



### Welcome to the newsletter of the Quadram Institute

As we head into 2022 we can reflect on the progress we've made at the Quadram Institute, both in terms of helping our community get through the pandemic, and in terms of the excellent science our researchers continue to deliver. The pandemic is not over but we can hope that we are at the beginning of the end. The work of the hospital's Clinical Research Facility team on the Novavax COVID-19 vaccine trial has come to a successful conclusion, and Quadram Institute Bioscience continues to support the Department of Health and UK Health Security Agency with ongoing COVID-19 genomic surveillance.

Quadram Institute researchers have also been making a real impact in the fight against COVID-19 in low and middle-income countries such as Zimbabwe. Our collaborative work with scientists in Zimbabwe on the genomic sequencing of SARS-CoV-2 has been praised both by the UK's Minister for Africa, and the British Embassy in Harare.

This edition highlights the impactful science we undertake at the Quadram Institute, ranging from the potential for kitchen gardens to help us get the micronutrients we need, to tackling diet-related diseases through the development of healthier starch in our food, to unravelling the mysteries of our gut microbiome and its role in the development of cancers.

This year will see us develop our proposals for Institute Strategic Programmes (ISPs) and our Food Databanks National Capability to the Biotechnology and Biological Sciences Research Council for the next five-year public sector funding round from 2023 through to 2028. The Quadram Institute brings together, under one roof, NHS clinical researchers, academics, bioscientists, patients and public, alongside world-leading research with partners on the Norwich Research Park and collaborators around the world. I believe this is the right model for 21st century science and it leaves the Quadram Institute well placed for the future.

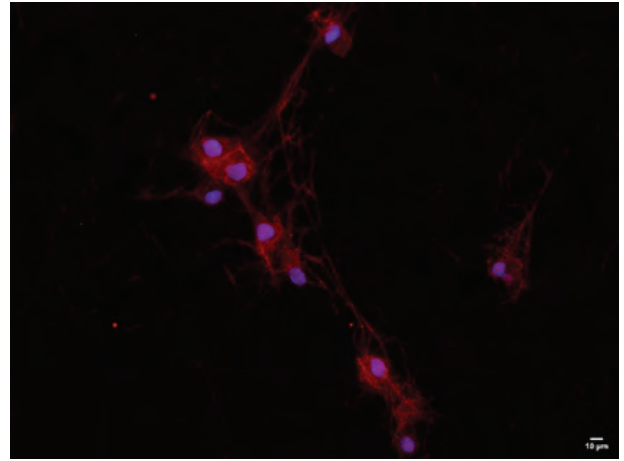
[bit.ly/QI22A01](https://bit.ly/QI22A01)

**Ian Charles, Quadram Institute Director**

### Bowel cancer microbiome interactions uncovered in new study

A study has uncovered a new link between bowel cancer progression and the microbiome. *Fusobacterium* are enriched in bowel cancer tissue and now work led by Nathalie Juge's group has shown how certain strains interact with specific proteins on immune cells, promoting inflammation.

This could help improve current approaches for the treatment of cancer by targeting *F. nucleatum* in the tumour environment and without compromising the rest of the gut microbiome or inducing antimicrobial resistance. [bit.ly/QI22A02](https://bit.ly/QI22A02)



### Survey uncovers diversity of *Vibrio* in prawns bought in the UK

Quadram Institute researchers have surveyed prawns for *Vibrio* bacteria, to understand their potential contribution to human disease. 46% of prawns were contaminated but the strains found pose no immediate risk to food. However, better surveillance is needed to protect against antimicrobial resistance and the introduction of more dangerous types of *Vibrio* to the UK, driven by climate change.

[bit.ly/QI22A03](https://bit.ly/QI22A03)

### Targeting a specific immune cell could protect against antibiotic-induced breast cancer progression

Stephen Robinson and his team have identified a possible link between antibiotic use and the speed of breast cancer growth in mice. Antibiotics led to the loss of a beneficial bacterial species, which in turn sped up tumour growth. They also discovered that a type of immune cell was found in larger numbers in breast cancer tumours in mice treated with antibiotics, and that blocking the function of these cells reversed the effects.

[bit.ly/QI22A04](https://bit.ly/QI22A04)

### Slower energy release points the way to healthier foods

A project developing healthier foods based on the slower release of energy is set to expand its range of products. Using the latest scientific knowledge about how different types of starch are digested, the project hopes to introduce consumer-focused products that can contribute to consumers' health and reduce the risk of developing diet-related disease.

[bit.ly/QI22A05](https://bit.ly/QI22A05)

### The gut microbiome and psychiatric disorders

Lindsay Hall has contributed to a comprehensive review and meta-analysis of data to determine how psychiatric disorders are linked to changes in the gut microbiome, finding that across certain disorders there is a shared pattern of microbial change.

[bit.ly/QI22A055](https://bit.ly/QI22A055)



### Meet the kitchen garden of the future: sustainable vertical farming meets personalised nutrition

A new project is set to bring sustainable vertical farming and personalised nutrition into the home and workplace by developing kitchen gardens that grow produce to match individual dietary needs. Using a specially designed app linked to the latest scientifically validated data on nutrition and health, consumers would be able to select from a range of different crops and varieties linked to their own personalised nutritional profile, and use the growing medium to biofortify with micronutrients as appropriate.

[bit.ly/Q122A06](https://bit.ly/Q122A06)



### Hunting variants and how Delta dealt a blow to Alpha

Genomic sequencing undertaken at the Quadram Institute has helped the country keep track of how SARS-CoV-2 was evolving in the face of the vaccine rollout, by supporting the Imperial College London-led REACT-1 study. Findings published in *Science* in November 2021 showed how in the third wave of infections in England the Delta lineage came to dominate and was driven by infection in younger, unvaccinated people. The Quadram team have also been at the forefront of tracking the Omicron lineages that since November have become dominant due to their increased transmissibility.

[bit.ly/Q122A07](https://bit.ly/Q122A07)

### Same day test identifies secondary infections in COVID-19 patients

A same-day test based on sequencing successfully identifies secondary infections in patients in intensive care units (ICUs) in hours rather than days. Researchers from King's College London and the Quadram Institute developed the test, working with doctors at St Thomas' Hospital, who evaluated the test with ICU patients during the first wave of the COVID-19 pandemic. It uses cutting edge Nanopore sequencing technology to identify all bacterial and fungal pathogens present in patients' samples, as well as any resistance genes present. The advance means that unnecessary treatment can be reduced, and patients can benefit from starting the right treatment sooner.

[bit.ly/Q122A08](https://bit.ly/Q122A08)

### Covid-19 Genomic Surveillance in Africa: One Year On

The genomic surveillance network set up across Africa to sequence coronavirus variants, in part with help from the Quadram Institute, has published a vital analysis of how the pandemic spread across the continent in the journal *Science*

[bit.ly/Q122A09](https://bit.ly/Q122A09)

### New research explores role of travel in transmission of SARS-CoV-2 in Zimbabwe

Quadram Institute researchers working with scientists in Zimbabwe have built up a detailed picture of how SARS-CoV-2 variants were introduced and transmitted in the southern African country during 2020.

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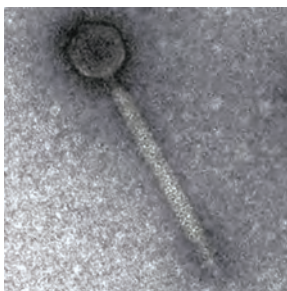
### How genomic surveillance helps understand outbreaks of COVID-19 in care homes

Andrew Page from the Quadram Institute and colleagues from the COVID-19 Genomics UK (COG-UK) Consortium have published a meta-analysis of genomic surveillance for the virus in care home settings, allowing them to deliver a number of recommendations to better control COVID-19 in care homes

[bit.ly/Q122A11](https://bit.ly/Q122A11)

### Colneyvirus: Norfolk village honoured in name of potentially lifesaving virus

In a search for ways to combat antibiotic resistant *C. difficile* infections, a new group of bacteriophages were discovered, and these have now been named after the Norfolk village of Colney, honouring where they were first found.



*Clostridioides virus phiCD27 of the genus Colneyvirus. The phage is about 300nm long, meaning about 200 would fit across the width of an average human hair. Transmission electron microscopy image by Mary Parker*  
[bit.ly/QI22A12](https://bit.ly/QI22A12)

### Norwich gets new research training programme focused on major health challenges

The UK's Medical Research Council (MRC) is investing in a new programme in Norwich to train researchers of the future to address major societal health challenges such as infection, antimicrobial resistance and studying the microbiome. The new Microbes Microbiomes and Bioinformatics Doctoral Training Partnership will bring together world-class strengths in microbial research and informatics provided by the University of East Anglia, the Quadram Institute and the Norfolk and Norwich University Hospital.  
[bit.ly/QI22A13](https://bit.ly/QI22A13)

### Quadram Institute recruits new business development expertise

The Quadram Institute has made two key appointments to its business development and commercialisation team. Dr Roberto Zanchi joins as Head of Business Development and Commercialisation and Dr Stephen Rhind as Commercialisation Manager. Dr Zanchi has joined from LifeArc and Dr Rhind from King's College London.  
[bit.ly/QI22A14](https://bit.ly/QI22A14)

### Top award wins for Quadram Institute Communications team

The Quadram Institute's Communications and Engagement team has won three top awards in the prestigious Chartered Institute of Public Relations Pride 2021 awards.  
[bit.ly/QI22A15](https://bit.ly/QI22A15)

### Taking Pride in Science and Supporting Inclusive Environments

At the Quadram, we're committed to celebrating diversity. We strive for the Institute to be a place where everyone feels welcome, respected and safe. To mark Norwich Pride 2021, Stephen Robinson and Cynthia Whitchurch spoke to us about the important work taking place at the institute and across the Norwich Research Park to support inclusive environments in science.  
[bit.ly/QI22A16](https://bit.ly/QI22A16)

### My pandemic year in science communication

Communicating science to the public is vitally important and never more so than during a pandemic. Bethany Hartley reflects on her undergraduate year in industry working as a science communicator at the Quadram Institute.  
[bit.ly/QI22A17](https://bit.ly/QI22A17)

**Frontiers in Gut Microbiome Research: Application in Nutrition, Health & Wellbeing**

New digital learning event for healthcare professionals, hosted by BIMUNO® & the Quadram Institute. An unmissable learning event for healthcare professionals, sharing the latest gut microbiome research with relevance to health and wellbeing.

**Tuesday March 22<sup>nd</sup> 2022**  
Book your place today – visit [www.bimuno.com/frontiers-in-gut-microbiome-research/](https://www.bimuno.com/frontiers-in-gut-microbiome-research/) to learn more.

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