University of BRISTOL
Elizabeth Blackwell Institute for Health Research

bristol neuroscience

Bristol Neuroscience Newsletter

2022: Issue 4

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Inside this issue:

Brian Art Competition

Schools and community groups across Bristol and the surrounding area are invited to take part in the University of Bristol's brain art competition and have their work displayed in public.

The 2023 schools and community brain art competition, part of the 2023 Bristol Neuroscience Festival, which coincides with the 20th anniversary of Bristol Neuroscience, is being run by Bristol Neuroscience in partnership with the Royal West of England Academy (RWA).

The festival, which will run from 2 to 4 March 2023, will be a celebration of neuroscience research and the organisers are looking for artwork that is brain related. Judges will be hoping to see work inspired by *Connections!*, the topic of next year's British Science Week. Entries will be judged on originality and creativity. All prize winning and commended pieces of work will be displayed at the RWA from 6 March to 10 April 2023, where members of the public will be able to view the work for free during normal RWA opening hours.

The culmination of the festival will be a public talk by David Nutt, Edmond J. Safra Professor of Neuropsychopharmacology at Imperial College, and Emma Robinson, Professor of Psychopharmacology at Bristol. They will discuss current research on psychedelics and their role in treating mental health disorders.

For more details about the competition and how to enter, visit 2023 schools and community brain art competition. Deadline for entries is 13 February 2023. The Bristol Neuroscience Festival hosts primary and secondary school activities as well as public activities; for further information and tickets, see the website.

Image: Avishae Jackson's entry from the 2018 Brain Art competition and one of the primary category winners © Avishae Jackson

EVENTS

Three-year Wellcome Trust funded GW4 Clinical Academic Training (CAT) PhD Programme for Health Professionals information webinar
1 December 2022, 14.00 - 15.00, online

BBSRC webinar: Strategic Delivery Plan
2 December 2022, 10.00 - 11.30, online

Mental health, archiving, the arts, and the pandemic
2 December 2022, 12.30 - 14.00, online

A ternary neural code resolves error and sharpening signals
2 December 2022, 15.00 - 16.00, Richard Naud (Associate Professor, Brain and Mind Research Institute, University of Ottawa), online

Advocacy event: Psychedelic-assisted therapies in the treatment of brain disorders
6 December 2022, 13.00 - 14.00, online

Introduction to research integrity
7 December 2022, 10.00 - 12.00, online

GW4 Diversity in Postgraduate Research - thinking beyond admissions
7 December 2022, 10.30 - 15.00

Breaking down the ivory tower
7 December 2022, 11.00 - 12.00, Prof Onur Güntürkün (Ruhr-Universität Bochum), online

School of Psychological Science seminar
7 December 2022, 13.00 - 14.00, Alan Kingstone (Professor and Distinguished University Scholar, University of British Columbia), 2D3, Priory Road Complex

Using Video Games to Reverse Engineer Human Intelligence
8 December 2022, 14.00 - 15.00, Samuel Gershman (Department of Psychology, Harvard University, USA), online

Ethical Dilemmas in Technology
8 December 2022, 18.00 - 20.30, Framework Coworking, 35 King Street, Bristol

Mental health, archiving, the arts, and the pandemic - Roundtable 2
9 December 2022, 12.30 - 14.00, online

EBI Global Public Health celebration event
9 December 2022, 14.30 - 18.30, Engineers House, Clifton Down, Bristol BS8 3NB

Have your mental health a merry little Christmas
12 December 2022, 10.00 - 18.00, John McIntyre Conference Centre, Edinburgh

FULL EVENTS LISTINGS ARE AVILABLE ON THE BN WEBSITE

NEWS

Bristol Neuroscience Grey Walter Prize winner for 2022

BN recognises the contribution of Early Career Researchers to the field of neuroscience by running a competition named in honour of William Grey Walter who conducted basic and applied neurophysiological research at the Burden Neurological Institute in Bristol. This biennial prize offers a £100 cash award to an existing or recently graduated PhD student who is first or joint author of a journal paper based on a research project which they conceptualised and developed independently, and which has had discernible impact.

For this round, we are delighted to announce that Dr Michael Ambler (pictured), Clinical Lecturer in the School of Physiology, Pharmacology and Neuroscience, was successful. Mike completed his GW4 Wellcome PhD fellowship under Tony Pickering, graduating in 2021. Alongside his academic duties, Mike is a doctor working in intensive care medicine; this experience allowed him to realise that life-supporting interventions, designed to increase delivery of oxygen and nutrients to vital organs, frequently cause significant harm. He wanted to develop an approach that redresses imbalanced supply and demand of oxygen and nutrients by reducing demand, which might allow patients to better tolerate reduced cardiorespiratory function without the need for invasive organ support. Essentially, he wanted to mimic torpor in critically ill patients, but in order to do this, needed to understand the mechanisms by which torpor is naturally induced.

Having started alone as a PhD student studying torpor, and based on the work presented in this paper, Mike was awarded two grant applications: one, funded by the Biotechnology and Biological Sciences Research Council, will study neural mechanisms of torpor and the interaction between torpor and circadian rhythms; the second, funded by the Medical Research Council, will study the role of analogous circuits in non-hibernators such as the rat, and investigate the potential protective effects of synthetic torpor states in rodent models of critical illness. These grants are worth ~£550,000 each and will employ two post-doctoral research associates full-time for three years.

Paper: Ambler M, Hitrec T, Wilson A, Cerri M & Pickering A (2022). Neurons in the dorsomedial hypothalamus promote, prolong, and deepen torpor in the mouse. *The Journal of Neuroscience*.

Abstract: Daily heterotherms, such as mice, use torpor to cope with environments in which the supply of metabolic fuel is not sufficient for the maintenance of normothermia. Daily torpor involves reductions in body temperature, as well as active suppression of heart rate and metabolism. How the CNS controls this profound deviation from normal homeostasis is not known, but a projection from the preoptic area to the dorsomedial hypothalamus has recently been implicated. We demonstrate that the dorsomedial hypothalamus contains neurons that are active during torpor. Activity in these neurons promotes torpor entry and maintenance, but their activation alone does not appear to be sufficient for torpor entry.

More information on the Grey Walter Prize can be found on our website.

Bristol Science Film Festival 2022 health prize winners

The Bristol Science Film Festival runs an annual science film competition to support film-makers trying to tell the most interesting facts (or science fictions), no matter their resources.

For the second year in a row the Elizabeth Blackwell Institute offered prizes in the health category.

Winner — *What is Schizophrenia?* by Amelie Dean

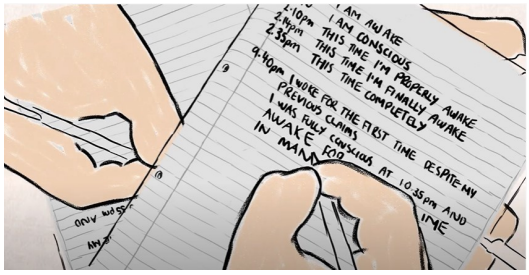
There are many stigmas which surround the mental health disorder schizophrenia. This film looks at the symptoms, causes, and treatments of schizophrenia and then, with this knowledge, seeks to unpack and disprove some of the stereotypes.

Watch it online: https://youtu.be/N3vb8nX8J2o

Runner up — *Only*

***Knowing* by Emily Fisher**
An animated short film which explores the relationship between types of memory through an interpretation of 'In the Moment: Music and Amnesia' by Oliver Sacks.

Watch the trailer: https://youtu.be/WXD2EYqMTyo



Reducing head trauma injuries in babies

The ICON programme has been introduced in many NHS and other settings across England since 2018, including GP surgeries, maternity units, and health visiting. The programme aims to cut the case numbers of abusive head trauma, sometimes referred to as 'shaken baby' syndrome. It offers coping strategies, advice and support for parents and carers of crying babies under a year old.

ICON is made up of four simple messages, given to families on up to five occasions in the baby's early life: I – Infant crying is normal; C – Comforting methods can help; O – It's ok to walk away; N – Never, ever shake a baby. It also has an active social media and public health campaign to

reach dads and male caregivers who may not be present during other medical touchpoints.

The new study, led by Dr Mark Lyttle at UWE Bristol, in collaboration with the University of Bristol and the National Institute for Health and Care Applied Research Collaboration West (NIHR ARC West) and sponsored by University Hospitals Bristol and Weston NHS Foundation Trust, will now evaluate the effectiveness of this programme. The study will investigate whether infant head trauma occurs less frequently since the ICON programme was rolled out by gathering the views of managers, health care providers, and parents and carers about the programme.

Read the full news item

Proteins in the brain and early cognitive decline

The study is the first to examine the effects on nerve activity of altering the balance of a key protein known as tau. Elevated amounts of the protein, which accumulates and forms tangles in the brain, is a hallmark of both dementia and Alzheimer's. Although tau is well documented as one of the main damaging processes behind these diseases, until now its role in early-cognitive decline has not been well understood.

In normal human brain cells there are equal amounts of the six subtypes of tau, comprising three grouped together as 4R-tau, and three as 3R-tau. It is believed that a shift in the ratio of 4R-tau subtypes will increase adverse effects resulting in early cognitive impairment. To test this, researchers examined the 4R-tau subtypes in more detail, and the acute effects of shifting the balance of the different subtypes on brain cell nerve activity. They found that two 4R-tau subtypes increased the number of L-type calcium channels in brain cells, while the third did not. This increase caused the brain cell's activity to be dampened by an enhanced inhibitory response (slow afterhyperpolarization/AHP). The slow AHP is produced by calcium ions entering the brain cell through a protein ion channel. They showed that the effect in the hippocampus resulted from more calcium entering the neurons through L-type calcium channels, which supports existing evidence that nerve death in dementia is caused by calcium overload.

Stan GF *et al*. (2022). Tau isoform-specific enhancement of L-type calcium current and augmentation of afterhyperpolarization in rat hippocampal neurons. *Scientific Reports*.

Funding successes: Part 1

Prof Jeffrey Bowers (Psychological Science) was awarded an **Engineering and Physical Sciences Research Council** New Horizons grant on Exploring the multiple loci of learning and computation in simple and artificial neural networks.

Dr Sarah Jelbert (Psychological Science) received a £23,000 grant from the University's **Biotechnology and Biological Sciences Research Council** Institutional Partnership Fund for her project *Cognition and conservation of endangered kea* (Nestor notabilis). This award will support a collaborative project between Sarah and a colleague at the University of Veterinary Medicine in Vienna.

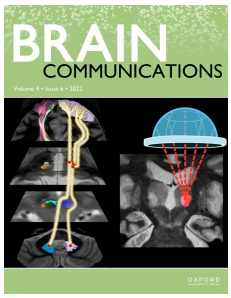
Dr Rui Ponte Costa, who leads the Neural and Machine Learning group in the Department of Computer Science, is one of six researchers at the University of Bristol who were awarded **European Research Council** (ERC) Grants totalling around 1.5 million Euros each. His group builds biologically-constrained AI-driven models to transform our understanding of how the brain learns.

Rui said: "This grant will unlock a new generation of brain computational models inspired by artificial intelligence that will transform our understanding of how we learn."

Dr James Hodge and Prof Matt Jones (Physiology, Pharmacology and Neuroscience) are co-Principal Investigators on a 3-year **Medical Research Council** Network Grant awarded to PI Prof Daniel Smith (University of Edinburgh) for the *Mental Health and Circadian Science Network*, starting in 2023. The grant is worth £780,757.

Poor sleep and Alzheimer's risk

New research has shown an association between sleep quality – less than seven hours - and Alzheimer's disease-related pathology in people without cognitive impairment. The study was conducted by an international team led by the Pasqual Maragall Foundation research centre, the Barcelonaβeta Brain Research Centre (BBRC), together with researchers from the University of Bristol and North Bristol NHS Trust.



Sleep abnormalities are common in Alzheimer's disease, and sleep quality can be affected early in the preclinical stage of the disease, even when no other symptoms are experienced. Understanding how and when sleep deprivation contributes to Alzheimer's disease progression is important for the design and implementation of future therapies.

The results of the analysis, part of the European Prevention of Alzheimer's Dementia Longitudinal Cohort Study (EPAD LCS), indicate that poor sleep quality is related to an increase in pathology of Alzheimer's disease. This finding is relevant to help define future therapies, so that they can be targeted at the appropriate phase of the disease.

Blackman J *et al*. (2022). Cross-sectional and longitudinal association of sleep and Alzheimer biomarkers in cognitively unimpaired adults. *Brain Communications*.

Gambling needs more holistic management

Gambling treatment and support services need to dovetail better with debt advice, to ensure recovery pathways for people affected by gambling harm are more likely to succeed, according to a new report.

The report, by the University of Bristol in partnership with StepChange Debt Charity, supported by the Gambling Commission, finds gambling is only rarely reported as a driver of problem debt, with around 2% of StepChange clients disclosing gambling associated with their debt.

However, gambling debt can be deeply harmful when it does occur and can badly affect not just the individual, but also others close to them. This is especially true if continued use of credit to fund gambling leads to other bills going unpaid, potentially putting homes and wider household finances at significant risk. The research finds that those affected by someone else's gambling often go unseen, and there is more to do to ensure these clients are effectively supported.

The new report suggests it is incumbent on gambling firms, credit providers and the advice sector to recognise the specific problems those with extensive gambling debt can face, and the challenges and opportunities to address when seeking to resolve them.

Read the report

U.S. Republican politicians spread untrustworthy news

A study analysing millions of Tweets has revealed that Republican members of the US Congress are increasingly circulating news from dubious sources, compared to their European counterparts.

The research, led by the Graz University of Technology (TU Graz) in Austria and the University of Bristol in the UK, showed Republican Congress members are sharing more links to websites classified as 'untrustworthy.'

It is widely acknowledged that what politicians share on social media helps shape public perceptions and views. The findings are especially pertinent, with the US midterm elections coming up in November and much of the campaigning taking place on social media platforms.

Specifically, the percentage of links to untrustworthy websites posted by Republicans more than doubled between 2016 to 2018 and 2020 to 2022, from 2.4% to 5.5%. Overall, Republican members of Congress post about nine times as many such links as Democratic members of Congress, for whom only 0.4% of the links contained in tweets point to untrustworthy sites.

Lasser J *et al*. (2022). Social media sharing of low quality news sources by political elites. *PNAS Nexus.*

Funding successes: Part 2

Dr Sofia Oliveira (Chemistry) is among three successful candidates selected from across the UK and the US to receive £90,000 funding as a 2022 **Oracle for Research Fellow** and £120,000 Oracle universal Cloud credits, which give researchers the flexibility to use any Oracle Cloud Infrastructure and platform services. Her project aims to transform and accelerate the study of changes in proteins by using an innovative computational method, which allows the response of proteins to a structural perturbation to be mapped in a new way for the first time. This approach will shed further light on two important biomedical targets: the cystic fibrosis transmembrane conductance regulator channel, which is a protein responsible for chloride and bicarbonate equilibrium in cells and its malfunction causes the inherited condition; and nicotinic acetylcholine receptors which are channels expressed in the nervous system involved in many functions, including cognition and addiction.

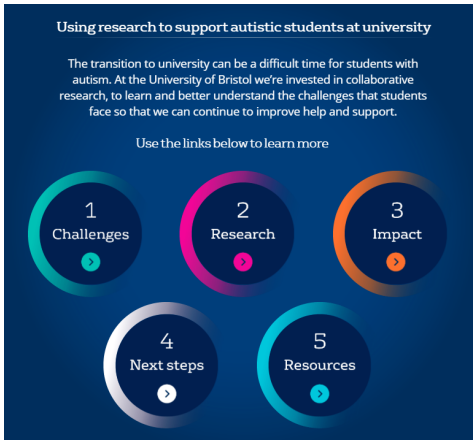
Profs Zafar Bashir& Clea Warburton, and Dr Paul Banks (all Physiology, Pharmacology and Neuroscience [PPN]) were awarded £840k from the **Biotechnology and Biological Sciences Research Council** for *What role do different interneurons in medial prefrontal cortex play in associative recognition memory?*

Dr Naomi Warne (Bristol Medical School) was awarded a 3-year Fellowship funded by the **Prudence Trust** entitled *Preventing anxiety and depression in schools: Co-production of a novel arts-based programme*. She started the fellowship on 1 November 2022.

Dr James Hodge (PPN) received £304,751 from **Jazz Pharmaceuticals** / GW Pharmaceuticals to pursue *The UK Natural history of epilepsy and standards of care in Tuberous Sclerosis Complex,* 2023-28, with support from Dr Sam Amin, Consultant Paediatric Neurologist at University Hospitals Bristol and Weston NHS Foundation Trust.

How research is supporting autistic students

The transition to university can be a difficult time for autistic students. At the University of Bristol, we're invested in collaborative research, to learn and better understand the challenges that students face so that we can continue to improve help and support. A new interactive infographic on autism research explains how understanding the issues experienced by autistic students is shaping our research.



This digital hub of information sets out what we already know, and what we are working towards, and includes links to research papers for detailed findings, and signposts to support resources.

The infographic was developed by the Elizabeth Blackwell Institute at the University of Bristol, and researchers from the University's School of Education, with input from autistic students; accessibility experts; and equality, diversity and inclusion leads.

Read the full story

View the infographic

£750k to expand ARC West mental health research

The National Institute for Health and Care Research (NIHR) Applied Research Collaboration (ARC) West has received £750k from NIHR to expand their mental health research capability and bring in new researchers, as part of a programme to boost mental health research in under-served areas.

The funding will be used to recruit new team members, allowing us to extend existing work and contribute to new mental health projects. It will also allow them to strengthen and consolidate capacity in key areas of their mental health research. These include applied data science, adoption of our findings and public involvement.

The NIHR programme aims to build capacity and capability to conduct and translate high quality mental health research. It is an opportunity to address a range of mental health conditions in geographical areas that have been historically under-served by research activity or where there is a high unmet mental health burden.

The projects which will directly benefit from the new researchers include:

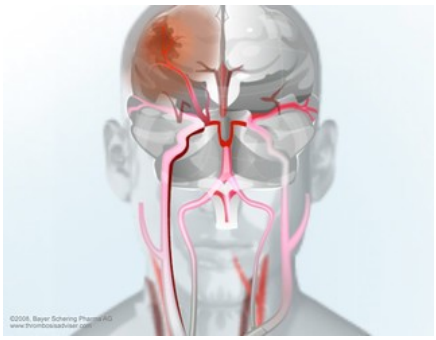
- Trauma-focused cognitive behavioural therapies for children in care
- NHS CHECK: Understanding the mental health and well-being of all NHS staff during the pandemic
- Evaluating the MeeToo app to support young people's mental health and developing provision for suicidal users
- Mental health of people with opioid addiction
- Developing Health Ambassadors based on the successful Black and Green Ambassador scheme
- Mental health of newly arrived asylum seekers in Bristol – the first project identified by the Health Ambassadors
- A PhD project on student mental health

Read the full news item

Improving the death rate of stroke patients

Administering a bridging blood thinning drug before removing a clot is still recommended for most patients with large-vessel occlusion pending results of randomised controlled trials. However, in patients with basilar artery occlusion who undergo mechanical thrombectomy, it is not clear whether or not prior treatment with a bridging blood thinning drug is beneficial. The team wanted to compare the clinical outcomes of mechanical thrombectomy, with and without bridging intravenous thrombolysis, in acute basilar artery occlusion through a systematic review and meta-analysis of the current literature.

The study found that in patients with acute ischemic stroke due to basilar artery occlusion, compared with direct



mechanical thrombectomy, bridging intravenous thrombolysis is associated with lower mortality rates at 90 days without an increased risk of bleeding. Bridging intravenous thrombolysis is also associated with better functional outcomes particularly in patients with large atherosclerosis, which is the build-up of fatty material inside arteries. It's a potentially serious condition that causes most heart attacks and strokes but often goes unnoticed.

Lee KS *et al*. (2022). Bridging thrombolysis improves survival rates at 90 days compared with direct mechanical thrombectomy alone in acute ischemic stroke due to basilar artery occlusion: a systematic review and meta-analysis of 1,096 patients. *Journal of NeuroInterventional Surgery*.

Finding solutions for a healthier future

Climate change is one of the biggest health threats facing humanity. It is already affecting our health, and these impacts are likely to increase. A series of short films developed by the University of Bristol's Elizabeth Blackwell Institute for Health Research and Cabot Institute for the Environment explain how the health of our planet is linked to human health, and how research at Bristol will help us to understand these complex and interwoven issues.

The Climate Change and Health research programme is a new collaboration between the two institutes looking into the intersection between climate change and health. The programme brings together experts from different disciplines to understand and address the health impacts of a changing climate. The films set out some of these complex challenges and explain why it's urgent we act now; how University of Bristol researchers are working together to understand and address the issues; and what we can achieve by investing in this area of research.

Climate change will impact health in multiple ways, including mental health; changes in disease patterns; impacts on water, food and nutrition; health consequences of extreme weather events; implications for health; and inequalities of strategies to reduce greenhouse gas emissions and to support wider adaptation. **Watch the films**

Prizes for outstanding doctoral dissertations

Each year the University of Bristol picks six outstanding theses – one from each faculty – from hundreds of fascinating submissions by doctoral researchers in the last year. This year's winners each receive £500 and a special certificate.

Amongst the winners were:

Engineering - Dr Alice Haynes

In Touch; Affective haptics for embodied communication and connection

We rarely consider the importance of touch until we are starved of it. But, as the pandemic showed, touch is an important part of our health, relationships and communication. Dr Alice Haynes' research focussed on designing and making devices that promote connection and well-being through touch. Her favourite project (funded by the University's Brigstow Institute; with assistance from textiles designer Annie Lywood) was a cushion that expands and contracts to simulate breathing, leading to a calming effect similar to mediation.

Life Sciences - Dr James Daly

Molecular Insights into the Role of Endosomal Recycling in Health and Disease

Recycling isn't just important on a societal level, but also on a cellular level. While we recycle plastics and glass, our bodies are recycling important biomolecules such as proteins and lipids, reducing demand for raw materials and limiting the build-up of toxins.

Dr James Daly's PhD focussed on endosomes, which act as waste management and recycling stations inside cells. He suggested a model for how a protein complex that regulates this sorting process protects against neurodegenerative diseases such as Alzheimer's and Parkinson's.

Dr Daly has now been awarded a Welcome Early Career Award to further explore the role of Neuropilin receptors in viral infection in Professor Michael Malim's lab at King's College London.

Read more about the winners

Eco-labels on menu options assist choices

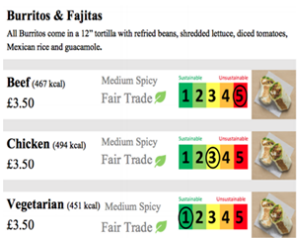
The researchers wanted to discover if increasing an awareness of the impacts of different dishes would influence consumers to choose a more sustainable option, supporting the social ideal.

They found that providing a traffic light rating of eco-friendliness next to dishes on the menu significantly increased the likelihood of diners choosing more sustainable options.

Findings showed five per cent more of the 1,399 adult participants went veggie when the eco-labels were included, while 17 per cent more went for vegetarian or chicken, the second most sustainable option. Furthermore, participants were positive about the eco-label, with a huge 90% of participants supporting the idea.

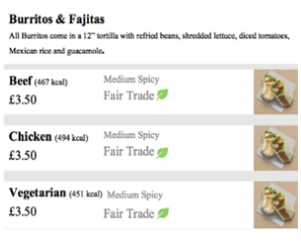
De-loyde K *et al*. (2022). Promoting sustainable diets using eco-labelling and social nudges: a randomised online experiment. *Behavioural Public Policy*.

Menu for eco-label condition



Menu for social nudge condition

Menu for control condition



Why you need to grow up to be happier

In this TEDx talk, delivered by Bruce Hood (Professor of Developmental Psychology in Society, School of Psychological Science), the speaker demonstrated how we need to change from self-centred, egocentric children into allocentric adults who are focused not just on ourselves, but on others as well. Developing into an individual who is independent but also interconnected with others. We should all make this transformation because the allocentric adult is not only healthier, but happier.

Prof Hood is an experimental psychologist and philosopher at specialising in developmental cognitive neuroscience. Bruce is a visiting professor at MIT and Harvard University and has contributed to substantial research on cognitive development in childhood.

He curated and delivers a course called The Science of Happiness which is offered at a number of institutions, including Bristol, in association with Yale University; the course forms the basis for the BBC podcast *The Happiness Half-Hour* co-presented by Bruce.

Read more about TEDx

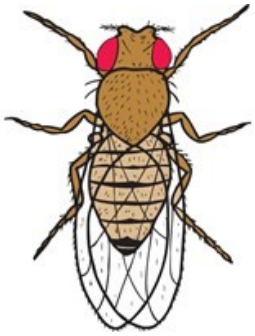
Watch Bruce's talk

Funding successes: Part 3

A **Natural Environment Research Council** grant was awarded to Prof Andy Radford (Biological Sciences) and Dr Andy Higginson (Psychology, University of Exeter) for the project *Mongoose markets: the provision and value of public goods*. The project will combine theoretical modelling, field experiments in South Africa and analysis of long-term behavioural and life-history data, employing two Postdoctoral Research Assistants and being based around the Dwarf Mongoose Research Project.

Prof Matt Jones (Physiology, Pharmacology and Neuroscience) was successful with his application to **Wellcome** for Improving Cognitive and Functional Outcomes in People Experiencing, or at Risk of Psychosis.

Dr James Hodge (Physiology, Pharmacology and Neuroscience) received £1,100 from **The Genetics Society** Special Interest Group which will allow him to run South West Fly meetings during the 2023-24 academic year. You can read more about the group on the School's webpages, as well as reports on the meetings on the funder's website.



James is also co-Principal Investigator (PI) on an **Alzheimer's Research UK** grant for *Enhancing sleep to delay the progression of tauopathy*, with co-PI Prof Matt Jones and PI Dr Michele Bellesi (University of Camerino). The grant is for £49,995.

Honors and Recognition

Dr James Hodge (Physiology, Pharmacology and Neuroscience) has been made Ambassador of The Genetics Society and representative of the Society for the University of Bristol.

Eighteen University of Bristol academics have been named on Clarivate's Highly Cited Researchers 2022 list. The annual list recognises influential researchers worldwide, who have published multiple papers frequently cited by their peers during the last decade.

The full list of names has been taken from papers ranked in the top 1% of most cited works for their field and publication year in the Web of Science citation index.

Among the academics on this year's list are:

- Dr Jon Heron, Associate Professor in Medical Statistics, Bristol Medical School
- Professor Eamonn Kelly, Professor of Molecular Pharmacology, School of Physiology, Pharmacology and Neuroscience
- Professor Stephan Lewandowsky, Chair in Cognitive Psychology, School of Psychological Science
- Professor Neil Marrion, Professor of Neuroscience, School of Physiology, Pharmacology and Neuroscience
- Professor Marcus Munafo, Professor of Biological Psychology, School of Psychological Science

Clarivate™

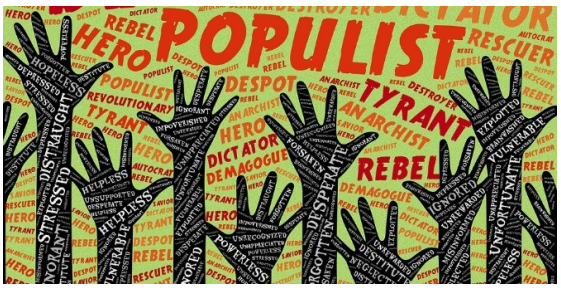
Read the full article

Digital media can fuel polarisation and populism

The question whether the rise in usage of digital media is contributing to the erosion of democracy is a source of popular debate, with tech companies arguing findings are inconclusive.

But now a team of international researchers has carried out a comprehensive review of hundreds of studies globally, the biggest of its kind, exploring this claim and found that while social media is not exclusively bad, it can certainly stoke starkly conflicting views, populism, and political mistrust especially in established democracies.

The researchers, from the Max Planck Institute for Human Development and the Hertie School in Germany, and the University of Bristol in the UK, systematically assessed studies investigating whether and how digital media impacts people's political behaviour. Studies show that although some effects may be beneficial for democracy, for instance digital media can increase political knowledge and diversity of news exposure, they also have detrimental effects, such as fostering polarisation and populism.



Furthermore, the way consequences such as increased political mobilisation and decreasing trust in institutions play out depends largely on the political context. Such developments were found to be beneficial in emerging democracies but can have destabilising effects in established democracies.

Lorenz-Spreen P *et al*. (2022). Digital media and democracy: A systematic review of causal and correlational evidence worldwide. *Nature Human Behaviour*.

Inequities in access to bereavement support in the UK

New research has shown there continues to be inequities in access to bereavement support in the UK. In particular, even though minoritised ethnic communities were disproportionately affected by the COVID-19 pandemic, overall, proportions of ethnically minoritised clients did not increase, according to bereavement services.

The study aimed to determine service providers' perspectives on access to their support before and during the COVID-19 pandemic. The study found 67.3% of voluntary and community sector bereavement services in the UK reported that there were population groups with unmet support needs which experienced barriers to accessing their service before the pandemic, with minoritised ethnic groups most frequently reported to need support but not access it. Despite the disproportionate and multi-dimensional impact of the pandemic on minoritised ethnic communities, for the majority of bereavement services in the UK, the proportion of clients from minority communities did not increase and in some cases decreased during the pandemic.

Seman LE *et al*. (2022). Sadly I think we are sort of still quite white, middle-class really" – Inequities in access to bereavement support: Findings from a mixed methods study. *Palliative Medicine*.

Bereavement is everyone's business: a report published by the UK Commission on Bereavement shows around 750,000 excess bereavements occurred during the pandemic in the UK, with 40% of those affected unable to access support.

Object recognition memory

Object recognition, the ability to discriminate between a novel and a familiar stimulus, is critically dependent upon the perirhinal cortex. Neural response reductions upon repetition of a stimulus have been hypothesised to be the mechanism within perirhinal cortex that supports recognition memory function. Investigations into the mechanisms of long-term depression (LTD) in perirhinal cortex has provided insight into the mechanism of object recognition memory formation, but the contribution of long-term potentiation (LTP) to object recognition memory formation has been less studied. Inhibition of atypical PKC activity by Zeta Inhibitory Pseudosubstrate (ZIP) impairs the maintenance of LTP but not LTD; infusion of ZIP into the perirhinal cortex allowed us to investigate the contribution of LTP-like mechanisms to object recognition memory maintenance. Infusion of ZIP into the perirhinal cortex of rats 24h after the sample phase impaired performance in an object recognition but not an object location task; in contrast infusion of ZIP into the hippocampus impaired performance in an object location but not an object recognition task. The impairment in object recognition by ZIP was prevented by administration of the peptide GluA23y, which blocks the endocytosis of GluA2 containing AMPA receptors. Finally, performance in a perceptual oddity task, which requires perirhinal cortex function, was not disrupted by ZIP. Together these results demonstrate the importance of LTP-like mechanisms to the maintenance of object recognition memory in the perirhinal cortex.

Outram AR *et al*. (2022). A critical role for long-term potentiation mechanisms… *Frontiers in Behavioural Neuroscience*.

FUNDING OPPORTUNITIES

Research Professional provides access to an extensive database of funding opportunities, and can send out tailored alerts based on specific keywords input by the user. UoB staff and students have **FREE** online access to the database from any device.

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

- **Set up automated funding opportunity email alerts** - **tailored according to your discipline and research interests**
- **Save searches and bookmarks**
- **Sign up for higher education news bulletins**

Find out more about the platform on the RED website. Note that some calls may have an internal process; check the major bids webpage to see if such a process is in place.

The following listings represent 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**.

Federation of European Neuroscience Societies
Brain conference stipends – establishment and maintenance of brain cell states

Closing date: 12 January 2023 Award amount: €1,000

This supports international students or early-career scientists to attend the brain conference on the establishment and maintenance of brain cell states, to be held from 23 to 26 April 2023. Applicants must submit an abstract. FENS members benefit from preferential rates.

Association of British Neurologists
Australasian fellowship

Closing date: 13 January 2023 Award amount: unspecified

These supports 12-month clinical placements in Australia and are expected to complement the clinical training in the UK. Neurology trainees who hold a UK training post may apply. The posts will give the incumbent 12 months' accreditation towards their CCT in neurology.

National Institute for Health and Care Research
Health and social care delivery research programme – researcher-led workstream: 22/134

Closing date: 17 January 2023 Award amount: unspecified

This supports research that produces rigorous and relevant evidence to improve the quality, accessibility and organisation of health and social care services. This includes evaluations of how

the NHS and social care might improve delivery of services. The aim is to fund research that will lead to improvements in health and care services that will be of greatest benefit to the NHS and to patients, and/or to Social Care and clients. The workstream is open to all relevant research areas but it also has a continued interest in the following fields: dementia; prevention and treatment of obesity; mental health; chronic pain.

French Muscular Dystrophy Association
Medical research call for proposals in neuromuscular disorders

Closing date: 17 January 2023 Award amount: unspecified

This supports medical research projects that aim is to improve the care and management of patients, the knowledge or neuromuscular disorders and their progression, as well as the quality of life of patients affected by neuromuscular disorders. Projects may focus on the following research topics: patients' management; paramedical care; e-health and information technologies; neonatal screening projects; assessment of new evaluation criteria; natural history of disease; epidemiological studies. Research teams worldwide may apply. Grants are available for one year with the possibility of renewal for two more years.

Medical Research Council
Research grants – neurosciences and mental health

Closing date: 25 January 2023 Award amount: unspecified

These support research projects focused on neurosciences and mental health. The aim is to transform the understanding of physiology and behaviour of the human nervous system throughout the life course in health, illness, as well as how to treat and prevent disorders of the brain. The scope includes the following areas: neurodegeneration; clinical neurology and neuroinflammation; mental health; addictions and substance misuse; behavioural and learning disorders including autism; cognitive and behavioural neuroscience and cognitive systems; sensory neuroscience including vision and hearing; neurobiology and neurophysiology; underpinning support, such as neuroimaging; technology, brain banking and neuroinformatics.

Alzheimer's Research UK
Major project grants

Closing date: 25 January 2023 Award amount: unspecified

These support research projects on Alzheimer's disease and related dementias. Clinical trials and drug discovery and development are not covered.

National Institute of Mental Health, US
Novel mechanism research on neuropsychiatric symptoms in Alzheimer's dementia (R01 clinical trial optional)

Closing date: 205 February 2023 Award amount: unspecified

This supports studies that will enhance knowledge of mechanisms associated with NPS in persons with Alzheimer's disease or Alzheimer's disease-related dementias.

SHOWCASED ARTICLE

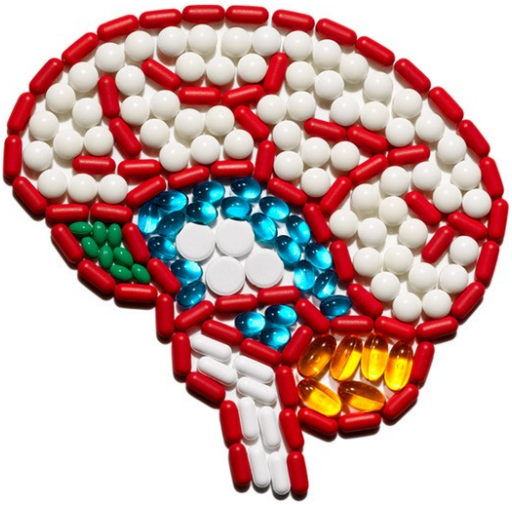
Antidepressant use and risk of adverse outcomes: a population-based cohort study

Bansal N, Hudda M, Payne RA, Smith DJ, Kessler DS & Wiles NJ (2022). *British Journal of Psychiatry.*

Antidepressants are one of the most widely prescribed drugs in England. In 2018, over 70-million antidepressant prescriptions were dispensed. The striking rise in prescribing (nearly doubling in a decade) is due mainly to long-term treatment rather than increased diagnosis. However, little is known about the health consequences of long-term use of these medicines.

Researchers from Bristol's Centre for Academic Mental Health aimed to find out if long-term antidepressant use (over five and ten years) was associated with the onset of six health problems: diabetes, high blood pressure, coronary heart disease, stroke and related syndromes, and two mortality outcomes (death from cardiovascular disease and from any cause).

The researchers found that, once pre-existing risk factors had been taken into account, long-term antidepressant use was associated with an increased risk of coronary heart disease, and an increased risk of death from cardiovascular disease and from any cause. The risks were greater for non-SSRI antidepressants (mirtazapine, venlafaxine, duloxetine, trazodone), with the use of such drugs associated with a two-fold increased risk of coronary heart disease, cardiovascular mortality, and all-cause mortality at ten years.



Aims: This study aimed to investigate the association between antidepressant use and adverse events.

Method: The study cohort consisted of UK Biobank participants whose data was linked to primary care records. We assessed the association between antidepressant use by drug class (selective serotonin reuptake inhibitors (SSRIs) and 'other') and four morbidity (diabetes, hypertension, coronary heart disease (CHD), cerebrovascular disease (CV)) and two mortality (cardiovascular disease (CVD) and all-cause) outcomes, using Cox's proportional hazards model at 5- and 10-year follow-up.

Results: SSRI treatment was associated with decreased risk of diabetes at 5 years and 10 years, and hypertension at 10 years. At 10-year follow-up, SSRI treatment was associated with increased risks of CV, CVD mortality and all-cause mortality, and 'other' class treatment was associated with increased risk of CHD, CVD and all-cause mortality.

Conclusions: Our findings indicate an association between long-term antidepressant usage and elevated risks of CHD, CVD mortality and all-cause mortality. Further research is needed to assess whether the observed associations are causal, and elucidate the underlying mechanisms.

CONTACTS

Bristol Neuroscience

Director: recruitment in progress

Memory Hub Lead: Emma Cahill, Lecturer
Area of research - Physiological basis of memory and adaptive behaviour

Movement Hub Lead: Paul Chadderton, Associate Professor in Neurophysiology
Area of research - to reveal the cellular and circuit mechanisms involved in motor control and learning in the cerebellum

Neural Computation Hub Lead: Conor Houghton, Associate Professor in Computer Science
Area of research - understanding information processing and coding in the brain

Sleep Hub Lead: Matt Jones, Professorial Research Fellow in Neuroscience
Area of research - neuronal networks in cognition and disease

Mental Health Hub Lead: in progress

Network Facilitator: Joseph Butler, *Research Development Manager (interim), Faculty of Life Sciences*

Network Administrator: Catherine Brown (Elizabeth Blackwell Institute)

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