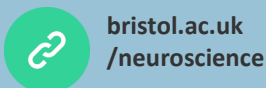


# Bristol Neuroscience Newsletter

April - May 2017



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## MRC Momentum Award

Six universities have been awarded a total of £4.3m by the MRC to grow and develop the UK's research base in dementia science. Each award will enhance overall dementia research capacity in the UK and accelerate the recruitment of research leaders and 'rising stars' from both within and outside of the UK. The funding will also help current researchers develop promising connections between different research disciplines to bring new understanding to the field, as well as exploit emerging scientific opportunities and explore new approaches to fight the disease.

This interdisciplinary award will build upon the work of [SPHERE](#) to develop novel computational approaches to

analyse behaviour and derive 'signatures' relevant to dementia based on health-related behaviours at home. This work will be supported by the University's strengths in neuroscience and population health, alongside the recruitment of a 'rising star' to lead the project.

The award, led by PI [Yoav Ben Shlomo](#) with [Ian Craddock](#), [Liz Coulthard](#), [Margaret Newson](#) and [Raul Santos-Rodriguez](#) as Co-Is, is for £878,055 and is entitled *ContinUous behavioUral Biomarkers Of cognitive Impairment (CUBOld) - behavioural analysis through multisensory data fusion at home*. The project is expected to last for 36 months.

*From top: Yoav Ben Shlomo, Liz Coulthard, Ian Craddock, Raul Santos Rodrigues*



# EVENTS



## Early Career Neuroscientists' Day 5 June 2017 Cardiff University

Registration deadline:  
15 May 2017

### REGISTRATION FEE: £35 ONLY

includes transport,  
refreshments breaks,  
buffet lunch,  
drinks reception

Confirmed speakers:

- Adrian Harwood (Cardiff)
- John Aggleton (Cardiff & BNA)
- Marcus Munafó (Bristol)
- academic and public engagement organisations, including the Wellcome Trust and Pint of Science

The day will include talks and breakout sessions focusing on a wide range of topics from scientific techniques to alternative careers; from cellular neuroscience to public engagement.

Go to the [event website](#) for full details and to download forms

### Research without Borders 2017: showcase exhibition

12 May 2017, 14.00 - 16.30, Colston Hall and throughout the week

### International Clinical Trials Day 2017

15 - 19 May 2017, various venues

### Autonomic dysfunction is the motor of critical illness

15 May 2017, 13.00 - 14.00. Gareth Ackland (William Harvey Research Institute, Queen Mary University of London), C42, Biomedical Sciences Building

### Saving a generation

15 May 2017, 19.30 - 21.30. Andrew Whitelaw (Emeritus Professor) and Peter Fleming (Professor of Infant Health & Developmental Physiology), The Eldon House, 6 Lower Clifton Hill, Bristol BS8 1BT

### 24th International "Stress and Behavior" Neuroscience and Biopsychiatry Conference

16 - 19 May 2017, St-Petersburg.

### GW4 data intensive research workshops: Challenges and opportunities for the Alliance

16 May 2017, 10.00 - 17.00, University of Bath

### The Art of Listening: a story of how engagement can enhance research

17 May 2017, 13.00 - 14.00. Giovanni Biglino (Bristol Heart Institute), Old Council Chamber, Wills Memorial Building

### Alzheimer's Society Annual Conference 2017

18 May 2017, 9.00 - 17.00. Grand Connaught Rooms, London

### Who provides what dementia services in Bristol and South Gloucestershire

18 May 2017, 12.00 - 13.30. Paul Knocker & Paula Shears (Bristol), Sue Jaques, Paul Frisby & Lynn Cross (South Gloucestershire), L&R Building, Southmead Hospital

### 2017 Dementia MRI Conference

22 - 23 May 2017, Cardiff University

### GW4 data intensive research workshops: Challenges and opportunities for the Alliance

22 May 2017, 10.00 - 17.00, University of Exeter

**Tetherin negatively regulates P2Y12 receptor functions**

22 May 2017, 13.00 - 14.00. Beck Richardson and Xiaojuan Zhao, C42, Biomedical Sciences Building

**Information Event: MSCA Individual Fellowships**

23 May 2017, 10.30 - 15.30, Physics Building

**Skeletal systems mechanobiology and personalized medicine**

23 May 2017, 13.00 - 14.00. Ralph Müller (ETH Zürich), Seminar rooms A&B, Level 1 Learning & Research, Southmead Hospital

**SPM Starter Workshop and first Brainstem fMRI Workshop**

24 - 28 May 2017, Hannover

**Optimization for Vision and Learning**

1 June 2017, 15.00 - 16.00. Diane Bouchacourt (Oxford), Merchant Venturers Building 1.06

**GW4 data intensive research workshops: Challenges and opportunities for the Alliance**

5 June 2017, 10.00 - 17.00. WX3.07, West Extension Building, Queens Buildings, Cardiff

**CRIC Bristol Research Showcase 2017**

5 June 2017, 10.00 - 16.00. Paul Matthews, OBE, MD, DPhil, FRCP, FMedSci (Imperial College), Watershed, Bristol

**Cellular and molecular mechanisms of cortical interneuron diversity and plasticity**

5 June 2017, 13.00 - 14.00. Oscar Marin (Institute of Psychiatry, Psychology & Neuroscience, King's College London), C42, Biomedical Sciences Building

**How to prepare a good research bid (Medical Faculties)**

8 June 2017, 10.00 - 16.30, Brunel Room, The Hawthorns

**Bristol Population Health Science Institute launch**

9 June 2017, 9.30 - 16.30. Nancy Krieger (Professor of Social Epidemiology, Department of Social and Behavioral Sciences, Harvard University), Arnolfini Contemporary Arts Centre

**Alzheimer's Disease Research Methodology: From Cell to Populations**

12 - 16 June 2017. Karen Ritchie, Edinburgh

**Cholinergic modulation of the feedforward Temporoammonic microcircuit in the hippocampus**

12 June 2017, 13.00 - 14.00. Jon Palacios and Chris Williams (Bristol), C42 Biomedical Sciences

**For further events relevant to the community go to the [BN webpage](#)**

# NEWS

## Funding successes: Part 1

### Alzheimer's Research

**UK:** Profs [Seth Love](#) & [Colin Smith](#), Dr [Scott Miners](#), Prof [Joanna Wardlaw](#), £227,253-*Network for the development, validation and implementation of new methods to measure vascular dysfunction in dementia*, 1 Jan 2017—31 Mar 2019.

Abnormal leakiness of blood vessels and disturbances of blood flow through the brain can impair brain function and cause dementia. We aim to establish a collaborative network between two ARUK Centres (Edinburgh and Bristol) to pool resources and expertise in the characterisation of patients who have diseases of blood vessels. To assess the value of this collaboration, we will initially apply several 'Bristol' methods to post-mortem brains from 'Edinburgh' patients, to assess relationships between vessel leakiness, reduced blood flow, in-growth of new blood vessels, and Alzhei-

mer's disease-associated biochemical changes within the brain. For these studies, the analysis will be limited to nerve fibre-rich tissue and will involve a limited set of measurements of vessel function. In future studies we would expand the range of methods (including neuroimaging and clinical information) and extend our investigations to other parts of the brain. Our aim is to develop a comprehensive approach to the assessment of blood vessel disease in dementia, with standardised methods that can be adopted by other brain banks within the UK and elsewhere. The information gained through these studies will be important for the planning and conduct of future therapeutic, neuroimaging and post-mortem studies. Our expectation is that the findings will inform future neuroimaging and post-mortem studies and provide important information on the biological and clinical relevance (and potential

therapeutic tractability) of a range of vascular abnormalities relevant to vascular cognitive impairment, a relatively neglected but substantial contributor to dementia'.

### Early Career Grant, Society for Endocrinology:

Dr [Kathryn Garner](#), £9,890 - *Development of Optogenetics Tools to Interrogate GnRH Pulse-Frequency Dynamics*.

I will be developing tools that will enable me to render HeLa cells responsive to light. Such light-activated receptors are commonly used in neuroscience to enable the activation of particular cells or membranes of choice, but I will be adapting them to look at pulsatile hormone signalling. I will also be constructing an LED module controlled by a Raspberry Pi computer so that I can examine the cell response to different pulse-frequency paradigms in multiple wells of a 96-well plate in high content imaging experiments.



From top: Seth Love, Colin Smith, Scott Miners, Joanna Wardlaw, Kathryn Garner

## Public Engagement award

Dr [Emma Robinson](#), Reader in Psychopharmacology, has won the 2016 Public Understanding of Neuroscience award from the British Neuroscience Association (BNA).

Emma is the organiser of the [Bristol Festival of Neuroscience](#), and also undertakes a range of other public engagement. Earlier this year she also won, with Dr Dave Turk, a University of Bristol Engagement Award. She received the award at a

ceremony during the BNA's annual Christmas Symposium,

held at King's College London on 12 December. 2016.



## Altering perceptions

Artist Luke Jerram will spend one day a week between Jan-Aug 2017 exploring the complexity and impact of brain related vision problems at the [Bristol Vision Institute](#). The idea behind his artist in residency is to create something that

will raise awareness about the nature of cerebral visual impairment (CVI), including the lived experience of affected children and their families, and the difference that treatments or environmental modifications can make. What that 'something' is will tran-

spire during Luke's residency. As someone who is colour-blind, Luke is personally and creatively fascinated by the processes of visual perception.

As part of his residency, Luke will meet and learn about some of the research underway at the University of Bristol and the BVI's clinical partner, the Bristol Eye Hospital. He will work with [Cathy Williams](#) and other clinical researchers whose work aims to help children affected by CVI, including experts in genetics, in brain structure and function, and in MRI imaging.



*Image credit: Christopher Jones*

## Launch of Specialist Research Institutes

On 13 December 2016 the University announced the formation of seven Specialist Research Institutes (SRIs) following a competitive application process. Under the University's new strategy plan, an SRI represents a field in which Bristol is acknowledged to be a world leader and where there is significant alignment with regional, national and international ambitions. SRIs will complement existing disciplinary strengths in Schools and Faculties and will be sufficiently limited in number to have an effective role in institutional branding.

An external launch of the

SRIs took place on 20 March 2017 in Royal Fort House.

There are three Institutes which will sit in the biomedical / health space, including:

- **Bristol BioDesign Institute** (Dir: Dek Woolfson)
- **Bristol Heart Institute** (Dir: Gianni Angelini)
- **Bristol Population Health Science Institute** (Dir: Caroline Relton)

From 2017 University Research Themes will cease to be formally endorsed and presented at an institutional level. For this reason the [Bristol Neuroscience webpages](#) now sit under the Elizabeth Blackwell Institute for Health Re-

search and not on the main University Research page. The BN steering group are continuing to meet, and a new Research Development Facilitator will be post at the end of May 2017 to ensure continued support for the BN Network (the previous RD team member, Hazel Phillips, left UoB to take over the role of Chief Operating Officer for the newly formed Biomedical Research Centre). A Director for Neuroscience is being sought as per the recommendations of the BN External Review, and the BN community will be kept abreast of developments as they become known.

## Support for Data Science

The University's youngest research institute, the [Jean Golding Institute for Data-intensive Research](#), runs a data science support service dubbed 'Ask JGI'. Which is available to all staff (and PhD students through their supervisors). It provides advice, support and guidance on all data science queries, including statistical, computing, data management, visualisation, and storage questions.

Support is available via email and 1-1 meetings. The

Institute works closely with 'data champions' throughout the University and can triage questions to experts and foster collaborations if they are unable to help directly. Staff can also signpost to other data intensive research facilities in the University such as on Advanced Computing (ACRC) and data storage (RDSF).

Get in touch via [ask-jgi@bristol.ac.uk](mailto:ask-jgi@bristol.ac.uk).



## £7.5M boost for Health Research

The [Elizabeth Blackwell Institute \(EBI\)](#) has been awarded a **Wellcome Trust Institutional Strategic Support Fund (ISSF)** designed to support biomedical research and related activities over the next five years. The award of £3.75M was matched by the University, and is the third and largest ISSF award for the EBI. It recognises the successful work the Institute has delivered during the previous five years. EBI will continue to invest in the next generation

of health research leaders by offering fellowships and support for clinical and non-clinical early career researchers. Clinical researchers in particular will benefit from opportunities offered by the EBI and the recently announced [Wellcome Trust-funded clinical PhD programme for the South West \(GW4-CAT\)](#).

EBI will also prioritise work on diversity and inclusion, as well as public engagement with focus on building capacity, creating and developing partnerships to co-design and in-

crease the impact of the University's research.

[GW4-CAT](#) is the clinical PhD programme which will run between the GW4 member universities of Bristol, Exeter and Cardiff. It will offer trainees access to a broad range of training opportunities with world leading researchers in population health; epidemiology; cardiovascular health; neuroscience and mental health; molecular cell biology; cancer; infection; immunity and repair.

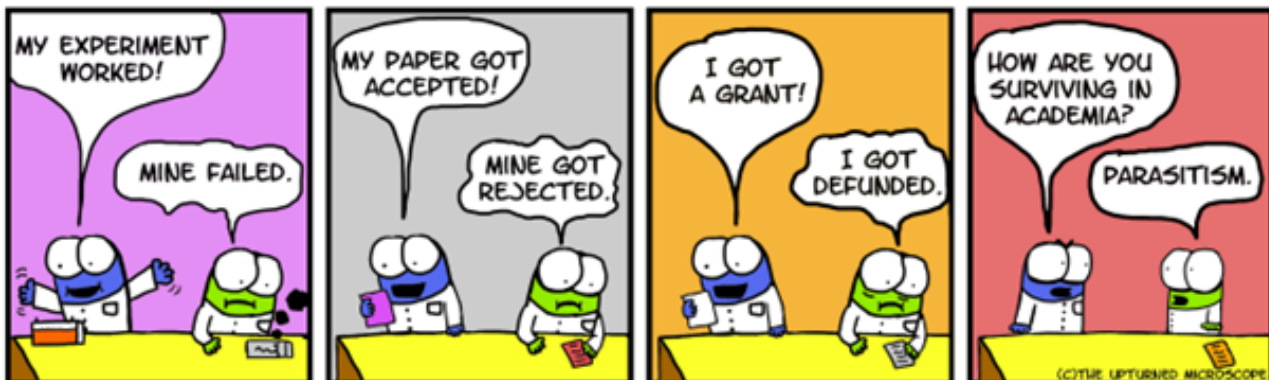
## Early career training and support

The Faculties of Biomedical Sciences and Health Sciences have a dynamic postgraduate community enrolled in taught or research-based programmes. Postgrads receive their training in internationally renowned research groups which span the biomedical science disciplines of Biochemistry, Cellular and Molecular Medicine and Physiology, Phar-

macology and Neuroscience through to the disciplines associated with population health which include life course epidemiology, genomics, primary care and public health with a particular emphasis on methodology. Research takes place in laboratories within the University and in clinical settings across Bristol, including the University Hospitals Bristol Trust, North

Bristol Trust, as well as general practices and other community health services. For further details go to the [Elizabeth Blackwell Institute \(EBI\) website](#).

*"Survival" ©The Upturned Microscope – Attribution-NonCommercial-NoDerivs 3.0 Unported License.*



## Highlight: Bristol Neuromuscular Research Group

Part of the Institute of Clinical Neurosciences is the [Bristol Neuromuscular Research Group](#), comprising doctors, healthcare professionals and scientists who are committed to improving the lives of individuals with neuromuscular disorders through research. In existence since 2009, they recently received generous support from funders, NHS England and academic institutions, allowing them to

undertake a portfolio of high quality and ground breaking research.

The group conduct both paediatric and adult neuromuscular research. The latter group looks to forward the understanding and treatment of individuals affected by Neuromuscular disorders through co-ordinating local research activity, supporting original research, participating in large studies and fostering collabora-

tions.

The paediatric team has a number of current projects including *End of Life Wishes in young adults with NM conditions* which has received funding from both the David Telling Trust (£24,500) and Muscular Dystrophy Canada (£40,000) and are collaborations with Prof [David Abbott](#).

## Guidelines for Vascular Cognitive Impairment

Guidelines have been developed that should help progress research into vascular cognitive impairment (VCI). Led by UoB, the team brought together over 150 researchers in 27 countries. VCI, which refers to a decline in mental abilities caused by problems with the blood supply to the brain, is the second most common cause of dementia and gradual memory loss after Alzheimer's disease. Like Alzheimer's it does not have a cure, and together both conditions contribute to the largest cause of death in England and Wales.

Project lead Prof [Pat Kehoe](#) (pictured) invited researchers from around the world

to participate in the Vascular Impairment of Cognition Classification Consensus Study (VICCCS), funded by the Alzheimer's Society. The consortium published their findings on what was agreed as a revised conceptual model of VCI and what should be considered to be its various subtypes. This new concept has built upon some key elements from sets of criteria that have been previously proposed but adopted to varying degrees. This lack of widespread adoption of any single criteria before now has proved to be a major stumbling block towards any progress in VCI research.

Pat's work has been featured in the *Daily Telegraph*, BBC Radio Bristol and New York

University Radio.

[More Info...](#)





## Funding successes: Part 2

Dr [Phil Clatworthy](#), joint **British Association of Stroke Physicians** and **NIHR Clinical Research Network Stroke Portfolio Development Award**. A small grant of £2000 that will bring together a writing group in the field of stroke related visual impairment.

Prof [Julian Paton](#), **Elizabeth Blackwell Institute Confidence in Concept** award. £40,113 from MRC funds and £5,947 from Wellcome Trust ISSF2 funds, *First elec-*

*troceutical analog device with biofeedback* from 1 Dec 2016 to 1 Aug 2017.

Prof [Stan Zammit](#), **Wellcome Trust** four-year studentship for [Paul Madley-Dowd](#).

Mr [Ross Robinson](#), **Wellcome Trust**-ISSF Populations Pilot Award via Cardiff with Kim Graham. *Developing Novel Online Cognitive Tests of Spatial Perception and Memory for use in UK Population Cohorts, starting with ALSPAC*. £8,576, 1 Jul 2016-1 Jul 2017.

Mrs [Alison Burns](#), **NIHR - RCF**. *The addition of the antidepressant mirtazapine for patients with depression in primary care who have not responded to antidepressant treatment: A Cohort Study*. £9,841, 1 Mar - 1 Oct 2017.

Dr [Elsa Marques](#), **NIHR - RFPB**. *Can Electrical Stimulation of Muscles be Used to Improve Walking for People with Parkinson's Disease? (STEPS)*. £25,484, 1 Apr 2016 - 1 May 2018.

## External Engagements: Part 1

Having been appointed as a Fellow of the **Royal College of Physicians of Edinburgh** in February 2016, RICE Professor of Old Age Psychiatry, [Julian Hughes](#) (pictured), was formally admitted to the Fellowship at a ceremony at the College in Edinburgh. He was also an invited speaker at a conference in Paris of the Fondation Médéric Alzheimer to promote the theme "Social Sciences for Dementia". His presentation concerned the ethical issues in connection with research in dementia.

Other commitments include an invited lecture, *Complex ethical issues in long-term*

*neurological diseases*, at a symposium organised by [La Fondazione Sanità e Ricerca](#) at the XXXIII **Congress of the Italian Society of Palliative Care**, Rome, 18 Nov 2 '16. He acted as a judge for the annual [LaingBuisson Awards](#) held on 29 Nov '16, which celebrates excellence in private healthcare across the care-home sector.

Julian has also been a member of the **Alzheimer Europe Ethics Working Group** whose [Discussion Paper on Ethical Issues Linked to the Changing Definitions/Use of Terms Related to Alzheimer's Disease](#) was launched at the European Parliament on 6 Dec 2016. Over the last 18 months

Julian has been a member of an Inquiry Panel set up by the Mental Health Foundation (MHF), funded by the Joseph Rowntree Foundation, to look at issues around truth-telling to people with dementia. The report from the inquiry, [What is Truth? An Inquiry About Truth and Lying in Dementia Care](#), was published in Dec '16.



## Causal links between cannabis and schizophrenia

People who have a greater risk of developing schizophrenia are more likely to try cannabis. The research comes on the back of public health warnings issued earlier in 2016 by scientists who voiced concerns about the increased risk of psychosis for vulnerable people who use the drug, which followed evidence to suggest an increased use of particularly high potency strains of cannabis among young people. This latest

study sheds fresh light on the issue, while still cautioning that the results ought to be considered in the wider context of other contributing factors of mental health.

While some evidence was found to support hypotheses that cannabis use is a contributory factor in increasing the risk of schizophrenia, the researchers were surprised to find stronger evidence that the opposite was also likely. This adds weight to the

idea that the drug may be used as a form of self-medication.

The study used Mendelian Randomization (MR) techniques to examine publicly available data from genome-wide association studies.

[More info...](#)

### Highlight: Stroke Research Group

The [Stroke Research Group](#) is a rapidly developing independent but collaborative group of researchers. Stroke research is a priority area for growth within the [Institute of Clinical Neurosciences](#) over the coming years, and as a consequence the group is host to an expanding portfolio of research.

The Stroke Research Group is closely associated with the clinical stroke service at North Bristol Trust, which provides a comprehensive stroke service including interventional neuroradiology and thrombectomy, vascular surgery, neurosurgery and specialist stroke rehabilitation.

The Group uses a range of techniques including:

- MRI (e.g. fMRI, tractography)
- Gaze tracking
- Psychophysics
- Gait tracking
- Transcranial Direct Current Stimulation (tDCS)
- Cognitive testing
- "Off-the-shelf" EEG

There is also an intention to develop further research areas and techniques, including:

- Mesenchymal stem cells for treatment of stroke
- Genetics and cognition/rehabilitation (MRC Integrative Epidemiology Unit)
- MR spectroscopy
- Gait lab with visual environment modulation

- SPHERE project using technology for monitoring health in people's homes

The group has a number of existing research themes and collaborations, and a full listing is available on their [website](#).

#### Group heads:

Dr [Phil Clatworthy](#) (left)



Prof [Risto Kauppinen](#) (right)

## Funding successes: Part 3

Dr [Catherine Pennington](#) was recently awarded a **David Telling pilot grant** that will serve to bring together a new multi-disciplinary group involving multiple specialities, including Renal (Drs [Fergus Caskey](#), [Albert Power](#)), Ophthalmology (Dr [Denize Atan](#)), Urology (Prof [Marcus Drake](#)), Stroke (Dr [Phil Clatworthy](#)) and Clinical (Pennington, Hughes) and Preclinical Neurosciences (Prof [Pat Kehoe](#)) to test the feasibility of study to inves-

tigate the impact of advancing Kidney disease and outcomes on the development of complex outcomes including cognitive Impairment, bladder function and pathology of the eye.

Dr [James Hodge](#), **Leverhulme Project grant**. *Optogenetic imaging and remote control of a fly electric clock*. £210,844 for three years.

Prof [Julian Paton](#) and Dr A Nogaret (Bath), **EU 2020 grant**. *Physiological devices*

*using central pattern generators*. €3 million for five years.

Dr [Alastair Wilkins](#), **MS Society Innovative award**.

£50,000, *CSFbiomarkers in MS*. Dr [Kelly Hares](#) will undertake the work.

Drs [Suzi Gage](#) and [Becky Richmond](#) have been awarded £171,478.95 from **Cancer Research UK** to investigate *DNA methylation in e-cigarette users versus cigarette smokers and never-smokers*.

## External engagements: Part 2

Prof [Julian Paton](#) has been appointed on to the **Editorial Board** for *Current Opinion in Physiology* (Elsevier).

Drs [Frankie MacMillan](#) and [Nadia Cerminara](#) have been appointed as the **Physiological Society Representatives** for the University of Bristol.

Dr [Dmitry Mayorov](#) won the **Best Oral (basic science) Presentation for *Reduced vasodilator efficiency of adenosine in the brainstem of young spontaneously hypertensive rats*** at the **International Society of Hypertension** meeting, held 24-28 Sep 2016 in Seoul, South Korea.

Prof [Hans Reul](#) has been appointed as a member of the **BBSRC Pool of Experts**. The Pool was established in 2008 with the introduction of the new Core/Pool model of Research Committee operation. This dual composition of a Core membership supplemented by Pool members offers the flexibility to modify the Committee membership at each meeting to reflect the science areas covered by the applications under consideration.

Prof [Bridget Lumb](#) has been chosen as **President-Elect of The Physiological Society**. The post is the highest professional honour for a UK physiologist and offers recognition of Bridget's contribution to the

development of the discipline. Bridget is the first female to hold the highest position in the Society since its inception in 1876.

Dr [Peter Brennan](#) has taken over as **President of the European Chemoreception Research Organisation**, the main European research organisation for chemosensory research.

Prof [Julian Hughes](#) acted as **External PhD Examiner** for the Faculty of Medicine in the University of Lisbon on 13 March 2017. The PhD thesis, by Sara Coelho, combined philosophy and psychology and was entitled *Lost in Time: A Neurophilosophical Quest to Understand the Perception*

## New EBI Director from 1 August 2017

Following an open, internal, competitive appointment process, Prof [Rachael Goberman-Hill](#) has been appointed to the role of Director of the Elizabeth Blackwell Institute, which she will commence on 1 August 2017.

Rachael is Professor of Health and Anthropology in the School of Clinical Sciences and currently leads the STAR Programme of Research to improve treatment for long-term pain after knee replacement as

well as numerous other research projects. She also works on the Engaged University Steering Group, the Ethics of Research Committee, the Digital Health Steering Group, and the School of Clinical Sciences Equalities Committee. Thanks have been extended to Prof Jeremy Tavaré who has led the Institute since its inception in 2011. During his tenure EBI has established itself as an asset to this institution in building collaborative research activities, providing seed-corn funding for early

career and established staff and secured significant external funding particularly through the Wellcome Trust ISSF funds. Jeremy will now take up the position of Director of Health Research in the University.



## New Society Fellows

Prof [Stafford Lightman](#) has been received as a Fellow to the [Royal Society](#) for his outstanding contributions to science. The Society is a self-governing Fellowship of many of the world's most distinguished scientists drawn from all areas of science, engineering, and medicine. Its fundamental purpose, reflected in its founding Charters of the 1660s, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the



benefit of humanity.

Stafford works on the regulation of the hormones that are released in response to stress and how these hormones affect the function of the brain and metabolic system. He said: "I am absolutely delighted to receive this accolade. It is particularly rewarding to know that even though I work in the relatively small area of neuroendocrinology, The Royal Society feels that the advances we have made are of sufficient importance to warrant election to their fellowship."

Prof [Stephan Lewandowsky](#) has been appointed a Fellow of the [Academy of Social Sciences](#). Chair in Cognitive Psy-

chology, Stephan is an eminent social scientist and an expert on the application of computational modelling to social science questions. He has an international reputation for his studies of human memory, which have prompted key work on the extent to which information that is initially presented as factual, but then retracted, is still believed. These studies have led to more applied research that looks directly at how findings from social science should be communicated to the public and policy makers.



## External engagements: Part 3

Prof [Elek Molnar](#) has been appointed to the Grant selection committee and review panel for **European Commission Horizon 2020: Marie Skłodowska-Curie Action Innovative Training Networks**.

Dr [Ana Abdala Sheikh](#) gave a public engagement talk at the **Rett UK Northern Ireland Regional Event** in Belfast on 1 April 2017. Ana's talk covered breathing ab-

normalities in Rett syndrome and a research update.

Prof [Julian Hughes](#) gave a lecture at the **Royal College of Psychiatrists'** annual conference of the Faculty of Old Age Psychiatrists on 24 March 2017, which was held in Bristol, on the Supreme Court's 'Montgomery' decision and values-based practice. He had given a similar lecture the day before in the School of Social and Community Medicine.

Dr [Michael Knight](#) presented at the **2017 Dementia MRI conference** held in Cardiff 22-23 March 2017. His talk was entitled *What can relaxometry tell us about the ageing brain?*. Dr Knight is part of the investigating team for a number of currently active projects at CRICBristol, including *Hippocampal changes in early Alzheimer's disease* which has been running since 2013.

## Spearman Medal for outstanding research

Dr [Claire Haworth](#), Reader in Behavioural Genetics and co-director of the Dynamic Genetics Lab, was been awarded the 2017 **Spearman Medal** from the **British Psychological Society** in March 2017. The Medal, inaugurated in 1965, is awarded annually for outstanding published work in psychology representing a significant body of research. This year there are two winners of the medal; Dr Haworth, and Dr Rachael Jack of the University of Glasgow.

Claire, who joined the University in 2015, was awarded the medal in recognition of her work on the dynamic nature of genetic and envi-

ronmental influences on human behaviour. current work focuses on genetic and environmental influences on mental health and psychological wellbeing during adolescence and young adulthood. She will deliver an award lecture on her research at the 2018 British Psychological Society Conference.



## News Shots

### **A brain wide chemical signal that enhances memory**

How does heightened attention improve our mental capacity? New research reveals a chemical signal released across the brain in response to attention demanding or arousing situations. This indicates how current drugs used in the treatment of Alzheimer's, designed to boost this chemical signal, counter the symptoms of dementia. The results could also lead to new ways of enhancing cognitive function to counteract the effects of diseases such as Alzheimer's and schizophrenia, as well as enhancing memory in healthy people. [More info](#)

### **New discovery could be a major advance for understanding neurological diseases**

The discovery of a new mechanism that controls the way nerve cells in the brain communicate with each other to regulate our learning and long-term memory could have major benefits to understanding how the brain works and what goes wrong in neurodegenerative disorders such as epilepsy and dementia. Precisely how long-term potentiation (LTP) is initiated is a major question in neuroscience. Traditional

LTP is regulated by the activation of NMDA receptors; this study reports a new type of LTP that is controlled by kainate receptors. [More info](#)

### **Brain's connections which keep related memories distinct from each other**

We are a step closer to understanding how the connections in our brain which control our episodic memory work in sync to make some memories stronger than others. Research reveals a previously unsuspected division of memory function in the pathways between two areas of the brain, and suggests that certain subnetworks within the brain work separately, to enhance the distinctiveness of memories. [More info](#)

### **Researchers to develop 'wearable' robotic tools for surgery**

A collaborative team is to develop a wearable robotic system for minimally invasive surgery that will offer surgeons natural and dexterous movement as well as the ability to 'sense', 'see', control and safely navigate through the surgical environment. [More info](#)

### **Researchers develop software which measures working memory in a more accessible way**

The 'n-back' app was used to

test people's short term memory after drinking alcohol in a recent episode of [The Health Detectives](#). The app developers hope it may provide a more accessible way for those outside of the university research landscape to run cognitive tests for psychological experiments. [More info](#)

### **Quasimodo illuminates the secret to the ticking of our internal clocks**

Using *Drosophila* fruit flies a team of researchers have identified three novel proteins that act together on the surface of clock neurons to make the clock light responsive. The findings could have implications for identifying novel membrane drug targets for sleeping disorders and jetlag, while furthering scientific understanding of the relationship between body clocks and health, as well as ageing and neurodegenerative disease. [More info](#)

### **Therapies that target dementia in early stages critical to success**

Recent studies have found that the very earliest symptoms of dementia might be due to abnormal stability in brain cell connections rather than the death of brain tissue, which comes after. [More info](#)

## Funding successes: Part 4

Dr [Thelma Lovick](#) was awarded follow-on funding from the **Impress Network**, based at the University of Leeds, to extend a Proof of Concept study entitled *Pelvic nerve Stimulation to control Urinary Incontinence*. £10,000 awarded for six months.

Thelma was also awarded an **RCUK Newton Fund/ FAPESP Visiting Researcher Grant** in collaboration with Dr JA Anselmo-Franci, University of Sao Paulo-Ribeirao Preto, Brazil for the project *Translational Studies to tackle Premenstrual Dysphoric States in Women*. £12,500 was awarded for four months.

**Parkinson's UK** has awarded £224,941 to Dr [Oscar Cordero Llana](#) and Dr [Liang Fong-Wong](#). The three year project is entitled *GDNF-7: a novel multi-hit therapy for Parkinson's Disease*. They believe that micro-RNA 7 - a molecule capable of targeting the alpha-synuclein protein burden in the brain - can help GDNF to restore the dopaminergic cell loss seen in Parkinson's. They are initially going to test this multi-hit approach in our transgenic mouse model. If successful, Bristol is one of best places in the world to move this quickly into clinical

trials.

Prof [Richard Apps](#) (PI) and Co-applicant Dr [Nadia Cerminara](#) with industrial partner Takeda, have been awarded a **BBSRC IPA grant** entitled *Back to front: importance of cerebro-cerebellar interactions in goal-directed Behaviour*.

**David Telling Charitable Trust** award to Dr [Angus Nightingale](#), £46,612 for *Investigating the role of carotid body activation in young onset hypertension*. This grant is to look at a novel mechanism that might be causing hypertension in young people. It arises out of the basic science group who published in *Nature Medicine* and *JACC:Basic to Translational Science* in 2016 showing how a small gland next to the carotid artery (called the carotid body) can become overactive in people with high blood pressure. The carotid body acts a bit like a "thermostat", regulating blood pressure in response to changes in oxygen and CO<sub>2</sub>. In some people this "thermostat" is turned up too high. It is unknown whether this is the cause of their high blood pressure or a consequence of it. This 12 month grant from the David Telling Trust will fund Dr Tom Hinton to find out whether the carotid body is overactive in young people with high blood

pressure. The group hope this will establish whether it is part of the cause for high BP. If so, the group will go on to test novel drugs that we have developed targeting the carotid body P2X3 receptors and dopamine.



From top: Oscar Cordero Llana, Thelma Lovick, Angus Nightingale

## Speakezee celebrates Brain Awareness Week

Thousands of students from across the country learned more about the human brain in a series of events led by Prof [Bruce Hood](#) (pictured); the talks marked [Brain Awareness Week](#) which runs every March. Bruce, founder of engagement platform [Speakezee](#), co-ordinated a series of talks to mark the week and to shed common 'neuromyths' – including the idea that children have different learning styles.

To launch the series ProfHood hosted a keystone Speakezee event, *What can neuroscience tell us about our brains, at every stage of our lives?* at the Royal Institution.

[Speakezee](#) is a searchable database of academic expert speakers; a not-for-profit community interest company supported by the University of Bristol and other sponsors. It

aims to help speakers engage with their audience and to make it easier for organisers to find relevant experts to talk at their event, whatever the size.



## Brain stimulation as treatment of high blood pressure

The novel use of a deep brain stimulation technique in an attempt to reduce high blood pressure (HBP) was successful. The discovery raises hopes for patients with drug-resistant hypertension. The case was led by North Bristol NHS Trust neurosurgeon Mr Nik Patel working alongside researchers at UoB and University Hospitals Bristol NHS Foundation Trust.

Amely Hoffmann's blood pressure was extremely high and all other drugs and devices had been tried in an attempt to reduce it without success. She had suffered high blood pressure for ten years, which

was causing exhaustion and migraines, and was taking eight different antihypertensive drugs, which were also causing side effects including sudden hearing loss. After a chance discovery online Mrs Hoffmann got in touch with Mr Patel to see if he could help her.

In 2011 the consultant neurosurgeon had published details of a previous case where deep brain stimulation (DBS) had been used for neuropathic pain but the procedure had also resolved his HBP. DBS is an established neurological procedure typically used in patients with Parkinson's and those with intractable pain. By targeting the periaqueduc-

tal grey (PAG) region of the brain to control severe pain Mr Patel had discovered the impact it could have on blood pressure. Mrs Hoffmann became the first known person in the world to have elective DBS for a cardiovascular disease in May 2012 at Frenchay Hospital as part of a research trial. Following the DBS procedure Mrs Hoffmann's blood pressure dropped 100 – 150 mmHg and she was able to stop taking seven of the eight drugs she had previously needed. Two and-a-half years after the DBS the effect has been sustained and Mrs Hoffmann's blood pressure ranges between 180 – 220/130 mmHg and her quality of life has improved. [More info...](#)



## External engagements: Part 4

Prof [Julian Hughes](#) attended a two-day conference on ageing at the University of Tübingen followed by a meeting, on 18 March 2017, organised by the **World Health Organization** at which he spoke on *Dementia and ethical issues*. The meeting was the first meeting by the WHO aimed at developing an ethical framework in relation to ageing and health. The framework is intended to

complement the World Report on Ageing and Health produced by the WHO in 2015, to which he contributed a background paper on ethics.

[Katy Sutcliffe](#), a SWBio DTP PhD student, was awarded a **British Pharmacological Society** (BPS) Oral Communication Prize. Katy received the award at the Pharmacology 2016 conference in London, December 2016. Her talk, entitled *Molecular dynamics sim-*

*ulations of the m-opioid receptor reveal distinct binding poses of structurally similar ligands*, addressed the molecular actions of clinically important drugs such as buprenorphine, which are key in the management of pain and drug abuse. Katy's PhD is supervised by Dr Richard Sessions (School of Biochemistry), and Profs Graeme Henderson and Eamonn Kelly (PPN).

## Biomimetic forebrain for 3D-printed robot hands

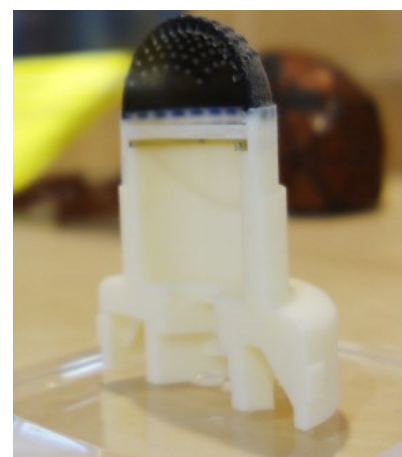
A team of researchers is to develop a biomimetic forebrain for controlling 3D-printed robot hands with a sense of touch. They aim to create a biomimetic forebrain based on computer modelling of a mammal's neural system that communicates touch in humans and animals, and use this to perform general manipulation tasks in robots.

The £1 million research project, funded by the [Leverhulme Trust](#) under the [Research Leadership Award](#) scheme, will be led by Dr [Nathan Lepora](#). The five-year research program on *A biomimetic forebrain for robot touch* will apply lead-

ing neuroscience, psychology and philosophy of the brain to develop a biomimetic forebrain embodied on a 3D-printed robot hand, aiming for human-like tactile dexterity.

The development of effective robot hands with a sense of touch is crucial for future technology; without human-like tactile dexterity, robots will not be able to solve the interactive tasks predicted for advanced manufacturing, such as autonomous assembly lines, assisted living (including personal robot helpers), food production (for example picking and sorting robots) and healthcare (such as nursing and surgical robots). Robots

currently cannot do these tasks because no one knows how to combine what the hands feel and how they control their action. Yet clearly, this problem has been solved in the human brain and hand.



*The 3D-printed tactile robot hand on display in London's Science Museum*

# ELIZABETH BLACKWELL FUNDING

## [EBI Workshops Funding](#)

Support for interdisciplinary workshops in health research at a new or emerging interface between two or more disciplines. Applications are reviewed on a **rolling** basis.

## [EBI Catalyst Fund](#)

Pump priming awards can support the most promising and ambitious ideas across the widest interdisciplinary boundaries. These projects will be identified largely through the running of [workshops](#) to explore new possibilities and identify the big questions. Applications are reviewed on a **rolling** basis.

## [Returning Carers Scheme](#)

UoB has introduced a Returning Carers' Scheme (RCS) 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 - such as maternity leave, adoption leave, additional paternity leave or leave to care for a dependent. **Deadlines: 30 April and 31 October each year.**

## [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 neuroscience research is [available online](#). Subscribing to a calendar will place the entries in your own calendar, which will automatically update according to pre-specified search 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 Bristol Neuroscience community. **Full listings of opportunities** are sent out via Faculty Research Directors and/or School Research Directors, and **are available on the [Research Development website](#)**. Note that some calls may be subject to a major bids process; all details are on the website.

## **Guarantors of Brain**

[Trainee neurologists in basic neuroscience PhD programs prize](#)

Closing date: none

Award amount: £10,000

Supports young clinicians who wish to combine clinical training with basic research. The prize is worth £10,000 per year over three years, or four in the case of a four-year PhD programme.

## **National Institute of Mental Health**

[Molecular and cellular substrates of complex brain disorders \(R21\)](#)

Closing date: 16-Jun-17

Award amount: US\$275,000

Encourages new research activities directed toward the discovery of the impact of alterations associated with complex brain disorders on the fundamental cellular and molecular substrates of neuronal function.

## **NIHR**

Funding supports research about the clinical and cost effectiveness and broader impact of healthcare treatments and tests for those who plan, provide or receive care in the NHS. There are no fixed limits on the duration of projects or funding.

Closing date: 03-Aug-17

- [17/20 - Improving continence in children and young people with neurodisability](#)
- [17/24 - Topiramate for posttraumatic stress disorder](#)
- [17/25 - Cognitive behavioural therapy-based treatment for adults with intellectual disability](#)

ity and harmful sexual behaviours

- 17/31 - A refined prognostic tool to better identify individuals at high risk of developing psychosis
- From genomic association to causation – a convergent neuroscience approach for integrating levels of analysis to delineate brain function in neuropsychiatry (R01)

### **Alzheimer's Research UK**

#### PhD Scholarship

Closing date: 04-Oct-17

Award amount: £91,000

Supports a full PhD programme that addresses Alzheimer's disease and related dementias. The scholarship includes a stipend of £16,000 per year, coverage of tuition fees and up to £10,000 for research and travel costs.

### **National Institute of Mental Health**

From genomic association to causation – a convergent neuroscience approach for integrating levels of analysis to delineate brain function in neuropsychiatry (R01)

Closing date: 05-Oct-17

Award amount: US\$2,500,000

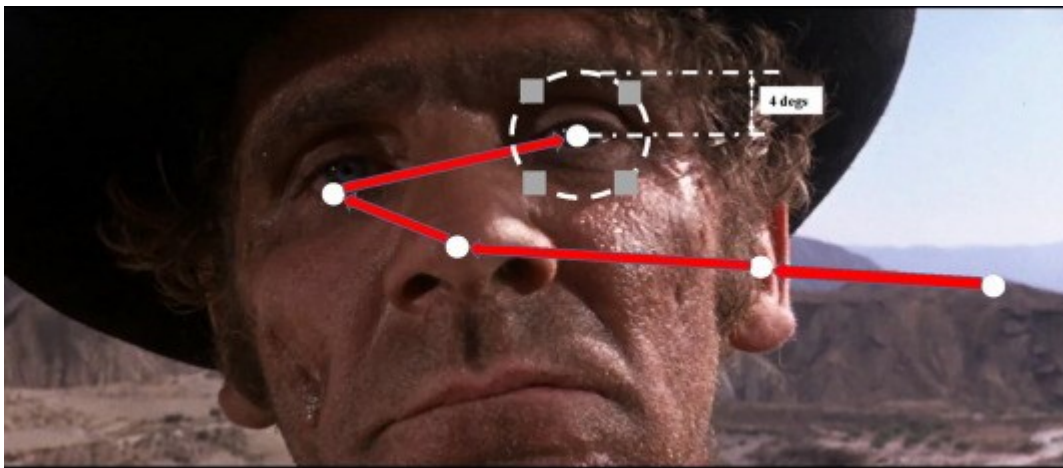
Supports innovative convergent neuroscience approaches to establish causal or probabilistic linkages across contiguous levels of analysis in an explanatory model of psychopathology. Application budgets may not exceed USD 500,000 per year. The maximum project period is five years.

## SHOWCASED ARTICLE

### In search of oculomotor capture during film viewing: Implications for the balance of top-down and bottom-up control in the saccadic system

Hinde SJ, Smith TJ and Gilchrist ID. *Vision Research*. 134, pp7-17

**Abstract:** In the laboratory, the abrupt onset of a visual distractor can generate an involuntary orienting response: this robust oculomotor capture effect has been reported in a large number of studies (e.g. Ludwig & Gilchrist, 2002; Theeuwes, Kramer, Hahn, & Irwin, 1998) suggesting it may be a ubiquitous part of more natural visual behaviour. However the visual stimuli used in these experiments have tended to be static and had none of the complexity, and dynamism of more natural visual environments. In addition, the primary task in the laboratory (typically visual search) can be tedious for the participants with participant's losing interest and becoming stimulus driven and more easily distracted. Both of these factors may have led to an overestimation of the extent to which oculomotor capture occurs and the importance of this phenomena in everyday visual behaviour. To address this issue, in the current series of studies we presented abrupt and highly salient visual distractors away from fixation while participants watched a film. No evidence of oculomotor capture was found. However, the distractor does effect fixation duration: we find an increase in fixation duration analogous to the remote distractor effect (Walker, Deubel, Schneider, & Findlay, 1997). These results suggest that during dynamic scene perception, the oculomotor system may be under far more top-down control than traditional laboratory based-tasks have previously suggested.



*Scanpath showing fixations as white dots and saccades as red lines.  
Possible distractors locations are shown as grey squares to scale relative to gaze locations.*

# CONTACTS



## Bristol Neuroscience is run by a Steering Group:

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- [Richard Apps](#), Professor of Neuroscience
- [Zaf Bashir](#), Professor of Cellular Neuroscience
- [Yoav Ben-Shlomo](#), Professor of Clinical Epidemiology
- [Catherine Brown](#), Theme Administrator
- [Kei Cho](#), Chair of Neuroscience (Royal Society Wolfson Research Merit Award Holder)
- [Rachel Churchill](#), Reader in Psychiatric Epidemiology
- [Liz Coulthard](#), Consultant Senior Lecturer
- [Jonathan Evans](#), Consultant Senior Lecturer
- [Iain Gilchrist](#), Professor of Neuropsychology
- [Matt Jones](#), Physiology & Pharmacology
- [Kevin Kemp](#), Research Collaborator; Research Associate
- [Stafford Lightman](#), Professor of Medicine
- [Astrid Linthorst](#), Professor of Neuroscience
- [Mike Mendl](#), Professor of Animal Behaviour and Welfare
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<http://www.bristol.ac.uk/neuroscience>

