

RESEARCH MATTERS

Celebrating research success and opportunities at the University of Wolverhampton

ISSUE 2

Groundbreaking peptide research inspires international interest

Pioneering research into sperm motility, led by two University of Wolverhampton scientists, has made headlines around the world.

Professor John Howl and Dr Sarah Jones, part of the University's Molecular Pharmacology Research Group, are at the forefront of cell penetrating peptide research, which could be used for a new form of male contraception or enhanced fertility treatments in the future.

Attracting media attention across the globe, their discovery has shown that cell penetrating peptides, which are compounds of amino acids linked in a chain, can be used to change the motility of sperm to speed them up or stop them swimming.

From UK broadsheets, tabloids, science publications and national radio stations to Fox News and media outlets in Germany, India, Australia and China, there has been widespread interest in their findings.

The research work could involve treating sperm with a cell penetrating peptide to improve motility thus aiding fertility, or to reduce the motility of sperm, which could be developed into a new form of birth control.

Professor Howl and Dr Jones are currently working closely with the University of Aveiro in Portugal on a €194,000 three-year project to look at the ways cell penetrating peptides can control the function of sperm.

Dr Jones said: "We are basically designing peptides that can alter the physiology of sperm. Ironically, sperm are notoriously difficult to penetrate, but with cell penetrating peptides we are now able to cross an otherwise impermeable barrier to manipulate the intracellular biology of sperm so as to enhance or inhibit motility.

"We hope to develop something that will be clinically useful and can be taken forward in the future."

Professor Howl, Professor of Molecular Pharmacology, said: "Dr Jones and I have proven, through extensive research studies, that it is feasible to design cell penetrating peptides to be biologically active.

"Such molecules, synthesized in our laboratory, represent a new class of agent that we have named bioportides. This state-of-the-art technology enables the control of processes that happen inside cells and which often represent intractable targets for conventional drugs."

Attempts to develop a male pill so far have been unsuccessful, owing to alterations in male hormone levels which can be irreversible. Cell penetrating peptides have the potential to change sperm motility, without affecting male hormonal control systems. The cell penetrating peptides can easily be made



Professor John Howl



Dr Sarah Jones

to incorporate a fluorescent dye which can be used to determine the distribution and precise intracellular location of these peptides within living sperm when visualised with a confocal microscope.

The pioneering work is currently subject to patent application and will hopefully attract additional support from the pharmaceutical industries to convert promising lead compounds into agents with clinical utility.



Professor John Darling

EDITOR'S WELCOME

This is the second issue of Research Matters, our new publication which celebrates the University of Wolverhampton's research successes and opportunities – thank you to everyone so far who has given us feedback and comments on the publication and we hope you continue to find it a good and useful read.

From Professor John Howl and Dr Sarah Jones's pioneering cell penetrating peptide research to extensive grants

from the Arts & Humanities Research Council (AHRC), we enter this issue celebrating high profile research at the University which has been hitting the headlines around the globe.

As a University, we continue to successfully bid for – and are awarded – research grants. We are confident as an institution and are very much 'business as usual' in the face of Brexit. The game may be changing, but we're in a good position and our Project Support Office is seeking new potential funding bodies and streams.

We're clearer now on Lord Stern's review of the Research Excellence Framework (REF) and have submitted our response as an institution to the Stern consultation. As we continue to make progress towards REF 2021, we'll keep you updated with all of the latest developments.

We hope you enjoy this issue.

Professor John Darling
Editor and Dean of Research,
University of Wolverhampton

The aim is to help those struggling with memory and perceptions of identity to manage their condition, develop perceptions of self-empowerment, and build confidence.

The Project Co-ordinator, Professor Kristina Niedderer from the Faculty of Arts, is working with partners in 12 organisations across Europe and one in Australia.

Data collection research into people with dementia and their carers in three countries (the Netherlands, Germany and Spain) is nearly completed, and results will be presented to the Alzheimer Europe working group for discussion in May. It reveals the delights and struggles of those with the condition and their carers, emphasising the need for social support, empathy and openness towards others.

A symposium on 'Designing for Dementia', where the MinD project presented their work, was organised by the Australian Partner QUT in March 2017.

Professor Niedderer said: "The first year was given over to the development of the mindful project framework. Already the interviews we have undertaken are offering important preliminary insight into understanding the needs, perceptions and aims of people with dementia,



Professor Keith Gildart

Research success

Congratulations to Professor Keith Gildart, Faculty of Social Sciences, who has been awarded a prestigious AHRC grant of £655,737 for a project entitled 'On Behalf of the People: Work, Community and Class in the British Coal Industry 1947-1994 (COAL)'. Professor Gildart will be working with partners from Coventry University and mining museums in the UK for the project, which has total funding of £806,534.

Also receiving an award from AHRC, for £79,430, is Professor Fiona Hackney from Faculty of Arts, for the 'Maker-centric: building place-based, co-making communities' project, working in collaboration with Terra Vera Ltd, Slovenia; Craftspace, Birmingham; Creative Black Country; Fab Lab West Bromwich, and Soho House Museum. The total award is £98,190.

The Faculty of Social Sciences' Dr Spencer Jones – with the University of Birmingham as the lead organisation – has received £18,657 from the AHRC for the 'Voices of War and Peace Core Centre Continuation' project.

highlighting the importance of trust, humour and positive language in dealing with subjective wellbeing and social engagement in dementia."

Existing research focuses primarily on functional support and safe-keeping from the perspective of the carer. References to care and social interaction show that occupation of people with dementia is often associated with doing 'something', with no focus on meaningfulness.

In its second year, the MinD project will explore how to address some of these shortcomings with the help of design. MinD participants have already started to devise an approach for the design development phase in the second year of the four-year project.



Professor Kristina Niedderer

MIND PROJECT: A SUCCESSFUL YEAR ONE

The MinD project is completing its first year of research into designing for people with dementia.

MinD is investigating the use and development of innovative wearable designs and mindful solutions for living spaces, enabling people with dementia to cope better with everyday social situations.

NEW WORKSHOPS: HOW TO WIN MORE RESEARCH FUNDING

Are you excited about your research and looking to develop your research bidding strategy and skills?

The University's Project Support Office (PSO) is running a new programme of research funding workshops that will help you find out what it takes to be a successful research grant winner.

The workshops, delivered by PSO in conjunction with Grantcraft WRG Europe Ltd, will be delivered until July 2017. They include sessions on:

- understanding the research funding environment
- planning and preparing research grant applications
- the significance of research impact
- research data management plans
- how to target different funders including UK Research Councils, major research charities, Horizon 2020 and international funders.

This opportunity is in response to changes as a result of Brexit and UK developments with Research Councils and Innovate UK.

The programme is suitable for academic and researcher applicants at all career stages. Please note some sessions are specifically tailored for support staff in Faculties and Directorates and this is indicated in the description of the workshops.

More details of the workshops can be found on the PSO webpages at: wlv.ac.uk/research



Professor John Traxler

Research success

Professor of Digital Learning John Traxler, from the Faculty of Education, Health and Wellbeing, has been awarded £49,850 from the Newton Fund – administered by the British Council – for a research project into the spread of arbovirus diseases in Brazil, using mobile learning to help improve communication and health surveillance information. The total value of the award is £98,252 and Professor Traxler is working with scholars of the State University of Paraiba and Federal University of Pernambuco.



Forest governance in the Congo Basin

£5 MILLION FUNDING FOR RAINFOREST PROJECT

A new project has secured £5 million towards protecting the endangered environment of the Congo rainforest and transforming the lives of its people.

The University's Centre for International Development and Training (CIDT) will receive 6.25m Euros from the European Union to support forest governance in five Congo Basin countries: Cameroon, the Central African Republic, Republic of Congo, Gabon and Democratic Republic of Congo.

The project will benefit 75 million poor men, women and young people living in the Congo Basin, which is home to the second largest tropical rain-forested area in the world.

Over the next four years, the aim is to empower communities to monitor activities on the ground, work in partnership with local organisations, and to ensure private sector companies are working within their contracts and operating within EU timber regulations governing deforestation and legal exports.

Dr Aurelian Mbzibain, Programme Manager for the Citizen Voices for Change project, said: "CIDT has significant experience of forest governance projects and improving sustainability in some of the poorest areas of the world by working alongside indigenous peoples and local organisations."

For more information about CIDT, visit: wlv.ac.uk/cidt



Arts & Humanities
Research Council

Five members of University staff have been appointed as members of the AHRC's prestigious Peer Review College (PRC).

Congratulations to Dr Meena Dhandu and Professor Ross Prior from the

Faculty of Arts, Professor Stephen Badsey and Professor Peter Walton from the Faculty of Social Sciences, and Dr Robin Gutteridge from the Faculty of Education, Health and Wellbeing.

A total of 659 new members have been appointed to the PRC, with the successful nominees covering 46 different subject classifications within the AHRC's disciplinary remit.

Find out more about our research at: wlv.ac.uk/research

INTERNATIONAL CONFERENCE TO MARK WWI MILESTONE

The University of Wolverhampton is to host an international conference next year, marking a major milestone in the history of the First World War.

Contributions are being sought for *The End of the War & Reshaping of a Century*, which will be hosted by the University's Centre for Historical Research in September 2018, marking the centenary anniversary of the end of the conflict.

The conference will include keynote addresses and panel sessions from



World War One trench

leading academic authorities, spotlighting the latest research on the events of 1918 as well as the global significances, consequences, and legacy of this watershed year.

Dr Oliver Wilkinson is the event coordinator of an organising committee which also includes Professor Stephen Badsey and Professor Gary Sheffield, who will lead as the senior First World War experts, as well as Professor John Buckley, Dr Simon Constantine, Dr Spencer Jones and Professor Laura Ugolini.

Collaborations for the event include the Western Front Association and the National First World War Network for Early Career and Postgraduate Researchers.

The event will be inclusive, open to anyone to attend and Dr Wilkinson is inviting expressions of interest from scholars, independent researchers, organisations, groups and individuals interested in participating (as either contributor or attendee). For any further enquiries, please contact: o.wilkinson@wlv.ac.uk.

Keep updated with all the latest event news at: wlv.ac.uk/1918to2018 or follow @1918to2018 on Twitter.



Professor Nazira Karodia

Athena SWAN: International Women's Week

The Athena SWAN Charter was originally established to encourage commitment to redress the under-representation of women in careers in science, technology, engineering, maths and medicine (STEMM) research and academia.

The University is committed to removing the barriers that are precluding both men and women from fulfilling their potential.

As part of this work, a series of Athena SWAN events were recently held at the University to celebrate International Women's Week 2017, including the inaugural University of Wolverhampton's Women Professors Lecture by Dean of Faculty of Science and Engineering Professor Nazira Karodia.

Other events included a talk by Dr Benjamin Halligan, Director of the Doctoral College, on 'Third Wave Feminism and Activism'; an interactive debate on 'Being a woman/man and a migrant in Higher Education: Double exclusions?' as part of the Athena SWAN Intersectionality Group session; and special guest speaker Dr Ruth Pearce's lecture on 'Trans Feminism'.

FIGHTING FIT: RESULTS OF HEART DISEASE STUDY

Researchers from the University have found the single most important factor in maintaining a healthy heart is being fit – irrespective of 'fat' scores such as your body mass index (BMI).

The study of over 4,500 individuals, published in the *Scandinavian Journal of Medicine and Science in Sports*, aimed to find out whether a new fat ratio is the best way of determining someone's risk of heart disease.

Researchers were concerned that commonly used indices of fat, like BMI and waist-to-hip ratio (WHR), didn't account for a person's body size and therefore were not the best indicators of how likely someone was to develop heart disease, referenced in the study as cardiometabolic risk (CMR).

Lead researcher Professor Alan Nevill, from the Institute of Sport, explained: "To test heart healthiness, we asked participants to undergo a number of tests to assess

their CMR. We then analysed CMR against various fat ratios and two new tests; a body shape index (ABSI) and waist-to-height square rooted (WHT.5R).

"In all tests, the fitter participants' CMR score was significantly lower, confirming that being fit and active can compensate for the adverse effects measured in all fat ratios. By dividing a person's waist ratio by the square root of their height, we are able to give a reading that works for everyone, independent of how tall or short they are."

The health of the heart was measured by testing blood samples for glucose and cholesterol as well as heart rate and blood pressure before and after exercise.

To check the latest recommendations, please visit: wlv.ac.uk/healthyheart

Find out more about our research at: wlv.ac.uk/research