials.

The Norwich Research Park community consists of;

- 🤨 Quadram Institute
- John Innes Centre
- University of East Anglia
- The Sainsbury Laboratory
- 🧭 Earlham Institute
- Vorwich and Norfolk University Hospital

From the soil to our health, the vision of the Norwich Research Park is to "change lives and rethink society through pioneering research and innovation, reframing the future of research."

This will be achieved by supporting spin-out and start-up companies, and through attracting investment from large corporate organisations involved in science and technology from across the world.

#### www.norwichresearchpark.com

Norwich is a vibrant city, ranked in the Top 10 shopping cities in the UK and is rich in arts, culture, music, nightlife, and tourism. It is within easy reach of the Norfolk Broads National Park, the UK's largest navigable man-made waterway .

The city boasts a Norman Cathedral, a 12th Century Castle and a medieval centre of cobbled streets. It is also one of only three UNESCO Cities of Literature in England.

As a regional capital city, it is a significant cultural centre with stylish café bars, pubs, cinemas, theatres, restaurants, nightclubs, concerts, exhibitions and festivals. It is well linked to London and Cambridge by road and rail, and internationally via Norwich International Airport.

### **Quadram Institute Bioscience Vision**

Quadram Institute Bioscience (QIB creates new interfaces between food science, gut biology, human health and disease, capitalising on the world-class bioscience cluster based at the Norwich Research Park. QIB scientists working alongside clinicians will work closely with major national and international funding bodies and charities, collaborators and investors to ensure translation of our fundamental science to benefit patients, consumers and wider society.

The mission of Quadram Institute Bioscience is to understand how food and the gut microbiota are linked to the promotion of health and the prevention of disease, with an emphasis on diet- and age-associated diseases. We use this knowledge to develop evidence-based strategies to maximise positive impacts of food on health, from early life to the extension of a healthy lifespan in old age and reduce the economic and societal costs of chronic diseases.

Quadram Institute Bioscience undertakes interdisciplinary research that maximises the unique cluster of academic excellence and clinical expertise at the Norwich Research Park, working alongside the food and pharmaceutical industries on our core science programmes.



nutrition researchers



## Food, Microbiome and Health

Understanding how individual foods and diets can help us to maintain and improve our health, and developing innovative foods that promote healthy ageing.

Quadram Institute Bioscience is at the centre of a unique concentration of expertise on the Norwich Research Park that is dedicated to the science of food and health. Central to our mission is to harness that expertise into understanding how individual foods and diets can help us maintain and to improve our health, and to develop innovative foods that can further promote health and healthy ageing.

Our focus is on promoting health and preventing and ameliorating the effects of age and diet-related chronic diseases, including cardiovascular disease, cancer and cognitive decline. We seek to understand how individual food components, complex foods and combinations of foods are digested within the upper and lower gastrointestinal tracts, and how nutrients and non-nutrient food components are released and absorbed into the body. Additionally, our programme of research seeks to understand how these absorbed products of digestion influence cellular processes to maintain and enhance health. An important part of our programme is to undertake dietary intervention studies and clinical trials with healthy and patient volunteers.

A major part of the programme is concerned with how simple and complex carbohydrates are digested in the upper gastrointestinal tract then pass into the colon where they are fermented by the resident bacteria. We are interested in the structure of starch and whether the manner by which its encapsulation within plant organelles might influence the rate of digestion and fermentation processes. We seek to provide further insights into the role of different types of dietary fibre in the diet, and their interaction with lipid digestion. In addition to the major nutritional macronutrients, we seek to understand how certain specialised plant metabolites that are found in foods, such as polyphenolic compounds obtained from many fruits and vegetables, and sulphur-containing compounds found in Brassica and Allium vegetables may be important components in the diet and have a role in regulating metabolism through a variety of mechanisms.

### Food, Microbiome and Health



### Deputy Institute Strategic Programme Leader

With people adopting more sustainable diets, the overall aim of the FMH ISP is to investigate how an improved understanding of food structure and composition, and its interaction with the GI microbiome, can be used to promote health and prevent disease.

Globally, poor diet accounts for 10 million (22 per cent) of all adult deaths (every year with cardiovascular disease as the leading cause. The UK has both the highest obesity rates and worst healthy life expectancy in Europe, hence the urgent need to switch to a more nutritionally balanced diet. Growing environmental, ethical and health concerns are motivating transition to plant-rich diets, a trend that will increase because of global population and climate change. The changes in our dietary habits provide unique opportunities for designing novel plant-based foods that improve health. However, this dietary shift also brings challenges as plant-based diets contain processed carbohydrate-rich foods with high glycaemic/ calorie content that tend to have lower availability of key macronutrients, such as protein, micronutrients including vitamins D and B12, and minerals such as iron, zinc and iodine. Many of the nutrient challenges associated with plant-based diets are being addressed through processes such as biofortification and new technologies such as gene-editing. There is need to understand the effect of these approaches not only on food structure and composition, but also how they impact the GI microbiome and host responses.

A key, achievable strategy for addressing these challenges is to focus on the relationships between plant-based food, the GI microbiome and human health. Consequently, our overall aim is to unpick the complicated relationship between particular plant-based foods, GI microbes and health through mechanistic research into these interactions. We will apply this knowledge to develop new food-based and microbiome-targeted intervention strategies that increase health span by building or improving resilience and resistance to age-related diseases. Our research is supported by state-of-the-art food analytics, dynamic GI-tract simulation models, organ-on-chip systems, microbiota transfer technology (MRT), metagenomic sequencing and bioinformatics, super-resolution image facilities, pre-clinical models, and access to QI-based clinical research facility (CRF) and endoscopy.

Our research has direct relevance to multiple stakeholders including those associated with food systems; healthcare; policy and regulation; industry; consumer and patient groups. Results from our research programme will feed into evidence-based policy on transitioning to sustainable diets and the effects these can have on improving human health and reducing the burden on the NHS.



On-site infrastructure available to support the work, includes a Clinical Research Facility with dedicated kitchen facilities for nutrition trials, and relevant skill base, including state-of-the art analytical facilities, state of the art sequencing and specialist bioinformatics support and statistical support, as well as other accessible resources across the Norwich Research Park. We are particularly interested in candidates wishing to engage with clinicians and advance the translational aspects of their work to identify potential commercialisation opportunities; within QIB there is a dedicated Business Team to support activites. A demonstrated track-record in high-impact publications, peer-reviewed funding, management and leadership is essential.

#### Required Profile for Deputy Institute Strategic Programme Leader

We are seeking to appoint an exceptional scientist who will complement and enhance our existing science on food and health. We are willing to appoint at a level commensurate with the applicants experience up to Professorial level.

For a Professorial level appointment, you will need to demonstrate the following:

#### **International Standing**

- PhD in a discipline relevant to the area of research;
- Track record of research achievement, supported by publications in high standing journals;
- Measures of esteem such as international invited plenaries, editorial activity, professional society activity etc.

#### Leadership and Management

- Ability to act in a Senior Leadership position, to lead and direct an internationally high profile research programme, to develop, mentor and inspire post-graduate students and junior researchers and to play a key role in the further development of QIB science;
- Research project management experience and evidence of winning external support for the maintenance of a successful research team;
- Record of leadership and collaboration on research projects;
- Flexibility, able to work in a cross-functional and cross-disciplinary way, fully aware of and committed to the benefits of working together collaboratively to exploit opportunities and synergies both within QIB, across NRP and elsewhere.

#### Networks and Communication Skills

- Have strong international academic and/or industrial networks in areas relevant to the QIB.
- Able to create, build, strengthen and sustain collaborative research networks

### About the role

# Job Description

## **Deputy ISP Leader**



Quadram Institute Science Health Food Innovation

Increase our knowledge and expertise in the role of the gut microbiota in nutrition and health. Research will be focused on the identification of major factors that contribute to microbiota response to diet, resulting in the development of effective strategies to address the current food/health crisis.

Working collaboratively with colleagues and stakeholders, the Deputy ISP Leader will lead an innovative research programme focused on the role of key components of the microbiome and their interaction with food and the host.

#### Key Accountabilities:

- Build, lead and manage internationally recognised, high profile and innovative projects in the area of Food, Microbiome and Health, and supervise the work of extended research teams.
- Undertake the role of deputy head for the FMH ISP and help in the strategic development and management of the ISP research programme.
- Lead and manage research teams, including supervising, training, mentoring, providing wellbeing support for Research Scientists and other members of your group, supporting effective career development and maintaining high levels of performance representative of a world class institute.
- Publish high quality and significant research papers together with providing expert commentary in a variety of media.
- Promote a culture of world-class science excellence, the Institute values (Excellence, Collaboration, Respect and Innovation), and scientific integrity across the Institute.
- Develop pertinent research strategies for the QI to deliver high social and economic impact.
- Initiate the development of research proposals and projects as stand-alone projects or as part of a broader programme.
- Design and implement innovative research methodologies that add to the knowledge and understanding of the role of gut microbe-food interactions in nutrition and health.
- Promote our research and develop business/commercial opportunities for the Institute by liaising with and influencing government, industry and other external partners.
- Disseminate research findings and consolidate the Institute's international reputation through participation in international conference and exhibitions.
- Contribute to the effective leadership and management of the Institute through additional Institute responsibilities, including supporting scientific training and serving on institute committees, as and when required.
- Other duties commensurate with the nature of the role as identified by the ISP Leader.

About the role

Person Profile

#### Education & Qualifications

Quadram Institute Science Health Food Innovation

PhD in a relevant scientific area.

### Specialist Knowledge & Skills

Extensive knowledge of the relationship between the human gut microbiome and diet. In depth understanding of relevant area of science.	Essential
Relevant Experience Established record of independent research, including a history of obtaining significant research funding and effective / successful management of projects	Essential
Experience with current approaches to understand the form and function of the gut microbiome and its response to macro- and/or micro-nutrients	Essential
Strong senior author publication record in peer reviewed journals	Essential
Experience of effectively leading, managing and mentoring research teams, including promoting excellence and developing and maintaining high levels of performance	Essential
Substantial experience of promoting a positive research culture and well-being within a research environment	Essential
Evidence of winning grants and external support for the maintenance of a successful research team	Essential
Ability to lead and participate in interdisciplinary research	Desirable
Success in leading research and initiating interdisciplinary collaborations	Desirable
Interpersonal & Communication Skills Strong collaboration skills, including the ability to ensure that individual research effectively contributes to the overall aims of the Institute	Essential
Ability to create, build, strengthen and sustain productive relationships with key stakeholders	Essential
Ability to communicate effectively and appropriately with stakeholders at all levels both inside and outside the institute	Essential
Good interpersonal skills, with the ability to work well as part of a team	Essential
Additional Requirements Promotes equality and values diversity.	Essential
Attention to detail	Essential
Willingness to embrace the expected values and behaviours of all staff at the Institute, ensuring it is a great place to work	Essential
Able to present a positive image of self and the Institute, promoting both international reputation and public engagement aims of the Institute	Essential
Ability to travel nationally and internationally related to collaborations and/or seminars	Essential
Willingness to work outside standard working hours when required Willingness to embrace the expected values and behaviours of all staff at the Institute, ensuring it is a great place to work.	Essential



If you are interested in working at the Quadram Institute please register your interest by emailing recruitment@quadram.ac.uk

All commercial enquiries should be sent to **business@quadram.ac.uk** 

For all other information or queries please email info@quadram.ac.uk

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