

INFECTION AND IMMUNITY NETWORK NEWSLETTER



Elizabeth Blackwell Institut
for Health Research

SEPTEMBER - OCTOBER 2017

Diabetes research award

Dr [Emma Vincent](#) has been awarded Diabetes UK's R D Lawrence Fellowship. The award, worth £587,237, will investigate changes which happen inside the body when someone has Type 2 diabetes that may encourage certain cancers, such as pancreatic, liver and endometrial cancers, to develop. Emma hopes that by understanding these processes we will be able to find ways to protect people with Type 2 from developing these cancers in the future.

[More info](#)



Bristol Events / Other Events	2-4
Infection and Immunity Research and Staff News	5-13
Elizabeth Blackwell Institute Funding Schemes	14
Funding Opportunities in Infection and Immunity	15-19
This Issue's Showcased Article	20
Contacts	21



UoBRISTOL EVENTS

Epigenetic epidemiology: How biology makes us different

29 September 2017, 18.15 - 20.00. Prof Caroline Relton, Reception Room, Wills Memorial Building



Undergraduate Interdisciplinary Research Internship Scheme (IRIS) Presentation Event

2 October 2017, 13.00 - 15.30. Anson Rooms, Richmond Building

Bristol Data Scientists Meeting

2 October 2017, 18.00 - 21.00. The Watershed

Statistics Clinic- 2 October

4 October 2017, 14.00 - 15.30. SM3 Mathematics Building

Centre for Health, Law and Society Launch event

5 October 2017, 14.00 - 17.00. Keynote: Margaret Brazier OBE QC FBA FMedSci FRSA (Professor of Law, University of Manchester), The Lady Hale Moot Court Room, 8-10 Berkeley Square

Freedom of Mind Festival 2017

6 - 14 October 2017, various venues around Bristol



Time to Change

6 October 2017, 16.00 - 18.00. Jonny Benjamin and Neil Laybourn, Wills Memorial Building

Fun Palace events as part of Bristol Green Capital Partnership's Healthy City Week programme

7 - 14 October 2017, various venues in Bristol

Science, politics, industry and the role of future cities in managing the risks of climate change

10 October 2017, 18.00 - 19.30. Sir David King, Great Hall, Wills Memorial Building

Evolution of the virus world and antivirus defense: a tangled web

11 October 2017, 13.00 - 14.00, Eugene Koonin (National Center for Biotechnology Information, Maryland), G13/G14, Life Sciences Building



Ada.Ada.Ada

16 October 2017, 10.45 - 12.30, Lantern Theatre, Colston Hall

Statistics Clinic- 18 October

18 October 2017, 14.00 - 15.30. SM3 Mathematics Building

UoB EVENTS

Dr Warwick Dunn, School of Biosciences, University of Birmingham

19 October 2017, 14.00 - 15.00. Dr Warwick Dunn (Senior Lecturer in Metabolomics, Director of Mass Spectrometry, Phenome Centre Birmingham), venue TBC

**Clifton Suspension Bridge Harp exhibit**

20 October 2017, 17.00 - 19.00. The Hub, Unit 5-6, 1 Canon's Road, Bristol

Neural Dynamics Forum

27 October 2017, 13.00 - 14.00. Pooran Dewari (MRC Centre for Regenerative Medicine, University of Edinburgh)

**UHBristol Research & Innovation Showcase**

31 October 2017, 10.30 - 16.00. Education Centre, Upper Maudlin Street

Statistics Clinic- 1 November

1 November 2017, 14.00 - 15.30. SM3 Mathematics Building

Membrane protein biosynthesis and quality control

2 November 2017, 16.00 - 17.00. Manu Hedge (MRC-Laboratory of Molecular Biology, Cambridge, top image right), Chemistry, Lecture Theatre 1

**Elizabeth Blackwell Annual Public Lecture:****GPs on the Brink, Restoring the Joy to General Practice**

2 November 2017, 16.00 - 19.30. Prof Helen Stokes-Lampard FRCGP

**Centre for Health, Humanities and Science launch event**

8 November 2017, 13.00 - 18.30, G.2, Cotham House

Appraising the causal relevance of modifiable exposures for risk of non-communicable diseases through Mendelian randomization

9 November 2017, 13.00 - 14.00. Philip Haycock (Bristol Medical School), C42 Biomedical Sciences Building

**Statistics Clinic- 15 November**

15 November 2017, 14.00 - 15.30. SM3 Mathematics Building

Elizabeth Blackwell Institute Biomedical and Health Sciences Industry Day 2017 – Building Partnerships

29 November 2017, 9.00 - 18.00. The Watershed

UoB EVENTS

Statistics Clinic- 29 November

29 November 2017, 14.00 - 15.30. SM3 Mathematics Building

How the trafficking of receptor tyrosine kinases from and to the plasma membrane can elicit specific cellular responses

30 November 2017, 13.00 - 14.00. Chiara Francavilla (School of Biological Sciences, University of Manchester), venue TBC

Statistics Clinic- 13 December

13 December 2017, 14.00 - 15.30. SM3 Mathematics Building



Infection and Immunity Annual Symposium 2018

5 January 2018, 9.30 - 14.00

Graduate School of Education, 35 Berkeley Square

PROGRAMME TO FOLLOW

[register now to attend](#)

OTHER EVENTS

Big Data in Biology and Health 2017

25 September 2017, 9.00 - 17.00. Keynote: Sarah Teichmann (Wellcome Trust Sanger Institute), Wellcome Genome Campus, Cambridge

Big Data Week Conference 2017

13 October 2017, 9.00 - 17.00. 155 Bishopsgate, London

NIHR Research Funding - seminar & support event

9 November 2017, 10.30 - 13.45, Plymouth Science Park

Epigenomics of Common Diseases

14 - 17 November 2017, Wellcome Genome Campus, Cambridge

NIHR Fellowships Application Workshop

24 November 2017, 9.00 - 17.00. University of Exeter

NEWS

Longitude Prize Discovery award

One of the main driving forces behind the evolution of antibiotic resistance in bacteria is the inappropriate use of antibiotics. Providing doctors with rapid diagnostics to indicate which antibiotic to prescribe for a particular infection would reduce inappropriate antibiotic use and protect this resource for the future. These rapid "antibiotic susceptibility tests" would also ensure that a patient receives a working antibiotic first time

around, reducing the length and severity of their infection, and potentially saving their life.

A team from UoB has received a grant from the Longitude Prize Discovery Awards which will enable them to further develop a portable device for rapid antimicrobial susceptibility testing. The team is working on a test that uses a unique system to monitor the responses of individual infec-

tion-causing bacteria to antibiotics. They have demonstrated the test's ability to determine, within 20 minutes, the effectiveness of a collection of antibiotics to kill infection-causing bacteria. The award will allow the team to develop a prototype machine to assist GPs when prescribing antibiotics in their practices.

[More info](#)

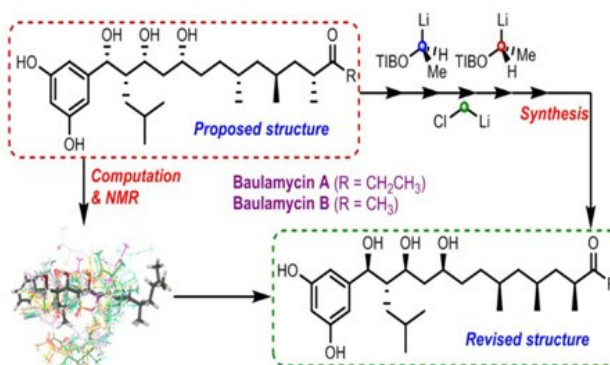
Image shows Dr Charlotte Bermingham setting up the instrument to collect data

Antibiotics structure clarified

In 2014 a team from Michigan University discovered two molecules, baulamycins A and B, that were very active against anthrax and MRSA. The small collection samples obtained meant their 3D structures could not be determined through the chemical derivatisation and analysis and were instead proposed using NMR spectroscopy. As both molecules are promising antibiotic candidates, a team in the School of Chemistry developed an extremely effi-

cient and flexible 10-step method to produce the proposed structures. The synthetic molecules did not match the isolated molecules, meaning Michigan had assigned the wrong structure. The team eliminated 120 out of 128 possible structures by

using a unique combination of computational modelling and NMR spectroscopy, and pinned down the final structure with synthesis. The method described could be applied to other molecules for the rapid identification of their three-dimensional structures.



The image shows the original and revised structure of baulamycin and how the combination of synthesis and NMR/computation were used to deduce the correct structure.

University Teaching Awards

Congratulations are extended to Infection and Immunity members for the recognition they received at the 2017 University Teaching Awards. Images show the recipients being presented with their awards at a dinner hosted by

the University in June 2017.

- The University Award for Education (Health Sciences): Dr Dave Dymock, Bristol Dental School, shown below left
- Students' Award for Out-

standing Teaching (Biomedical Sciences): Professor Christoph Wuelfing, School of Cellular and Molecular Medicine, shown below right



World Universities Network

The World Universities Network Global Africa Group held an inaugural Strategic Research Workshop, hosted by the University of Ghana, that brought together over sixty researchers from twelve WUN partner universities and ten other universities from four continents. The workshop brought together faculty, researchers and postgrad-

uate students from a multitude of countries in an effort to facilitate and promote research collaboration on five priority themes the Group felt were particularly pertinent to human development in the 21st century in Africa: Environmental change and food security; Public health; Governance, inequality and social inclusion; Higher education

and research capacity; and Natural resources for inclusive growth and sustainable development. [Read the full story.](#)

Prof [Rachael Gooberman-Hill](#), Director of the [EBI](#), is Bristol's new Representative on the Global Africa Group Steering Group (taking over from Leon Tikly), with Celia Gregson.



EPSRC Centres for Doctoral Training news

EPSRC has just published a [CDT brochure](#), showcasing a selection of research projects being undertaken across EPSRC-supported Centres, following the midterm review. This is to highlight the quality and diversity of impact that CDTs are having and the value that students, universities and industry see in them. Centres for Doctoral Training in the brochure include:

- “Analysis and its Applications” based at the Universities of Edinburgh and Heriot-Watt, with a project *Maths Adds New Dimension to Tuberculosis Manage-*

ment ; and

- “Systems Approaches to Biomedical Science” based at Oxford, with a project *Students’ Software Aids Drug Discovery* .

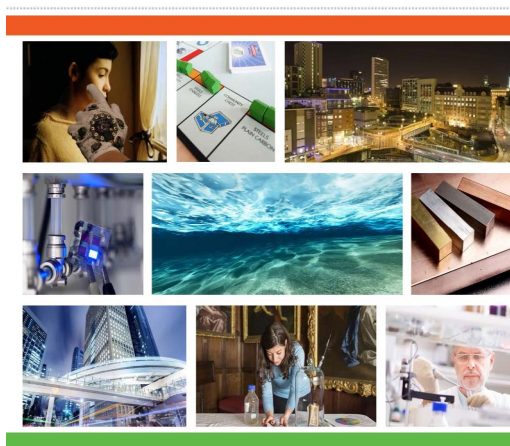
They have confirmed that there will be a call in 2018 but that the principles are yet to be decided. All applications will need to make a strong case for a national need for investment in a CDT compared with other routes for doctoral funding.

Please contact [Jane Khawaja](#) if you have

any questions related to CDTs, the next CDT call, and UoB’s internal process.



Building skills for a prosperous nation
EPSRC Centres for Doctoral Training



Transforming UK translation

The Academy of Medical Sciences, Royal Academy of Engineering, Royal Society and the Wellcome Trust have outlined a series of commitments to ensure that translation is recognised and celebrated as an integral part of academic research. They will work with universities and research institutes to find practical ways to make changes based on the [Transforming UK Translation commitments](#) [PDF

99KB].

Commitments include improving recognition for translation, encouraging and facilitating the movement of people between academia and industry, and investing across the translation system.

Transforming UK Translation covers a broad definition of translation and a range of outputs and activities, including:

- exchange of knowledge and ideas
- creation and exploitation of intellectual property (IP)
- academic-industrial collaborations
- spin-out companies
- development of products and processes
- enabling technologies such as research tools and materials

Clinical trials updates

The Bristol Haematology and Oncology Centre has been the first Clinical Trial Unit to recruit globally for *A Study of CYP-001 for the Treatment of Steroid-Resistant Acute Graft Versus Host Disease* under PI Dr James Griffin. Cellular therapies are an exciting area of research in haematological malignancy and BMT. This trial is an excellent example of working with industry, NHS Blood and Transplant and multiple areas within the hos-

pital to ensure ground-breaking treatment can be safely delivered to patients.

The Women's and Children's team has achieved the first UK patient to be baselined on the F2304 JIA trial (for children with arthritis) and the third patient on the trial globally. The PI is Prof [Althima-laipet Ramanan](#).

The Endophthalmitis defensin study (EDS) at the Bristol Eye

Hospital is a case-controlled UHBristol-sponsored trial that aims to assess whether a specific HBD-1 genetic profile is associated with endophthalmitis (inflammation in the eye often caused by infection), following a range of intraocular procedures. The CI is Mr Haynes at the BEH and there are 3 UK sites: BEH, Taunton and Sunderland. The BEH recruited the first patient on 26 July 2017.

Antimicrobials use in food-producing animals

Food-producing animals throughout the world are likely to receive Antimicrobials (AMs) when needed to treat infections. There are concerns, however, that AM use in human and veterinary medicine is causing antimicrobial resistance (AMR) in both humans and animals.

The Rapid Evidence Assessment (REA), led by Prof Henry Buller at Exeter and Dr [Kristen Reyher](#) (Bristol Veterinary School), investigated what is currently known about the use of AMs in food-producing animals, the practices and views of the stakeholders involved in the administration of AMs, and the availability and validity of da-

ta on AM use in practice.

Forty-eight papers published in peer-reviewed journals between 2000 and 2016 were identified and reviewed. Key drivers of change in AM use in food-producing animals along with barriers to change were identified, indicating the multitude of issues surrounding current knowledge of AM use and attitudes about the reduction of AM use in livestock.

The study identified a difference between and within countries, production types and individual farms which showed the difficulty of the challenge involved in monitoring and regulating AM use in animal agriculture. Many

factors that could influence the frequency of AMR in livestock are of concern across all sectors of the livestock industry, including inflexibility in production systems, low capacity for re-investment in farm buildings and high production costs, all of which are barriers to the reduction of AM use.

A number of positive drivers towards reduced AM use were also identified, including new methods of knowledge exchange and learning to improve awareness of responsible AM use, higher levels of on-farm biosecurity, better and wider use of diagnostics and wider use of vaccines.

[Full story](#)

Effective use of antibiotics in animals

Are there better ways to diagnose animals in need of antibiotics on livestock farms? How will farmers and veterinarians use novel diagnostics in the fight against animal disease? These are some questions a consortium of seven academics will address thanks to a £1.75 million grant to understand how better diagnostics can encourage responsible antibiotic use in animals.

The award, funded by the [Economic and Social Research Council](#) (ESRC) working in partnership with the [Department of Health](#) and the [Arts and Humanities Research Council](#) (AHRC), is part of the cross-council 'Tackling antimicrobial resistance: behaviour within and beyond the

healthcare setting' call, part of the antimicrobial resistance cross-council initiative supported by the seven research councils in partnership with other UK funders. The team will be led by social scientists at Exeter and includes colleagues at the In-nogen Institute of the University of Edinburgh, the British Veterinary Association (BVA) and leading farm animal veterinarians across the UK.

Scientific, public and political concern regarding antimicrobial resistance is increasing, and farmers and veterinarians are doing their best to use medicines as responsibly as possible. Better, smarter, more rapid and more accessible diagnoses - driving shifts in behaviour associated with diagnostic decision making -

represent a critical step to delivering more effective uses of antibiotics in animal health. But improvements in diagnostic development and their relationship to prescription and treatment requires social, governance and technical innovations.

Dr [Kristen Reyher](#), who is the Bristol lead, will utilise the expertise of the [AMR Force](#) to collaboratively generate, evaluate and analyse behaviours and strategies around animal disease diagnosis and to show how innovation in the development of diagnostic tools along with diagnostic regulation and governance can lead to more sensible use of antibiotics across farming systems.

[Full story](#)

New guides on clinical academic careers launched

ICA
HEE/NIHR Integrated Clinical Academic Programme

NHS

Two new guides to support healthcare professionals to develop clinical academic careers were launched on 15 September 2017. The guides have been developed with Health Education England (HEE) to provide information on the various awards available through their two organisations, how to apply for awards, and how the awards

work in practice should applicants be successful. The guides also include case studies from award holders who talk about their experiences and the impact holding an NIHR or HEE award has had on their career.

There are two guides available:

- [The NIHR Integrated Aca-](#)

[demic Training programme](#) for doctors and dentists

- [The HEE/NIHR Integrated Clinical Academic \(ICA\) programme](#) for non-medical healthcare professionals, including nurses, midwives, allied health professionals and healthcare scientists

University Research Fellows announced



Eighteen new University Research Fellows were recently announced. URFs enable academic staff to carry out a dedicated research project lasting twelve months. Of those in receipt we congratulate Dr [Kristen Reyher](#) (top left), Senior Lecturer of Farm Animal Science at the School of Veterinary Sciences, and

Professor [Richard Wall](#) (bottom left), Professor of Zoology with an interest in veterinary parasitology in the School of Biological Sciences.

Adrenal gland activity change with inflammatory stimuli

Researchers from Bristol's [Henry Wellcome Laboratories for Integrative Neuroscience and Endocrinology](#), in collaboration with colleagues from the University of Exeter's [Wellcome Trust Centre for Biomedical Modelling and Analysis](#), developed a novel mathematical model of the molecular network controlling glucocorticoid synthesis, used the model to predict adrenal responses to stress, and tested these prediction experimentally *in vivo* in the rat.

Using this interdisciplinary approach, the team show how the molecular network in the adrenal gland acts dynamically in unstressed

physiological conditions, and how the dynamics of these processes change in the presence of inflammatory stimuli, such as infection or during surgery.

This is the first study to show just how dynamically complex the adrenal gland response to stress is, and how

sensitive it is to clinically important perturbations, such as pro-inflammatory cytokines. The hope is that a better understanding of this system will improve treatment of patients with inflammatory conditions, such as those undergoing major surgery. [Read the published article](#)

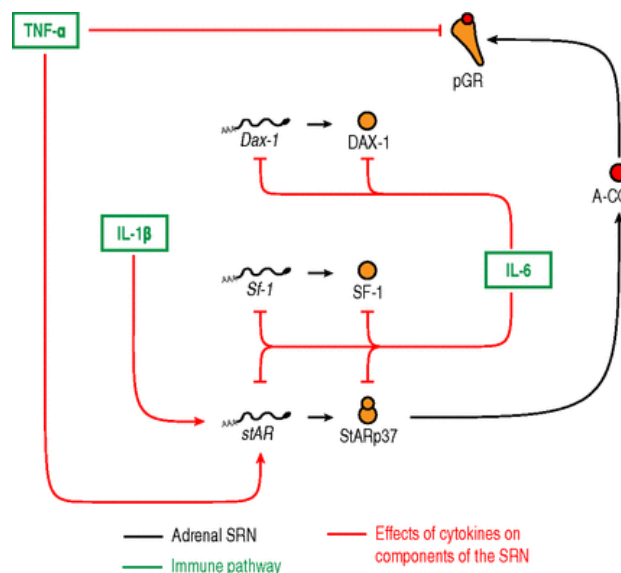


Image caption: Cytokine effects upon targets within the adrenal SRN considered in the model. The transient cytokine pulses elicited by LPS were used as additional input functions to ACTH.

Steroid use for chest infections

Oral steroids should not be used for treating acute lower respiratory tract infection in adults who don't have asthma or other chronic lung disease, as they do not reduce the duration or severity of symptoms.

In the study, carried out by researchers at the Universities of Bristol, Nottingham, Oxford and Southampton, 398 non-asthmatic adults with acute chest infections – but no evidence of pneumonia and not requiring immediate antibiotic treatment – were randomly split into two groups, one receiving 40mg of the oral steroid

'prednisolone' for five days (198 participants) and one receiving an identical placebo over the same time period (200 participants). The team found there was no reduction in the duration of cough, the main symptom of chest infections, or the severity of the accompanying symptoms between two and four days after treatment (when symptoms are usually at their most severe) in the prednisolone group compared with the placebo group. The results suggest that steroids are not effective in the treatment of chest infections in non-asthmatic adult patients.

Lead author of the study, Prof [Alastair Hay](#): "Chest infections are one of the most common problems in primary care and often treated inappropriately with antibiotics. Corticosteroids, like prednisolone, are increasingly being used to try to reduce the symptoms of chest infections, but without sufficient evidence. Our study does not support the continued use of steroids as they do not have a clinically useful effect on symptom duration or severity. We would not recommend their use for this group of patients."

[More info and publication](#)

PURE data competition

The [Jean Golding Institute](#) launched the [PURE data competition](#) in March 2017, inviting teams to use data science to identify and analyse interdisciplinary research at Bristol using PURE data.

The winners, [Ben Elsworth](#) (top right) and [Tom Gaunt](#) (bottom right, both Bristol Medical School: Population Health Sciences), created a piece of software called [AXON](#) which allowed the user to interrogate the PURE database and pull out links be-

tween people, organisations and concepts harvested from within the abstracts of the outputs. The panel particularly liked the usability of the system and its ability to suggest links both new and potentially existing. It was also interesting that you could use concepts to link individuals. Ben is currently developing the tool so it can be used using current PURE data.



Chemoreceptor Reflex Antagonism during Lower Body Negative Pressure

We are looking for healthy volunteers aged 18-75 years, with normal blood pressure.

This study is investigating the role of the carotid bodies in the control of blood pressure. To do this we apply negative pressure (suction) to the lower body to challenge blood pressure. We also use low doses of dopamine to reduce the activity of the carotid bodies. This allows us to measure whether the body's response to a blood pressure challenge is altered by the carotid bodies becoming less active.

Participating will involve:

- A screening visit (45 mins) and a study visit (2 hours) both at CRIC Bristol.
- Wearing an at-home blood pressure monitor to measure blood pressure over 24 hours between the visits.
- Lying in a lower body negative pressure chamber which applies suction (via a vacuum device connected to the chamber) from the waist down.
- Receiving a low dose of dopamine through a cannula (tube) in a vein in the arm or hand.
- Brief periods breathing extra nitrogen than normal, though a facemask, to reduce your oxygen levels (hypoxia).

For more information, please contact cardionomics-cb-study@bristol.ac.uk or 0117 342 1513.

Oral streptococci are normally found in the mouth, but if they regularly enter the bloodstream in people with a damaged heart valve, this can lead to infective endocarditis. The bacteria interact with platelets and stick to the damaged heart valves, forming deposits. How bacteria trigger the formation of heart valve deposits is not well understood.

The BHF awarded Dr [Angela Nobbs](#) a £190,000 grant to investigate. The work, a collaboration with Prof [Alastair Poole](#), Dr Steve Kerrigan (Dublin) and Dr Todd Kitten (USA), will focus on the role of two bacterial proteins. Previous research has shown that the heart valve deposits form when PadA, a protein on the surface of the bacterium, works together with another

protein bacterial protein Hsa, catching and trapping platelets flowing past in the blood. The deposits are made up of a meshwork of bacteria, platelets and fibrin fibres found in blood clots. Learning more about how PadA and Hsa work together to activate platelets to form clots could lead to new ways of stopping the bacteria triggering heart valve deposits.

[More info](#)

European Respiratory Society grant

A European Respiratory Society grant has been awarded to Dr [Rahul Bhatnagar](#) and Prof [Nick Maskell](#). The Clinical Research Collaborative is worth €45,000 over three years.

The award will allow the team to set up and lead an international collaborative to create a database to capture information regarding

pleural effusions. The database will be housed and managed at the University of Bristol and there are ten countries currently represented in the collaborative. Rahul Bhatnagar (top right) is the key clinical member and database co-ordinator on the project, and Prof Maskell (bottom right) is co-chair and co-lead applicant on the

grant.



3D printing of living artificial tissues

An interdisciplinary team of researchers from the School of Cellular and Molecular Medicine (Bristol) and the Departments of Chemistry, Physiology and Genetics (Oxford) have demonstrated how a range of living mammalian cells can be printed into high-resolution tissue constructs.

Interest in 3D printing for organ transplantation is increasing as research gains pace. However, printing high resolution living tissues is challenging - cells often move within printed structures and the soft scaffolds

printed to support the cells can collapse on themselves. Led by Professor Hagan Bayley, Professor of Chemical Biology in Oxford's Department of Chemistry, the team devised a way to produce tissues in self-contained cells that support the structures to keep their shape.

The researchers hope that with further development, the materials could have a wide impact on healthcare worldwide. Potential applications include shaping near-future technologies in toxicology and even reproducible human tissue models that

could take away the need for clinical animal testing. The approach could revolutionise regenerative medicine, enabling the production of complex tissues and cartilage that would potentially support, repair or augment diseased and damaged areas of the body.

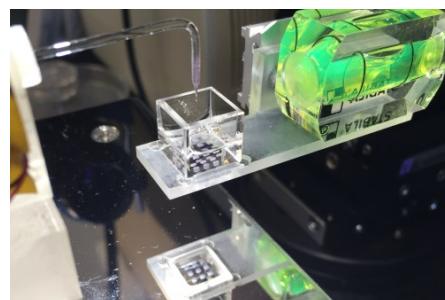


Image of the 3D droplet bioprinter, developed by the Bayley Research Group at Oxford, producing mm-sized tissues. Credit: Alexander Graham

New GW4 Alliance video

Released earlier in September, the GW4 Alliance's new video highlights some of the benefits of this multi-university partnership, and includes some personal reflections from Bristol PGRs.

All doctoral researchers at the University of Bristol are automatically a member of the GW4 Alliance. GW4 is comprised of four of the most research-intensive and ambitious universities in the UK: Bath, Bristol, Cardiff and Exeter. The GW4 Alliance offers a variety of advantages

to postgraduate research students registered at any of its four institutions, including access to a collaborative network, expert training opportunities and shared resources.

GW4 training and support includes:

- [Doctoral Student Training Scheme](#)
- [Annual Doctoral Skills Training Event](#)
- [Communication for Collaboration Online Resource](#)
- [Research and Professional Skills Training](#)

- [GW4 Equipment Database](#)
- [GW4 Treasures \(archives and special collections\)](#)

Watch the video to find out more about the 'world-leading scholarship, infrastructure and research excellence' offered by the alliance.

GW4

ELIZABETH BLACKWELL FUNDING

[EBI MRC Proximity to Discovery Industry Engagement Fund](#)

The Medical Research Council (MRC) have awarded the University of Bristol £155,000 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. MRC see these secondments as a key way of exchanging skills and knowledge and developing longer term working relationships. The call for applications is now open.

Closing date: 9:00 6 October 2017

[EBI Research for Health challenge](#)

Aims to encourage healthcare practitioners and University of Bristol researchers to work together to develop innovative thinking around clinical problem

Closing date: 18 October 2017

[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.).

Closing dates: 30 April and 31 October (annual)

[EBI Bridging Funds for Senior 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

Set up via Research Professional (RP), a full calendar of funding opportunities for Infection and Immunity Research is [available online](#). Subscribing to a calendar will place the entries in your own calendar, which will automatically update according to pre-specified criteria.

Staff and students have FREE access to Research Professional online from all computers on the University network. You can create your own personalised funding opportunity e-mail alerts by registering with RP. Find out all about it on the [RED website](#).

The listing below represents a *brief selection* of available funding for the infection and immunity community. Full listings of opportunities are sent out via Schools and are available on the [Research Development website](#).

Note that some calls may be subject to a major bids process, and all details are on the website.

World Health Organization

[Call for proposals for polio eradication](#)

Closing date: 06 Oct 17

This supports research projects that meet the global polio eradication initiative's current priority areas and will significantly contribute to polio eradication.

European Federation of Immunological Societies

[Meeting support grants](#)

Closing date: 07-Oct –17

Support meetings, workshops and schools that enhance interaction between young scientists and established immunologists. Grants are available under the following two streams: traditional meeting support and PhD course support.

European Federation of Immunological Societies

[Immunology Letters lecture award](#)

Closing date: 07 Oct 17

Award amount: €1,700

This supports a researcher with travel and participation to the European Federation of Immunological Societies' national meeting.

European Society of Clinical Microbiology and Infectious Diseases[Research grants](#)

Closing date: 11 Oct 17

Award amount: up to €50,000

These enable young investigators to conduct research in the fields of clinical microbiology and infectious diseases, specifically bacterial infections and diseases including antibacterial susceptibility and resistance, diagnostics, pathogenesis, antibacterial stewardship, vaccines. Grants are worth up to €20,000 each and two exceptional projects may receive €50,000 each.

European Society of Clinical Microbiology and Infectious Diseases[Young investigator awards for research in clinical microbiology and infectious diseases](#)

Closing date: 11 Oct 17

Award amount: €5,000

These acknowledge excellence in research, and stimulate further research at the highest scientific level. Up to two prizes, worth €5,000 each, are available.

Cancer and Polio Research Fund[Research grants](#)

Closing date: 15 Oct 17

Award amount: unspecified

Support research into cancers, with particular reference to the causes, development and treatment of these diseases, or research into polio and other crippling diseases. Grants may be used for direct costs of research and to support research symposia or lectures for the dissemination of findings.

Bill and Melinda Gates Foundation[Platform technologies to enable rapid vaccine development for epidemic prone infections](#)

Closing date: 17 Oct 17

This identifies and funds proposals for vaccine platform technologies that enable rapid vaccine development, fast scale up, and achieve clinical benefit quickly for reactive use in outbreaks of novel or previously unrecognised viruses. The maximum project period is three years.

Innovative Medicines Initiative Joint Undertaking, (ERC)[H2020-JTI-IMI2-2017-11 IMI eleventh call for proposals – single stage](#)

Closing date: 24 Oct 17

Award amount: unspecified

This supports research related to the future of medicine in areas where societal, public health and biomedical industry competitiveness goals are aligned and require the pooling of resources and greater collaboration between the public and private sectors. The total budget for the call is €5 million and projects are tenable for up to 24 months.

Innovative Medicines Initiative Joint Undertaking (ERC)

[H2020-JTI-IMI2-2017-12 IMI twelfth call for proposals – two stage](#)

Closing date: 24 Oct 17

Award amount: unspecified

This aims to support research and innovation activities to improve European citizens' health and well-being via the highest impact on reducing attrition in drug development, speeding up patient access, improving health outcomes and enhancing the biomedical research ecosystem. The total budget for the call is worth approximately €126.44 million.

Joint University Hospitals Bristol Research Capability Funding and Above and Beyond grants

Closing date: 25-Oct-17

[UHBristol Research Capability Funding \(RCF\)](#)

Awarded annually to UHBristol by the NIHR. RCF is used to help NHS organisations attract, develop and retain high quality research active staff. The call is now open for UHBristol RCF funded grants, of up to £20,000, that can be used to:

- Fund Research Sessions/PAs (for medical and non-medical staff) to allow time to prepare NIHR research grant applications; and/or
- Fund the generation of preliminary or underpinning data to support an NIHR application; a “pump-priming” grant.

[Above and Beyond](#)

Research grants of up to £20,000 which aim to promote high quality biomedical research in UHBristol. Applications are welcomed from any medical or non-medical UHBristol employee, or university academic (Universities of Bristol and the West of England) holding an honorary contract with UHBristol.

Application forms and full guidance notes on the [website](#).

Science and Technology Facilities Council

[Challenge-led applied systems programme — confronting global healthcare challenges](#)

Closing date: 07 Nov 17

Award amount:

This supports projects from short feasibility studies to large developmental projects in the ap-

plication and commercialisation of STFC research in the key global research challenge areas of energy, environment, healthcare and security. The total budget is £2 million.

National Science Foundation (USA)

[Ecology and evolution of infectious diseases](#)

Closing date: 15 Nov 17

Award amount: unspecified

This supports research on the ecological, evolutionary and socio-ecological principles and processes that influence the transmission dynamics of infectious diseases. The total award budget is USD 13.5 million, which aims to fund nine awards. US-UK Collaborative proposals will once again be accepted. Proposals can include both regular proposals and Research Coordination Network proposals. **All UK researchers are required to submit a Letter of Intent to [UK-USCollab@bbsrc.ac.uk](mailto:USCollab@bbsrc.ac.uk)** deadline for which is 14 October 2016.

Cancer Research Institute (USA)

[Technology impact award](#)

Closing date: 15 Nov 17

Award amount: USD 1 million

This supports the development of innovative technologies that can ultimately be adopted by the research community at large, and that will enable researchers to develop the next generation cancer immunotherapies that can be effective and personalised for each patient.

Coeliac UK

[Sponsored dissertations grants](#)

Closing date: 20 Nov 17

Award amount: £1,000

These support students working on research related to coeliac disease. Five grants worth up to £1,000 each are available and funding may cover costs of materials, laboratory services and student expenses incurred as a result of research.

European Society of Clinical Microbiology and Infectious Diseases

[ECCMID travel grants](#)

Closing date: 30 Nov 17

Award amount: unspecified

These enable young scientist members to attend the next European Congress of Clinical Microbiology and Infectious Diseases, to be held from 21 to 24 April 2018 in Madrid. Up to 100 researchers with the best abstracts are offered free registration. Of these individuals, an additional travel grant of €500 is awarded to those with the highest scores.

European Society for Paediatric Infectious Diseases[Fellowship awards](#)

Closing date: 01 Dec 17

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. The annual stipend is worth €50,000. The duration of the fellowship is two years.

Volkswagen Foundation | VolkswagenStiftung[Travel grants – Herrenhausen symposium on individualised infection medicine](#)

Closing date: 10 Jan 18

Award amount: €1,000

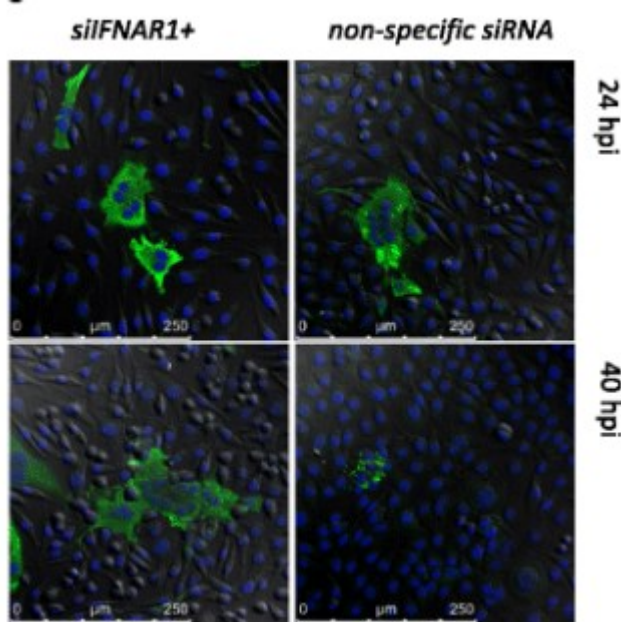
This enables researchers to attend the Herrenhausen symposium on individualised infection medicine taking place in June 2018 in Hannover. A total of 30 grants worth up to €1,000 are available.

THIS ISSUE'S FEATURED ARTICLE

Proteomics informed by transcriptomics for characterising differential cellular susceptibility to Nelson Bay orthoreovirus infection

Mok L, Wynne JW, Tachedjian M, Shiell BJ, Ford K, Matthews D, Bacic A and Michalski WP

Nelson Bay orthoreovirus (NBV) is a fusogenic bat borne virus with an unknown zoonotic potential. Previous studies have shown that NBV can infect and replicate in a wide variety of cell types derived from their natural host (bat), as well as from human, mouse and monkey. Within permissive cells, NBV induced significant cytopathic effects characterised by cell-cell fusion and syncytia formation. To understand the molecular events that underpin NBV infection we examined the host transcriptome and proteome response of two cell types, derived from bat (PaKiT03) and mouse (L929), to characterise differential cellular susceptibility to NBV.



*Image caption: Inhibition of IFN signalling in L929 cells using siRNAs targeted to murine Ifnar1 (siIFNAR1). Visualisation by immunofluorescence microscopy of siIFNAR1 treated and non-specific siRNA treated cells following infection with NBV at MOI 10 at 24 and 40 hpi. (DAPI in blue and NBV σ proteins in green). Representative pictures are presented here. * $p < 0.05$, *** $p < 0.001$, ns = non-significant.*

Despite significant differences in NBV replication and cytopathic effects in the L929 and PaKiT03 cells, the host response was remarkably similar in these cells. At both the transcriptome and proteome level, the host response was dominated by IFN production and signalling pathways. The majority of proteins up-regulated in L929 and PaKiT03 cells were also up-regulated at the mRNA (gene) level, and included many important IFN stimulated genes. Further functional experimentation demon-

strated that stimulating IFN signalling prior to infection, significantly reduced NBV replication in PaKiT03 cells. Moreover, inhibiting IFN signalling (through specific siRNAs) increased NBV replication in L929 cells. In line with the significant cytopathic effects seen in PaKiT03 cells, we also observed a down-regulation of genes involved in cell-cell junctions, which may be related to the fusogenic effects of NBV.

This study provides new multi-dimensional insights into the host response of mammalian cells to NBV infection. We show that IFN activity is capable of reducing NBV replication, although it is unlikely that this is solely responsible for the reduced replication of NBV in L929 cells. The molecular events that underpin the fusogenic cytopathic effects described here will prove valuable for identifying potential therapeutic targets against fusogenic orthoreovirus.

CONTACTS

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

Co-Chair: [Lindsay Nicholson](#)
Reader in Research



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



- [Andrew Davidson](#) - Senior Lecturer in Virology
- [Wendy Gibson](#) - Professor of Protozoology
- [Kathleen Gillespie](#) - Reader in Molecular Medicine, Head of the Diabetes and Metabolism Research Group
- [Alastair Hay](#) - Professor of Primary Care
- [Mark Jepson](#) - Reader in Cell Biology
- [Ruth Massey](#) - Reader in Cellular and Molecular Medicine
- [David Morgan](#) - Reader in Immunology
- [Peter Muir](#) - Clinical Virology
- [Angela Nobbs](#) - Lecturer in Oral Microbiology
- [Collette Sheahan](#) - Research Development Theme Facilitator
- [Annela 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](#) - Research Development Administrator for the Network

e: infection-immunity@bristol.ac.uk

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