

KNOWLEDGE EXCHANGE NEWS 21

CONTROLLING MOSQUITO-BORNE DISEASE... BY RELEASING MORE MOSQUITOES!

Professor Luke Alphey is Chair in Genetics, Department of Biology.

According to the World Health Organization, ~17% of all human infectious disease is vector-borne^[1], which is to say transmitted by a living organism (the “vector”) such as a mosquito or tick. Dengue virus alone infects about 400 million people each year, with potentially severe and fatal consequences. Malaria kills around 500,000, predominantly children under 10 in sub-Saharan Africa.



Despite the severe disease burden and decades of research, few vector-borne diseases have effective vaccines or drugs. However, these diseases share a vulnerability in their dependence on the vector for transmission meaning we can potentially intervene at that point.

Our research focuses on genetic interventions: releasing mosquitoes with altered genetics to get those novel genes into the wild population. Some years ago I invented a system to generate “sterile-male” mosquitoes that would control wild mosquito populations by mating the wild females. This leads to fewer mosquitoes in the subsequent generation and so eventually controls, or even locally eliminates, the disease-transmitting mosquito population.

A desire to realise the real-world impact of this innovation led me to co-found **Oxitec Ltd** and lead it as

Chief Scientific Officer for more than 10 years. 20+ years on, the company is still operating, controlling mosquitoes and agricultural pests by this method. At York, we are now developing next-generation methods in the same general area. We are working towards methods that will be cheaper to deliver, but still ‘local’, targeting specific mosquito populations rather than spreading relentlessly throughout the species, so that different communities can choose the right method for them.

While we are mostly focused on vector mosquitoes, there are also many beneficial insects. A new project aims to develop advanced strains of black soldier fly (BSF), an insect with important applications in agriculture and the food sector due to its ability to efficiently process a wide range of waste material and convert it into useful compounds. This project is a collaboration with

the **Centre for Novel Agricultural Products (CNAP)** in Biology, who bring expertise in engineering the biology of cells, and with **Fera Science Ltd**, who are involved in the commercialisation of BSF-based waste processing. This work is funded by a UKRI/BBSRC Engineering Biology Mission Award; since the announcement of the award^[2] several other research groups and companies have expressed a desire to be involved in various ways.

Discover more in this YorkTalk 2024 exploring Professor Luke Alphey’s work to develop biotechnologies that can re-programme parts of the mosquito’s DNA code to reduce its ability to transmit disease.

BUILDING INDUSTRIAL ENGAGEMENT AND IMPACT (BIEI)

As one of the University's strategic Transformational Initiatives, the ten-year Building Industry Engagement and Impact (BIEI) Initiative has been running for two years. This ambitious programme has been designed to increase the University's interactions with business and industry and develop new income streams. During its first two years, the programme has established the infrastructure and support mechanisms to deliver and grow industry engagement.



Alongside continuing to build the skills and expertise of existing staff to engage more effectively with external partners, a strategic academic recruitment campaign was launched to recruit new academics with a focus and experience in engaging with businesses across different sectors. Seven new appointments were made as a result of this campaign with our new starters joining us from now until the end of the summer period. The BIEI is also supporting the development of future practice-based job families to make it easier for staff working in industry-related projects to progress through their careers.

The BIEI has supported the delivery of many new industry-related initiatives and has set up a

dedicated Partnership acceleration and commercial engagement (PACE) fund to help kick-start new projects. Four projects have also been awarded Northern Accelerator BIEI funding to develop new commercialisation opportunities.

Operational support is being delivered through more focussed professional services teams and several new policies and processes to facilitate and support industry engagement have been developed.

A new Business Development team is providing additional resources to develop and manage partnerships between academic departments and potential industry partners. Training tools and supportive materials to assist academic colleagues will continue to be developed.

A new Customer Relationship Management (CRM) system is being mapped to begin rollout later in 2024. This system will assist with the tracking and management of our external partners to ensure we can offer a professional, joined-up service and maximise opportunities for cross-selling.

Processes and policies to support staff to engage with industry are being reviewed and updated to provide greater clarity and consistency. More information will follow soon on these new policies.

Join the conversation about our Vision for York
vision-for-york@york.ac.uk

INTRODUCTION TO RESEARCH IMPACT AND KNOWLEDGE EXCHANGE SESSION: HOW CAN YOUR WORK MAKE A DIFFERENCE?

Join us for an in-person 'Introduction to research impact & knowledge exchange' on Thursday 4 July, 2.00 to 3.30pm in H/G21.

All academic and professional services staff, as well as postgraduate researchers, are welcome to attend. The session is suitable for those interested in learning about impact and knowledge exchange, or anyone who would like a refresher on these topics.

Sign up for the session.

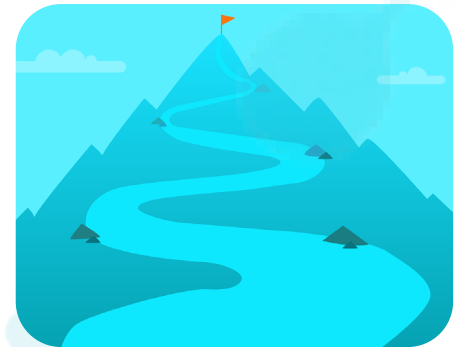
This session will introduce the essentials of research impact and knowledge exchange, including their drivers and how they relate to national initiatives such as the

Research Excellence Framework (REF) and the Knowledge Exchange Framework (KEF).

We will demystify terminology and explore "how can my research (or the research I support) make a difference".

Attendees will reflect on their own impact goals and consider how to evidence and achieve impact. Guest speaker **Dr Penny Bickle, Senior Lecturer in Archaeology** and REF2021 case study coauthor, will discuss her own experiences of engaging with varied stakeholders

and achieving impact from her research, with time for attendees to ask questions. We will also signpost towards further support available at the university.



YORK POLICY ACADEMY – APPLICATIONS FOR 2024/25 NOW OPEN

The **York Policy Academy** is an exciting initiative designed to provide a unique and valuable development opportunity for academic and professional services staff interested in engaging with policymakers. The Academy was launched last year by the **York Policy Engine** with its first cohort due to complete in June.

The Policy Academy aims to enhance participants' understanding of policy engagement, expand their networks, and increase their impact by connecting them with civic and political leaders and providing them with interactive expert-led training workshops.

The first ever Academy started last year and [you can hear about the](#)

**YORK POLICY ACADEMY:
2024/25 APPLICATIONS
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[experiences of some of the fellows who took part.](#)

The Policy Academy is open to staff members from all faculties, departments and directorates. Those interested in policy engagement as part of their work, including

teaching, research and professional services staff, are encouraged to apply.

Interested individuals can [find out more and apply on our website](#). **The application deadline is 5pm Friday, 28 June 2024.**

INTRODUCTION TO INTELLECTUAL PROPERTY (IP) AND RESEARCH COMMERCIALISATION

45 min Online Training Session

Have you considered how your research is applicable to industry?

Ever wondered how IP protection can be used to help drive impact from your research?

Interested to learn more about how spin-out companies are formed?

This short online primer (delivered by the University's Commercialisation Team) is the perfect place to start.

Sessions run monthly. **Book your place.**

- Wednesday, 26 June 2024, 1.00pm to 1.45pm, Online Session
Register by Wednesday, 26 June 2024, 12:00pm
- Wednesday, 31 July 2024, 1.00pm to 1.45pm, Online Session
Register by Wednesday, 31 July 2024, 12:00pm



FIRST 100 DAYS – JAMES HASTIE, HEAD OF BUSINESS DEVELOPMENT

Stepping into the role of Head of Business Development directly from industry I was keen to start my journey at the university meeting new colleagues and engaging with the culture and ethos of York.

The first 100 days are a critical period for building relationships, assessing the landscape, and starting to build a strategy for future growth. In the first few weeks I met with a wide range of stakeholders to understand the University's research strengths, and start to identify new potential industry partnerships.

Alongside meeting colleagues across the University, I have been busy developing a business development strategy. The strategy includes a framework and stage gate process to help formalise the support available from the business development team and develop a more structured approach to the development and management of our external partnerships. In the next few weeks, the internal business development web pages will be published providing information, support and guidance for colleagues, as well as access to a new self-service business development toolkit.

In the next few months, the business development team will be focused on developing and implementing innovative strategies to maximise the university's impact and industry engagement, collaborating with colleagues across departments and industry sectors.

Contact - Business-development@york.ac.uk



Contact us: Clare [Murgatroyd clare.murgatroyd@york.ac.uk](mailto:clare.murgatroyd@york.ac.uk)
Support for KnowledgeExchange at York

To find out more visit the dedicated KE Concordat portal: www.keconcordat.ac.uk

