

# I&I NETWORK NEWSLETTER



Elizabeth Blackwell Institute  
for Health Research

SEPTEMBER – OCTOBER 2018

## AMR Force wins Antibiotic Guardian Award

Bristol Veterinary School's [AMR Force](#) won the award in the Agriculture and Food category at this year's Antibiotic Guardian Awards in recogni-

tion of the group's achievement in tackling antimicrobial resistance (AMR). The awards, now in their third year, are run by Public Health England and

attended by leaders in the field of human medicine, veterinary medicine and the agricultural industries from the UK and around the world. Set up to recognise the ongoing work across the agricultural sectors, AMR Force was awarded the top prize for their collaboration with researchers, practitioners and industry bodies across the food chain. One of their main aims is to share the results of their research widely, and the group actively participate in initiatives to inform policy and influence the national research agenda. *Image courtesy of The Guardian, 27 June 2018*



**Bristol Events / Other Events**

2-5



**Infection and Immunity Research and Staff News**

6-14

**Elizabeth Blackwell Institute Funding Schemes**

15



**Funding Opportunities in Infection and Immunity**

16-18

**This Issue's Showcased Article**

19



**Contacts**

20



INFECTION  
&  
IMMUNITY



# UoBRISTOL EVENTS

## **Tuberculosis (TB) transmission in South Africa: rebreathing air and a new way to capture bio-aerosols**

22 October 2018, 13.00 - 14.30, Robin Wood (Emeritus Professor of Medicine, University of Cape Town), PGR Hub, 1st floor Senate House, Tyndall Avenue



## **Systematic review of ethical issues in clinical trials in India: the research landscape in the past two decades**

22 October 2018, 16.00 - 17.00, Dr Sangeetha Paramasivan (BMS), G12 Canynge Hall



## **Pure drop-in session**

24 October 2018, 13.00 - 15.00, Priory Road Complex café

## **Research IT drop-in session**

24 October 2018, 14.00 - 17.00, Dolberry Room 1, Langford

## **Afternoon Tea with Brigstow**

24 October 2018, 14.00 - 17.00, Library Room, Ground Floor Royal Fort House



## **Building Research Partnerships Workshop**

25 October 2018, 10.00 - 16.30, Dali Sidebottom and Karen Sheehan

## **Plant microbiota in regulation of root nutrient acquisition**

25 October 2018, 14.00 - 15.00, Dr CJ Harbort (Max Planck Institute for Plant Breeding Research), F40 Biomedical Sciences Building



## **Translation Toolkit seminar series: Funding for translation**

25 October 2018, 14.00 - 15.00, Prof Emma Robinson (PPN), Room G.02, 1 Cathedral Square

## **The way we die now - The over medicalisation of death in the 21st century**

26 October 2018, 18.00 - 19.00, We The Curious



## **Coffee Morning with Brigstow**

29 October 2018, 9.00 - 12.00, Library Room, Ground Floor Royal Fort House

## **What killed over 200,000 saiga antelopes in Kazakhstan in 2015 and should it change how we think of wildlife disease?**

29 October 2018, 13.00 - 14.00, Prof Eric Morgan (UoB), Life Sciences Seminar Room G13/G14

## **Killers and protectors: rapid microbial evolution across the parasite-mutualist continuum**

29 October 2018, 13.00 - 14.00, Kayla King (University of Oxford), Life Sciences Seminar Room

## **Engagement Bites: Tips & Tricks for Public Engagement**

*From top: Robin Wood, Sangeetha Paramasivan, CJ Harbort, Eric Morgan, Kayla King*

## UoB EVENTS

31 October 2018, 13.00 - 14.00, Seminar Room, Beacon House

### Statistics Clinic

31 October 2018, 14.00 - 15.30, SM3 Mathematics Building

### Sir Anthony Epstein lecture: Nuclear transfer and its contribution and understanding of cell differentiation

1 November 2018, 17.00 - 19.00, Sir John Gurdon (The Gurdon Institute, University of Cambridge), E29 Biomedical Sciences Building *image right*



### Fifty Years of UK Poverty Research - What Have We Learned?

5 November 2018, 9.30 - 17.00, Reception Room, Wills Memorial Building

### Tableau Workshop

7 November 2018, 10.00 - 12.00, Anna Tankel (Academic Marketing Coordinator, Tableau), Ground Floor Seminar Room, Beacon House *image right*



### Afternoon Tea with Brigstow

9 November 2018, 14.00 - 17.00, Library Room, Ground Floor Royal Fort House

### L&R Postgraduate Presentations

13 November 2018, 13.00 - 14.00, Georgina Mortimer (Year 1, PhD student) and Amy Howell (Year 1, PhD student), Seminar rooms A&B, Level 2, Learning and Research Building, Southmead Hospital

### Biomedical Sciences Film club

13 November 2018, 6.15 PM - 13 November 2018, 8.00 PME29, Biomedical Sciences Building

### Introduction to Involving Patients and the Public in Research

14 November 2018, 10.00 - 13.00, Biomedical Research Centre PPI team in collaboration with People in Health West of England

### Introduction to IRAS, HRA Approval and Research Ethics

14 November 2018, 12.00 - 13.00, Jess Bisset (Research Operations Manager, UHB R&I), Lecture room 3, Education & Research Centre, Upper Maudlin Street

### Statistics Clinic

14 November 2018, 14.00 - 15.30, SM3 Mathematics Building

### Bristol AMR launch

14 November 2018, 15.30 - 19.00, New Lecture Theatre, Priory Road *Complex*

### Data analysis best practice workshop

## UoB EVENTS

15 November 2018, 9.00 - 17.00, Ground Floor Seminar Room, Beacon House

### [Biogenesis pathways in the bacterial cell envelope](#)

15 November 2018, 13.00 - 14.00, Dr Phillip Stansfeld (University of Oxford), C42 Biomedical Sciences Building

## OTHER EVENTS

### [Another Tech World is possible](#)

20 October 2018, 9.00 - 17.00, Engine Shed, Bristol

### [Delivering novel therapies in the 21st century](#)

24 - 25 October 2018, Royal Society, London

### [GW4 Wellcome Trust PhD Roadshow](#)

24 October 2018, 10.30 - 14.30, Dr Anne-Marie Coriat (Head of UK and European Research Landscape, Wellcome Trust), Lecture Theatre Room 0.07, Haydn Ellis Building, Cardiff University, Maindy Rd, CF24 4HQ

### [Immunology of Diabetes Society Congress 2018](#)

25 - 29 October 2018, QEII Centre, London

### [Early Career Scientist Training in the Immunology of Diabetes](#)

25 October 2018, 10.00 - 19.00, QEII Conference Centre, London

### [Clinical Academics in Training Annual Conference 2018](#)

8 November 2018, 9.30 - 17.30, The Royal College of Physicians Edinburgh

### [Interactions between gut microbiota and host in health and disease](#)

1 November 2018, 14.30 - 19.00, Prof Brigitta Stockinger (The Francis Crick Institute), The Francis Crick Institute, London

### [Psoriasis: Translating Innovation into Personalised Care Symposium](#)

2 November 2018, 9.00 - 19.00, Profs Catherine Smith, Jonathan Barker, Nick Reynolds and Chris Griffiths and Drs Elise Kleyn and Dr Helen Young, Royal College of Physicians London

### [Rise of Experimental Government](#)

5 November 2018, 15.00 - 17.00, Institute for Government, 2 Carlton Gardens London SW1Y 5AA

**SEE THE FULL EVENTS' LISTING ON THE I&I WEBPAGE**

## UoB EVENTS

### Infection and Immunity Early Career event 2018 Recap of the day

The Infection and Immunity Research Network hosted its fourth annual Early Career Researchers' (ECRs) symposium on 10 September 2018. We hosted seven ECR talks, four posters and two keynote presentations by Rachel McLoughlin of Trinity College Dublin and Martin Broadstock of the Medical Research Council. The event was supported by the Elizabeth Blackwell Institute for Health Research and Qiagen, who kindly donated the best poster and best oral presentation prize, respectively. Feedback from a sample of the ~45 registered attendees was overwhelmingly positive, with 52% saying the event was excellent, and the remaining 48% saying it was very good.

Congratulations are extended to our prize winners Josh Jenkins (best oral) and Phil Lewis (best poster) who each won £50. And well done Fernando Ponce for winning a tower of sweets from the Qiagen raffle!

The final programme and a number of presentations from the day are available to view in [OneDrive](#) (UoB staff and students only, Single Sign-on required).

The Network does its best to advertise events through Schools and other networks/units, but whether word gets out or not can be a bit hit and miss; we rely heavily on our members to spread the word and held advertise initiatives more widely, and/or encourage folk to sign up to the mailing list.

**Thank you to everyone who took part in the day.**

*Left: networking after the event  
Below, left to right: Victoria Kemp (Qiagen),  
Fernando Ponce, Ruth Massey (I&I co-Lead),  
Josh Jenkins, Phil Lewis and Adam Finn  
(I&I co-Lead)*



# NEWS

## Recent awards

Dr [Kaitlin Wade](#) (Bristol Medical School, Population Health Sciences) received an award from the **University Cancer Research Fund** for *The human gut microbiome in colorectal cancer: causal effects vs. confounded relationships*. The project will serve to support or challenge the role of

the human gut microbiome in the development of colorectal cancer using applied epidemiology and Mendelian randomization methodology.

Prof [John Henderson](#) (Bristol Medical School, Population Health Sciences) received the **Past-President's Award** from the International Congress on

Paediatric Pulmonology “for distinguished achievements in advancing the understanding and management of respiratory diseases in childhood” at the annual meeting in Toledo, 21-24 June 2018. He also received a Lifetime Achievement Award by the British Paediatric Respiratory Society.

## AI for early disease diagnosis in calves

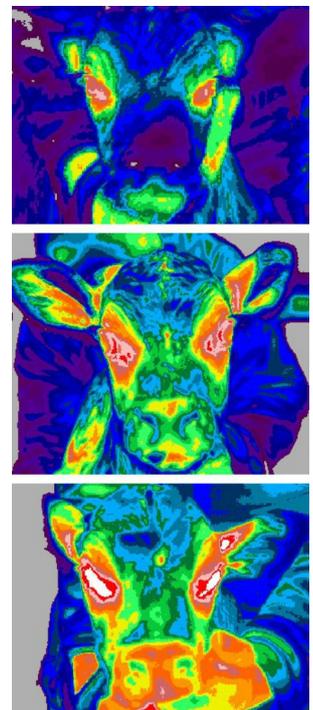
Drs [John Fennell](#) and [Laszlo Talas](#) have been awarded a joint Engineering and Physical Sciences Research Council (EPSRC) UK Research and Innovation (UKRI) Fellowship to investigate early disease diagnosis in dairy calves using artificial intelligence (AI) methods. The work aims to contribute to the reduction in antimicrobial resistance and introduce AI techniques to veterinary practice.

Bovine respiratory disease (BRD) is a complex disease that affects millions of animals and costs an estimated £80 million annually in the UK alone. The disease is fatal when left untreated and often only recognised in an advanced phase when the

animal needs to be treated with several courses of antibiotics, contributing to the growing problem of antimicrobial resistance and an increasing risk to human health. The project sets out to develop a reliable approach for detection of early-stage BRD using infrared thermography (IRT), coupled with AI in the form of deep neural networks.

IRT detects heat energy emitted from an object, converts it to temperatures and creates a visible representation, called a thermograph. Thermography has distinct merits, such as being able to be used at a distance in real time, to maintain safe and sanitary conditions, and has

been successfully used in engineering, medical and veterinary applications. Using many thermographs captured with several lower resolution devices provides a means to train deep neural networks to detect signs of BRD.



From top: thermograph of a healthy calf; with symptoms of early stage; and late stage BRD. © Laszlo Talas

## New drug and material discoveries to be untangled in VR

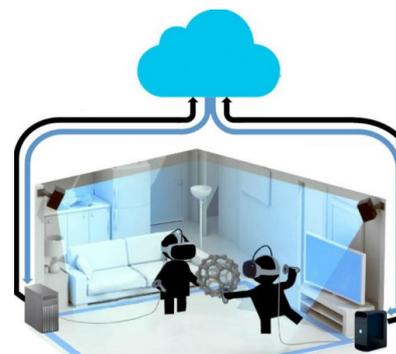
A joint team of computer science and chemistry researchers, in collaboration with developers at Bristol based start-up Interactive Scientific and Oracle Corporation, have used Oracle's public cloud infrastructure to combine real-time molecular simulations with the latest virtual reality technology. This collaboration has made it possible for researchers to reach out and 'touch' molecules as they move - folding them, knotting them, plucking them and changing their shape to

test how they interact. Using cloud computing, several people can interact with the molecules in the same virtual space at the same time.

Industry is already showing interest in using VR in this breakthrough way to change how drugs are designed, and to transform the teaching of chemical structures and dynamics. Anybody wishing to try out the tasks described in the paper can download the software at <https://isci.itch.io/nsb-imd>, and

launch their own cloud-hosted session.

O'Connor M et al. (2018). [Sampling molecular conformations and dynamics in a multi-user virtual reality framework](#). *Science Advances*. 4(6), eaat2731.



## Spin-out Ziylo acquired by global healthcare company

UoB spin-out company Ziylo has been bought by global healthcare company Novo Nordisk in a deal which could be worth around \$800 million. The deal, which is one of the biggest in the University's history, could lead to the development of the world's first glucose-responsive insulin and transform the treatment of diabetes.

The WHO estimate that over 382 million people worldwide (of which 4.05m in the UK) have diabetes. Everyone with Type 1 diabetes and some with Type 2 diabetes need to take insulin, either by injection or a pump, to

control their blood glucose levels. Ziylo has developed an innovative technology platform which could be a key component to enable the next generation of insulin, able to react and adapt to glucose levels in the blood, therefore eliminating the risk of hypoglycaemia and leading to better metabolic control.

Researchers in the [Davis Research Group](#) (School of Chemistry) had been working

on the problem for many years before Ziylo was established as a start-up company in 2014. Their lab-based work will now be turned into a real-world application. Ziylo's glucose binding molecules are synthetic molecules that were designed by Prof [Anthony Davis](#), who has been at the forefront of research into synthetic sugar receptors for the last 20 years. Prof Davis co-founded Ziylo with his PhD student Dr Harry Destecroix (see image) and Tom Smart. The acquisition gives Novo Nordisk full rights to Ziylo's glucose binding molecule platform to develop glucose responsive insulins.



## Antibiotics for children with cough

Doctors and nurses often prescribe antibiotics for children with cough and respiratory infection to avoid return visits, symptoms getting worse or hospitalisation. A recent study involving aam from the Universities of Bristol, Southampton, Oxford and Kings College London found little evidence that antibiotics reduce the risk of children with cough ending up in hospital, suggesting that this is an area in which unnecessary antibiotic prescribing could be reduced. The team, funded by the National Institute for

Health Research, analysed data from a study of 8,320 children (aged three months to 15 years) who had presented to their GP with cough and other respiratory infection symptoms to see whether adverse outcomes occurred within 30 days of seeing their GP. 0.8% of children were hospitalised and 4% revisited their GP due to a worsening of symptoms. Compared with no antibiotics, there was no clear evidence that antibiotics reduced hospitalisation for children, supporting similar research findings in adults.

However, there was evidence that a strategy of delayed antibiotic prescribing (giving parents or carers a prescription and advising they wait to see if symptoms worsened before using it) reduced the number of return visits to the GP. Immediate antibiotics were prescribed to 28% and delayed antibiotics to 9%.

Redmond NM *et al.* (2018). [The impact of antibiotics for children presenting to general practice with cough on adverse outcomes.](#) *British Journal of General Practice.* 68 (675): e682-e693.

## Managing sheep scab in UK flocks

Parasites, including sheep mites, remain one of the most important limitations to animal health, welfare and productivity. A UoB research paper about managing scab mites in UK sheep flocks has been presented with an Impact Award by the *Vet Record*, the official journal of the British Veterinary Association (BVA).

Sheep scab is a clinical condition caused by the infection of sheep by parasitic *Psoroptes* mites. It is a growing problem of considerable economic and animal welfare concern in

the UK. The paper presents the first quantitative evidence showing that scab mites have now developed resistance to one of the macrocyclic lactones – one of the main classes of compound widely used to treat and prevent scab. The research highlights the major

difficulties that will be encountered by farmers and vets in managing scab as macrocyclic lactone resistance becomes more widely established in the UK.

Doherty E, Burgess S, Mitchell S and Wall R (2018). [First evidence of resistance to macrocyclic lactones in \*Psoroptes ovis\* sheep scab mites in the UK.](#) *Vet Record.* 182, 106.



Image shows a male *Psoroptes ovis*

## Hip replacement risks of infection

Researchers have identified the most important risk factors for developing severe infection after hip replacement. Patients who are under 60 years of age, males, those with chronic pulmonary disease, diabetes and a higher body mass index are at increased risk of having the joint replacement redone (known as revision) due to infection. The research also showed that some patients are at risk of early infection whilst others are more prone

to late infection after hip replacement.

The study, funded by the [NIHR](#), considered the risk of infection following first-time (primary) hip replacement using data from the [National Joint Registry](#) for England, Wales, Northern Ireland and the Isle of Man linked to the [Hospital Episode Statistics](#) database and is the largest study to analyse data from over 600,000 primary hip replacement patients, of whom 2,705 underwent revision

for infection. It showed the surgical approach used by the surgeon and the implant materials influenced the risk of needing revision surgery for infection.

Lenguerrand E *et al.* (2018). [Risk factors associated with revision for prosthetic joint infection after hip replacement: a prospective observational cohort study](#). *The Lancet Infectious Diseases*. Published 25 June 2018.

## New Faculty of Life Sciences

Created on 1 August 2018, the new faculty brings together the five Schools of [Biochemistry](#), [Biological Sciences](#), [Cellular and Molecular Medicine](#), [Physiology, Pharmacology and Neuroscience](#) and [Psychological Science](#) to deliver research and teaching activity at all scales of the life sciences: molecular, cellular, tissue, organ systems, behavioural, social and societal.

Its creation is part of the Uni-

versity's Vision and Strategy to become a life sciences destination for students, academics and research funding. The [Faculty of Life Sciences](#) will deliver a range of challenging, research-focused, undergraduate and postgraduate programmes (both accredited and non-accredited), all taught in the context of world-leading research environments. It will also make significant contributions to three professional pro-

grammes (Medicine, Dentistry and Veterinary Science) which are run by the [Faculty of Health Sciences](#), with the two faculties working closely together in their delivery. Research in the new faculty will address a range of the important challenges in the life sciences. From tackling ecosystem and global change, to innovation in fundamental biosciences for better human, animal, plant and ocean health; from understanding animal and human behaviour and wellbeing to developing future synthetic biotechnologies and so driving the UK's bioeconomy. The Faculty is led by Prof [Jeremy Tavaré](#) as Dean.

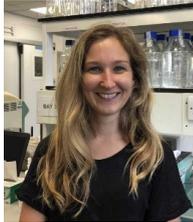


## Elizabeth Blackwell Institute updates

Congratulations are extended to:

**Kaitlin Wade** (Bristol Medical School)

who was awarded an Elizabeth Blackwell Institute (EBI) Early Career Fellowship for *The human gut microbiome as a modifier of diet-related health*, and



**Alice Halliday** (School of Cellular & Molecular Medicine) who was also awarded an Early Career Fellowship for *Group A streptococcal immunopathogenesis in the*

*upper respiratory tract*.

Rachael Gooberman-Hill, Director of the EBI, describes the Institute's innovative **approach to global health challenges** in a [blog](#) as part of the [Bristol Firsts](#) series, celebrating Bristol-based innovations in the NHS's 70th year.

Through its Wellcome Trust ISSF Award, EBI is delighted to support a new post to help researchers with the experimental design and statistics associated with fundamental biology research and pre-clinical studies. **Michelle Taylor**, Senior Research Associate in **Statistics and Ex-**

**perimental Design**, will provide expert advice on appropriate statistical methods for a diverse range of experimental approaches. She will work primarily with researchers during the planning stages of their projects as well as providing help with grant applications. This will include contributing expert input into calculating sample size estimates, methods to avoid bias, and appropriate statistical analyses.



Contact her on [michelle.l.taylor@bristol.ac.uk](mailto:michelle.l.taylor@bristol.ac.uk)

## Bans on gluten-free prescribing

Full or partial bans on GPs prescribing gluten-free (GF) foods to people with coeliac disease save the NHS money in the short-term; but the impact on patients, especially those from deprived areas, is unknown. The study, which looked at prescribing data across 94% of GP practices in England between 2012-2017, revealed more than a quarter of clinical commissioning groups (CCGs) have already either completely banned prescriptions of gluten-free foods to anyone with coeliac disease or banned prescrip-

tions to adults. A further 34% limit the amount and types of products in accordance with new guidelines.

The Department for Health and Social Care announced the policy change in February following a consultation. The move was welcomed by Coeliac UK, as policymakers had been considering completely removing all gluten-free products from being prescribed. Instead they no longer recommend the prescription of items such as pasta, cakes and biscuits. The re-

search team, led by Prof [Will Hollingworth](#), estimated that if all CCGs in England had introduced a complete ban in 2014, when spending on gluten-free foods was at its peak, the NHS would have saved £21.1million a year. However, there is no evidence for how prescribing under the new guidelines, or complete or partial bans, will affect patients. The most affluent may simply switch to store-bought alternatives, while poorer patients may have no choice but to buy the cheapest – gluten containing – foods.

## Reproducibility Network

A new Reproducibility Network that aims to improve the rigour and reliability of UK-led scientific research was launched on 12 September 2018. The Network aims to reinforce the leading position of UK science by co-ordinating shared training and best practice across research-intensive universities.

Prof [Marcus Munafò](#), who contributed to the recently published [Manifesto for Reproducible Science](#), called on universities to do more to

improve research rigour by setting out a range of measures for scientists that will optimise key elements of the scientific process.

*Nearly all researchers go into science wanting to find out something new, and perhaps which has the potential to improve health, lives, and tackle some of society's major challenges.*

*However, while UK science has an enviable reputation for being world-leading, to remain so we need to ensure*

*the research we conduct is innovative, high quality and high integrity. The Network aims to support this through a series of measures that place extra emphasis on research rigour and reliability.*

If you are interested in finding out more about the Network and its plans to improve scientific practices through targeted changes to research methods, reporting and dissemination, reproducibility, evaluation and incentives, contact [Marcus](#).

## How Bristol research has helped shape the NHS

This year we honour the 70th anniversary of the National Health Service (NHS). Since it was established in 1948, the NHS has played a vital role in UK society. As part of the celebrations, UoB shone a spotlight on how our research and teaching has helped to shape the NHS and improve people's health.

Examples include:

### [What your poo tells you](#)

The world-famous Bristol Stool Chart was created by Dr Ken Heaton, from the University of Bristol and Bristol Royal Infirmary, and first published in the *Scandinavian Journal of Gastroenterology* in 1997. The diag-

nostic tool details seven different types of stool and is used to help identify gastrointestinal distress or food sensitivities.

### [Studying Bristol families to improve the health of future generations](#)

For over 25 years, the Children of the 90s study has been charting the lives of 14,5000 people born in the early 1990s in the greater Bristol area. Data from the

most detailed study of its kind in the world has been used by more than 600 academics, leading to [important discoveries](#) that are helping treat and prevent ill health. For example, mothers who consume less fish during pregnancy have children with lower IQs, children brought up in very hygienic homes are more likely to develop asthma and toddlers who drink from a cup rather than a bottle are more likely to develop a healthy and varied diet. Its founder, Professor Jean Golding, has been named as [one of seven research legends](#) by the NIHR to mark every decade of the NHS. [Read more](#)

BRISTOL STOOL CHART		
	Type 1 Separate hard lumps	SEVERE CONSTIPATION
	Type 2 Lumpy and sausage like	MILD CONSTIPATION
	Type 3 A sausage shape with cracks in the surface	NORMAL
	Type 4 Like a smooth, soft sausage or snake	NORMAL
	Type 5 Soft blobs with clear-cut edges	LACKING FIBRE
	Type 6 Mushy consistency with ragged edges	MILD DIARRHEA
	Type 7 Liquid consistency with no solid pieces	SEVERE DIARRHEA

## EBI Research Strands

The newly created Elizabeth Blackwell Institute (EBI) [Research Strands](#) are cross-faculty initiatives that build on the existing research base in Bristol to tackle challenges that can only be addressed by multi-disciplinary teams of researchers. The research strands align with research priorities of the University of Bristol and create a shared vision in key thematic areas. They aim to support capacity development and provide exciting new research opportunities for researchers, including those who have never previously felt their skills and ex-

pertise were relevant to a particular health or biomedical area.

Current strands include:

### Bioethics, Biolaw and Biosociety

Establishing Bristol as a leader in interdisciplinary and multidisciplinary research into the ethical, legal and social dimensions in the biosciences, including health and social care.

### Medical Humanities

Opening the door to new arts-science collaborations by connecting researchers from all faculties together with clinicians and external

partners for research focusing on philosophy and humanities.

### Bristol AMR

Building on clear areas of success and expanding the research network in antimicrobial resistance, across disciplines and linked to global health challenges. The Strand is co-lead by Profs Matthew Avison and Adrian Mulholland.

### Digital Health

Increasing visibility of digital health research, bringing together teams around health challenges, developing external partnerships and engaging undergraduate students.

## Wellcome Board of Governors visit

Dr Jeremy Farrar, Director of the Wellcome Trust, visited Bristol on 25 September 2018 to meet senior staff and researchers and understand how Wellcome funding is used, explore issues of joint concern in the UK science base, and discuss future opportunities with the University.

Dr Farrar, who delivered a talk on Wellcome's strategy and future directions to

Bristol senior staff and researchers, was joined by other members from Wellcome's Board of Governors and senior leadership team.

During the day, the Wellcome team met researchers from across the University to discuss their work on a wide range of topics from law and ethics in healthcare, anti-

microbial resistance, quantum computing and its applications in biomedicine, dementia, digital health, data linkage for health applications, population health, research reproducibility, and synthetic biology.



## Why do some wounds fail to heal?

Non-healing wounds such as pressure sores and diabetic ulcers are a growing health problem, and we still don't know enough about how and why wound repair can fail. Thanks to an EBI [Early Career Fellowship](#) award, pharmacologist Dr Jenna Cash is informing novel therapies for chronic wounds.

An aging population, soaring rates of diabetes linked to growing obesity, and a rise in people with autoimmune

diseases help to explain why more people are living with chronic wounds. The key to finding effective therapies lies in understanding the complex interplay between cells and molecules that determine whether a skin wound heals normally or becomes chronic. But treatment has been held back by a lack of research in this area and huge gaps in our knowledge about wound repair. Dr Cash established a clinically relevant mouse model of human

chronic wounds and a novel imaging technique for 'live' observation of skin repair in a mouse. The publication of this work allowed her to gather preliminary data for further grant applications to establish her own independent research group at the University of Edinburgh. Her research is aiming to reveal the role of macrophages (white blood cells) in normal wound repair and in non-healing chronic wounds.

[Read more](#)

## University of Bristol joins UK BioIndustry Association

The [UK BioIndustry Association](#) (BIA), the UK's trade association for innovative life sciences, represents over 300 companies including start-up and established bioscience and pharmaceutical companies, academic, research and philanthropic organisations, service providers to the biosciences sector as well as health advocacy groups, government agencies, economic development groups and overseas trade associations. Facilitating engagement of Bristol researchers with the life industries is part of the Elizabeth Blackwell Institute's remit to support growth of partnerships and alliances with industry

across the health arena, led by Dr [Richard Seabrook MBA](#), Advisor on Business Development.

This membership offers researchers at the University of Bristol the opportunity to:

- [influence](#) policy ensuring your voice is heard and the University is represented on the matters that are critical for the life sciences sector

success

- [connect](#) with the sector and grow your network through the BIA industry-leading events and expert committees
- [save](#) money through the BIA business solutions purchasing programme
- provide visibility and showcase your research, advertise your jobs, share your news, events and other information through the BIA website.

To benefit from access to BIA full online content, log in using your [@bristol.ac.uk](#) email address and create your personal account.



## Staff promotions

Congratulations are extended to the following staff for their recent promotions:

### *Faculty of Life Sciences*

**Matthew Avison**, Professor of Molecular Bacteriology. Matt leads a research group studying antimicrobial drug resistance (AMR) in bacteria using molecular genetics, biochemistry and functional genomics techniques to identify and characterise AMR mechanisms in key human pathogens, their mobilisation, and their control. They then use this information to combat the problem of AMR by developing interdisciplinary research collaborations. [View](#)

**Matt's video** where he talks about the new £2.9 million GCRF award aimed at tackling Antibacterial Resistance in Thailand.

### *Faculty of Health Sciences*

**Emma Clark**, Reader in Rheumatology

**Katy Turner**, Reader in Infectious Disease Epidemiology. Katy's research includes cost-effectiveness and transmission dynamic modelling to evaluate interventions to prevent infectious disease in human and animal populations, especially zoonoses and antimicrobial resistance. Katy enjoys facilitating sharing of ex-

pertise and methodology between veterinary and human infectious disease epidemiology, especially in research at the intersection of the two specialities: zoonoses, antimicrobial resistance and the use of applied genomic profiling technologies.

**Kristen Reyher**, Reader in Veterinary Epidemiology and Population Health. Kristen currently leads an interdisciplinary research group (the AMR Force) focussed on antimicrobial resistance as well as directs the first studies applying a counselling style called Motivational Interviewing to veterinarian-client communication.



# ELIZABETH BLACKWELL FUNDING

## **EBI MRC Proximity to Discovery Industry Engagement Fund (PtoD)**

With support from the MRC, funding for short term two-way people exchanges between industry and academia which align to MRC strategic priorities in population health, cardiovascular research, infection and immunity, neuroscience and cancer.

Closing date: **29 October 2018**

## **EBI Clinical Primer scheme**

This scheme is aimed at exceptionally motivated clinically qualified medical, veterinary and dental trainees who are at an early stage of their career.

Closing date: **8 November 2018**

## **EBI Research Strands Funding opportunities (Bioethics, Biolaw, Biosociety)**

The Bioethics, Biolaw, Biosociety Research Strand invite applications to support for research activities. Proposals should seek to advance the strand themes, facilitate new multidisciplinary connections, and lead to follow-on work.

Closing date: **16 November 2018**

## **EBI Identifying Candidates for Wellcome Trust Investigator Awards**

This scheme is designed to support a small number of permanent academic staff at UoB within the first five years of their appointment, who are planning to apply for an Investigator Award from the Wellcome Trust. Applications will be accepted on a rolling basis.

Heads of School are asked to nominate members of staff who can be eligible for this scheme by emailing [ebi-health@bristol.ac.uk](mailto:ebi-health@bristol.ac.uk)

## **EBI Workshop Support**

Support interdisciplinary workshops in health research at new or emerging interface between two or more disciplines. Applications reviewed all year.

## **Returning Carers Scheme**

To support academic staff across all faculties in re-establishing their independent research careers on return from extended leave (16 weeks or more) for reasons connected to caring (e.g. maternity leave, adoption leave, additional paternity leave, leave to care for a dependant.).

The deadline for applications is 30 April and 31 October each year.

## **EBI Bridging Funds for Research Fellows**

This scheme is designed to support a small number of academic staff at the University of Bristol who currently hold an externally funded research fellowship. Applications accepted on a **rolling** basis.

# FUNDING OPPORTUNITIES

**Would you like to receive timely, tailored funding opps information?**

**Do you want to know what funding opportunities come up in your research area?**

**Get tailored funding alerts?**

**Research Professional** provides access to an extensive database of funding opportunities, and can send out tailored alerts based on keywords that you input, ensuring that the funding alerts you receive are the ones you want to hear about. UoB staff and students have **FREE** online access to the database from any device – once you've registered then you can view upcoming funding opportunities from home or away, not just while on the University network.

You can search for funding information by discipline, sponsor, database searches, by recent calls or by upcoming deadlines. If you register for the site and log in, you'll be able to:

- **Set up automated funding opportunity email alerts - tailored according to your discipline and research interests**, an easy process that will take just a few minutes to set up through the use of keywords
- **Save searches and bookmarks** - store items of interest for future reference, download and email to colleagues
- **Sign up for higher education news bulletins** – want to hear about what is going on in the broader HE environment? Latest news on the REF, setting up of UKRI etc? Sign up for the 8am play-book or the Research Fortnight news publications and stay up to date with the latest news.

**For further information on Research Professional, go to the [RED website](#).**

## **European and Developing Countries Clinical Trials Partnership**

[Strategic action for the comparison, selection and development of malaria vaccine candidates](#)

Closing date: 01-Nov-18

Award amount: €18m

This supports a large-scale strategic action that is part of a bigger portfolio of clinical trials with the capacity to compare and select the most promising malaria vaccine candidates, and manage their progress through clinical development.

## **Cancer Research UK**

[Cancer immunology project awards](#)

Closing date: 07-Nov-18

Award amount: £300,000

These aim to catalyse research and build the UK's research base in cancer immunology by funding immunologists in non-cancer fields.

**Cancer Research UK**

[CRUK/Arthritis Research UK immunology project awards](#)

Closing date: 07-Nov-18

Award amount: £300,000

These support research spanning both cancer and musculoskeletal conditions. The aim is to foster collaborations between researchers from both fields, and encourage researchers to share expertise and address questions relevant to both disease areas.

**Wellcome Trust**

[Mathematical models for infectious disease dynamics course bursary](#)

Closing date: 08-Nov-18

Award amount: £560

This enables successful applicants to attend a course on mathematical models for infectious disease dynamics, to be held from 18 February to 1 March 2019 at the Wellcome Genome Campus, UK.

**Wellcome Trust**

[Epidemic preparedness – preventing and controlling cholera](#)

Closing date: 26-Nov-18

Award amount: £2m

This supports researchers who want to help affected countries and international decision makers to better prevent and control the spread of cholera. Projects must analyse aspects of past or ongoing interventions to improve their implementation in future, for example the use of oral cholera vaccines or water sanitation and hygiene strategies, or develop tools, metrics and other resources to support decisions about controlling cholera.

**European Society for Paediatric Infectious Diseases**

[Fellowship awards](#)

Closing date: 01-Dec-18

Award amount: €100,000

These support basic or clinical research that utilises advanced techniques and methods to improve the health of children through the prevention or management of infectious diseases.

**National Institute of Diabetes and Digestive and Kidney Diseases, US**

[Characterisation and discovery of novel autoantigens and epitopes in type 1 diabetes](#) (R01 clinical trial optional)

Closing date: 06-Dec-18

Award amount: USD 2m

This supports original research aimed at the characterisation and discovery of neoantigens and neoepitopes in type 1 diabetes. These include the characterisation of the humoral and cell-mediated autoimmune responses elicited by these neoepitopes and neoantigens and their role

in the aetiology and pathophysiology of type 1 diabetes. These studies should be integrated with the present knowledge of established epitopes and antigens, such as autoantibodies for insulin, glutamic acid decarboxylase 65, islet antigen-2 and ZnT8T.

### **European Academy of Allergy and Clinical Immunology**

#### [Research fellowships](#)

Closing date: 31-Dec-18

Award amount: €20,000

These support the research and training of EAACI junior members in a European country outside their own. This fosters the exchange of knowledge and techniques and the implementation of new techniques throughout European laboratories.

### **Medical Research Council**

#### [Research grants – infections and immunity](#)

Closing date: 09-Jan-19

Award amount: £1m

These fund focused research projects that may be short- or long-term in nature related to infections and immunity, as well as method development and continuation of research facilities. Projects may involve more than one research group or institution.

### **Medical Research Council**

#### [New Investigator grant – infections and immunity](#)

Closing date: 09-Jan-19

Award amount: unspecified

This supports researchers who are capable of becoming independent PIs and who are ready to take the next step towards that goal within the areas of infections and immunity. Applicants are expected to combine their time with a portfolio of other activities, such as other research grants or clinical duties, teaching, administration duties, or other time spent in faculty.

### **National Institute of General Medical Sciences, US**

#### [Modelling of infectious disease agent study research projects \(R01\)](#)

Closing date: 05-Feb-19

Award amount: unspecified

This supports innovative research that will develop and apply computational tools and methods for modelling interactions between infectious agents and their hosts, disease spread, prediction systems and response strategies. Areas of interest include infectious disease research and computational, mathematical and statistical model research.

# THIS ISSUE'S FEATURED ARTICLE

## A novel flow-system to establish experimental biofilms for modelling chronic wound infection and testing the efficacy of wound dressings

Duckworth PF, Rowlands RS, Barbour ME and Maddocks SE (2018).  
*Microbiological Research*. 215, pp141-147.

Several models exist for the study of chronic wound infection, but few combine all of the necessary elements to allow high throughput, reproducible **biofilm** culture with the possibility of applying topical antimicrobial treatments. Furthermore, few take into account the appropriate means of providing nutrients combined with biofilm growth at the air-liquid interface. In this manuscript, a new biofilm flow device for study of wound biofilms is reported. The device is 3D printed, straightforward to operate, and can be used to investigate single and mixed species biofilms, as well as the efficacy of

antimicrobial dressings. Single species biofilms of *Staphylococcus aureus* or *Pseudomonas aeruginosa* were reproducibly cultured over 72 h giving consistent log counts of 8–10 colony forming units (CFU). There was a 3–4 log reduction in recoverable bacteria when antimicrobial dressings were applied to biofilms cultured for 48 h, and left *in situ* for a further 24 h. Two-species biofilms of *S. aureus* and *P. aeruginosa* inoculated at a 1:1 ratio, were also reproducibly cultured at both 20 °C and 37 °C; of particular note was a definitive **Gram-negative** shift within the population that occurred only at 37 °C.

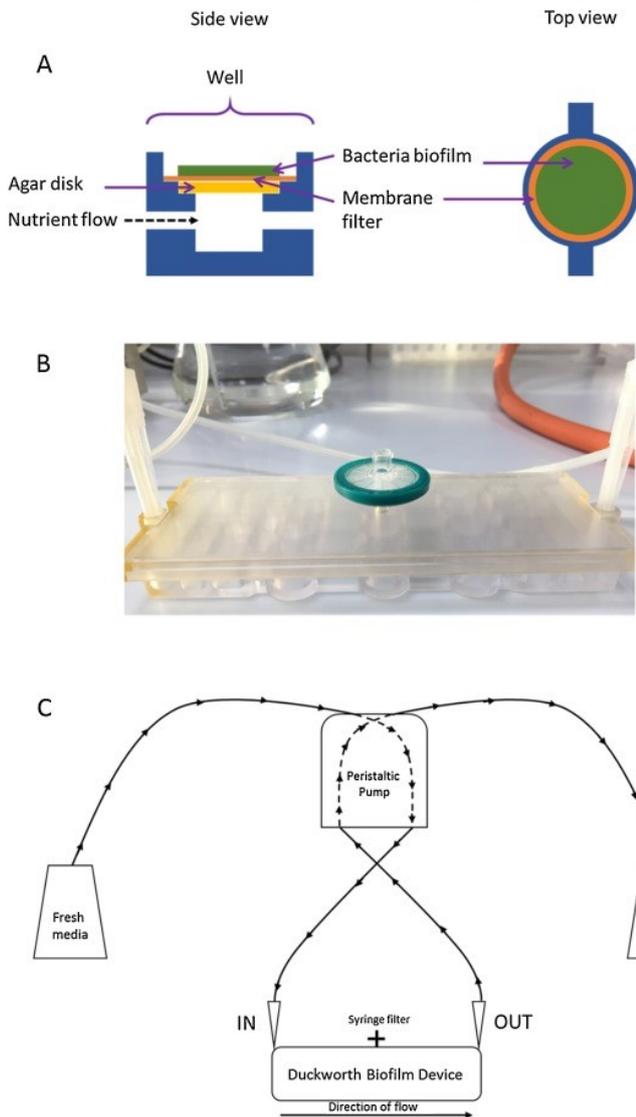


Image: (A) Schematic cross-section view of biofilm support (agar plug, cellulose membrane and biofilm) in the Duckworth Biofilm Device. (B) The Duckworth Biofilm Device connected to fresh media and a waste container, via tubing at the inlet and outlet port, with lid and filter in place. Once the set-up is complete as shown above, the device is ready to use. (C) Schematic representation of the Duckworth Biofilm Device once set-up and ready to run.

# CONTACTS

The Infection and Immunity Network is run by a Steering Group:

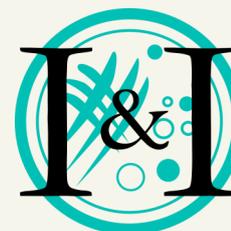
Co-Chair: [Ruth Massey](#)  
Reader



Co-Chair: [Adam Finn](#)  
Prof of Paediatrics



- [Borko Amulic](#) - Lecturer in Immunology
- [Philip Bright](#) - -- Clinical Immunologist
- [Andrew Davidson](#) - Senior Lecturer in Virology
- [Hannah Fraser](#) - Senior RA in Infectious Disease Mathematical Modelling
- [Wendy Gibson](#) - Professor of Protozoology
- [Kathleen Gillespie](#) - Reader in Molecular Medicine, Head of the Diabetes and Metabolism Research Group
- [Melanie Hezzell](#) - Senior Lecturer in Cardiology
- [Ruth Massey](#) - Reader in Cellular and Molecular Medicine
- [David Morgan](#) - Reader in Immunology
- [Peter Muir](#) - Clinical Virology
- [Lindsay Nicholson](#) - Reader in Research
- [Angela Nobbs](#) - Lecturer in Oral Microbiology
- [Collette Sheahan](#) - Research Development Network Facilitator
- [Annala Seddon](#) - Director of the Bristol Centre for Functional Nanomaterials
- [Katy Turner](#) - Senior Lecturer in Veterinary Infectious Diseases
- [Peter Vickerman](#) - Professor of Infectious Disease Modelling
- [Linda Woolridge](#) - Chair in Translational Immunology
- [Catherine Brown](#) - Network Administrator



e: [infection-immunity@bristol.ac.uk](mailto:infection-immunity@bristol.ac.uk)

w: <http://www.bristol.ac.uk/infection-immunity/>



@BristolandI