



**An open outlook: across  
publishing, education  
and engagement**

# Editorial

**Felicity N.E. Gavins**  
Editor-in-Chief, Pharmacology Matters



**It has certainly been a very busy year, and I personally cannot believe that we are close to the festive holidays already... Where has this year gone?**

That being said, the busy year has not deterred us all on the *Pharmacology Matters* editorial board as we have another packed edition for you all. In this current issue Kathryn Wilson and Graeme Henderson write a very succinct article to make sense of the new regulations for submission of scientific papers to the next UK Research Excellence Framework exercise (REF2020) in 2020.

Michael Collis, Dave Lewis and Anna Zecharia then discuss what is next for *in vivo* education and training in the UK. They discuss the outcome of the Integrative Pharmacology Fund (IPF) Review which was launched in 2004 as a way to address the acute shortage of UK researchers with *in vivo* skills (indeed I was a part of the Imperial College consortium which received this funding, which was headed by Professor Julia Buckingham) and where we are today.

The next article by Lisa Lione focuses on novel psychotic substances (NPSs) or "legal highs" and the Psychoactive Substance Act 2016, what it means and what the future holds. Following on from Lisa's article, Mark Downs gives a delightful overview of public engagement work that the Royal Society of Biology is undertaking.

Next, Hefin Rhys gives an insight into the William Harvey Research Institute (WHRI) – an institute close to my heart, as I did my PhD with Professors Roderick Flower and Mauro Perretti) meeting that took place in June.

The Society's Young Pharmacologists Advisory Group provided funding for four young scientists to attend the Italian Society of Pharmacology (SIF) meeting in September of this year. One of those funding recipients, Olga Dorofejeva, reports on her experiences and findings from this meeting. Following this article, Vedia Can reports the exciting development that both Early Career and Postgraduate Members of the Society now have the right to vote within the Society, and what this new development means for the Society.

Finally, we have our regular meetings overview from Barbara McDermott, Talja Dempster and Susanne Schweda, and also upcoming meetings and events. We also hear from Dr Jon Robbins about his hobby – motorcycles!

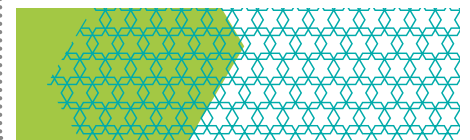
Overall, a very packed and exciting edition of *Pharmacology Matters*! Please enjoy.

I wish you all a very festive holiday and a really wonderful 2017.

Best wishes,  
Felicity

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# Your BPS



Jono Brūin  
Chief Executive

It's hard to believe that when this is published, we will be approximately a month away from *Pharmacology 2016*. The team at the Schild Plot is focused on delivering another lively and successful meeting, with many new activities planned. This year, we are very excited to be holding our Welcome Reception at the National Gallery, so we hope that you can join us for a glass of wine amongst one of the greatest collections of paintings in the world. There's still time to book for the meeting and social events if you haven't done so already (the meeting is free for members to attend!). Simply go to [www.bps.ac.uk/pharmacology2016](http://www.bps.ac.uk/pharmacology2016) to register. If you are planning to attend, I look forward to seeing you there.

2016 has been another productive year for the Society. A summary of our activities in 2016 will be presented as part of our Annual General Meeting (AGM) on Wednesday 14 December from 12:15–14:15 (at *Pharmacology*). I would encourage you to attend to find out more about how the Society is managed on your behalf. However, if you're unable to attend, slides and materials from the AGM will be available to our members through the 'My Society' section of the website at [www.bps.ac.uk/mysociety](http://www.bps.ac.uk/mysociety).

In the last edition, I talked about our *Focus on Pharmacology* project and said that I hoped to be able to update you further with the great work that we're doing to understand and support pharmacology teaching in the UK. For those who may have missed it, the *Focus on Pharmacology* is a mammoth research project that aims to help us understand the health and well-being of our discipline in the UK, with the intention of creating strategic goals, products and services to support and develop pharmacology, and our members, in the years to come. I'm now pleased to be able to share a number of outcomes from the project, some of which will be launched at *Pharmacology 2016*.

The first outcome of the Focus project is our new core undergraduate pharmacology curriculum, which will be launched on Wednesday 14 December during the *Pharmacology* meeting. The new curriculum sets out the core knowledge, skills and attitudes that pharmacology graduates must be able to apply upon successful completion of an undergraduate degree. It is the culmination of over a year's work using the Delphi process to gain the input through various workshops of an expert group formed of individuals working across the pharmacological spectrum. As part of the launch on 14 December, we will be holding an interactive workshop to showcase innovative approaches to pharmacology education that will support the new core curriculum from 09:00–11:00. We hope that you will be able to join us for this launch.

A major aspect of the Focus project has been a review of the Integrative Pharmacology Fund (IPF) and this work has also now been completed (see 'What's next for UK in *in vivo* education and training? Lessons from the Integrative Pharmacology Fund' on page 8 for more information). The resulting report evaluates the impact of the £22 million fund since its launch in 2004 and make recommendations for *in vivo* education, research and training going forward. The IPF report will be formally launched on 1 December at the Genesis Conference and should pave the way for the Society to engage in the important subject of *in vivo* skills and training in the years to come. Do keep an eye out on our website in early December for more information.

More outcomes of the Focus project, some of which we hope to be able to discuss with you at the meeting in December, include an audit of undergraduate pharmacology teaching in the UK, and an assessment of the impact of the discipline that will be

distilled from a huge range of Research Excellence Framework (REF) impact case studies. We expect to pull all of these important research strands together, along with the work already undertaken, to help inform the Society's strategy from 2018, so I expect you'll hear more from me on this in the future!

If you're interested in finding out more, please do join us in the hour following our AGM, when Dr Anna Zecharia, the Society's Head of Education, Training and Policy, who has led on Focus, will be discussing the project and its outcomes in more detail.

In other news, there have been a few team changes at the Society in recent months to let you know about. Since last writing to you, Lee Page has joined our team as Clinical Education, Training & Policy Manager. After 14 months at the Society, Talja Dempster, Head of Meetings & Events, left the Society in October to take up a new position at GSMA. Susanne Schweda, our former Meetings Manager, has taken over Talja's position on an interim basis and Charlotte Cordrey has joined the Society as Events Manager to support Susi's busy department. I'm sure you will join me in welcoming Lee and Charlotte to our team, and thanking Talja for all the positive contributions she's made during her time at the Society.

It's been another fantastic year at the British Pharmacological Society. Thank you to all our members for your support. On behalf of the team at the Schild Plot in London, I wish you a Merry Christmas!

# British Pharmacological Society journals, Open Access Publication, REF2020 and Research Funders' requirements

Kathryn Wilson, British Pharmacological Society Head of Publishing  
Graeme Henderson, British Pharmacological Society – Vice President Publications



This article is primarily directed towards UK-based readers. Making sense of the new regulations for submission of scientific publications to the next UK Research Excellence Framework exercise (REF2020) as well as the requirements imposed by research funders such as the Medical Research Council (MRC) and Biotechnology and Biological Sciences Research Council (BBSRC) (referred to collectively as Research Councils UK) and medical charities is not easy. We would therefore like to take this opportunity to explore some of the key aspects surrounding compliance to these policies, how they relate to British Pharmacological Society journals, and provide links to some resources that may be useful to our members when considering submitting research outputs to REF2020.

## British Pharmacological Society Journals

Currently the British Pharmacological Society publishes three scientific journals – *British Journal of Pharmacology* (BJP), *British Journal of Clinical Pharmacology* (BJCP) and (jointly with the American Society for Pharmacology & Experimental Therapeutics and Wiley) *Pharmacological Research and Perspectives* (PR&P). BJP and BJCP are wholly owned by the Society and utilize a 'hybrid' publication model offering both 'subscription' access to content (predominately institutional subscription) as well as 'green' and 'gold' open access.



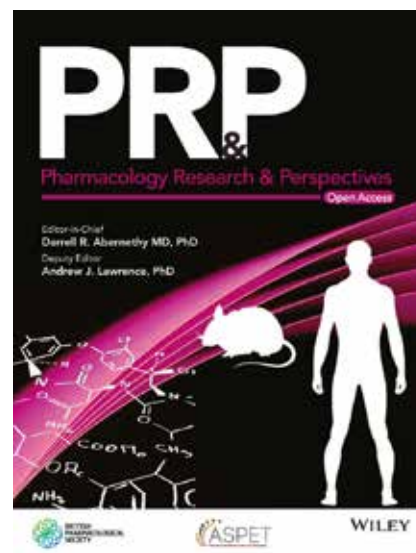
Subscription access is where the content is only available to those who are in an institution which holds a subscription or who hold their own personal subscription to that journal. PR&P is an entirely 'gold' open access journal. Definitions of 'gold' and 'green' open access are provided in Box 1.

Some subscription journals charge manuscript handling fees as well as requiring authors to pay page charges for accepted manuscript publication (these charges are different from the Article Processing Charges payable to make articles open access). BJP and BJCP **do not** levy handling or page charges. For both BJP and BJCP, manuscript submission is free to authors and so is publication - the costs of manuscript handling, scientific review, press editing, hyperlinking and typesetting of proofs are subsumed into the costs of producing the journals. Levying no charges on the authors makes BJP and BJCP popular with scientists in the UK and in other countries who do not have access to funds to pay for publication.

### Box 1. Open Access

**Gold open access** – following scientific review and acceptance of an article, then on payment of an article processing charge (APC) the article will be freely available online under a CC BY licence (see Box 4 for definition of licences) immediately upon publication.

**Green open access** – following scientific review and acceptance, the article will be published in a journal, and a version (generally the version accepted for publication) can be deposited in an institutional repository to become freely available online after an embargo period (this is usually 6 or 12 months depending upon the policy of the journal or the publisher, but is generally also stipulated in the copyright licence you sign). Many UK institutions use PURE as their institutional repository.



## REF2020

British Pharmacological Society members working in academic institutions in the UK will be all too aware of the Research Excellence Framework (REF) which comes around every five or so years. In the next REF the rules governing which publications can be submitted will be different from those that have applied in the past (see Box 2). It is often stated that in REF2020 only 'open access' publications will be eligible for submission and some researchers assume that this means that only 'gold' open access publications will be allowed. This is incorrect; the requirements are that the article must be freely available online twelve months after publication and that a copy of the accepted version of the manuscript must have been deposited in an institutional repository within 3 months of acceptance. However, access to this deposited article can be embargoed for up to 12 months depending on the requirements of the journal in which it is published (i.e. this is a form of 'green' open access). This means that all articles published in BJP, BJCP and PR&P qualify for submission to REF2020 as long as the authors deposit the accepted manuscript in their institutional repository. You can check whether a journal complies with the REF2020 regulations before you submit your

manuscript using the Sherpa RoMEO website available online at <http://www.sherpa.ac.uk/romeo>.

### Box 2. REF2020 scientific publication requirements

For journal articles published after 1 April 2016 only publications meeting the following requirements will be acceptable for submission

- Gold open access
- Green open access with accepted manuscript deposited in an institutional or subject repository no later than three months after journal acceptance and becoming open access no more than **twelve** months (for Medicine) after first publication.

This policy does not apply to monographs, book chapters or non-text outputs.

Articles published prior to 1 April 2016 do not need to comply with the REF open access requirements.

A further confusion arises because the REF2020 regulations for research publications are **not** the same as those that apply to researchers who are funded by RCUK or some medical charities. For RCUK and medical charity funded research free access to the article can only be embargoed for up to 6 months (see Box 3). This means that work funded by RCUK or medical charities must be published in BJP, BJCP and PR&P as 'gold' open access because BJP and BJCP have a 12-month embargo limit. However, both RCUK and the medical charities provide funds to UK research institutions to cover the costs of 'gold' open access publication of their funded research and it is a fairly simple process to access these funds through your institution.



### Box 3. Research Funders' requirements

#### RCUK funded research

- Gold open access (cost of APC available from block grant to universities and eligible research organisations).
- Green open access (no APC payable) with accepted manuscript deposited in repository and article becoming open access no more than **six** months after online publication.

#### Medical charities – Wellcome Trust, British Heart Foundation (BHF) and others

- Gold open access (cost of APC available from Charity Open Access Fund (COAF) allocation to UK research institutions).
- Green open access (no APC payable) with accepted article to be available through PubMed Central/Europe PubMed Central within six months of publication.

## Copyright

The copyright option an author selects dictates how researchers, funders, policy makers, and the general public can use and distribute their work. In many cases authors are asked to sign a copyright transfer agreement, or an exclusive licence agreement which transfers or licences the copyright of their article to a publisher or society. However, in most of these instances an author will still retain the right to re-use and share versions of an article, for example the right to self-archive work in an institutional repository.

Alternatively, authors can opt to publish their article as open access under a Creative Commons Licence. This allows an author to retain copyright to their own article, and also allows for compliance with a number of funder mandates. Because both BJP and BJCP are hybrid publications, both these licence options are available

within the journals, and as a 'gold' open access journal PR&P solely operates with creative commons licences. More information on copyright licences can be found in Box 4.

### Box 4. Copyright licences

#### Transfer of copyright/ Exclusive licence agreement

– an agreement whereby authors transfer or license copyright of their work often to a publisher or society (depending on the ownership of the journal).

#### Creative Commons

**Licences** – Under a CC BY licence the author retains copyright of their own work, and depending on the licence selected, a variety of levels of reuse are permitted. Under all CC BY licences the original work must be acknowledged.

The Creative Commons Attribution licence (often just referred to as CC BY) is the most permissive of all the creative commons licences, and allows others the ability to distribute, remix and build upon an author's work (including for commercial purposes) as long as they correctly acknowledge the original work.

The type of Creative Commons licence required varies between journals, publishers, and funders, ranging from CC BY (The Wellcome Trust, RCUK and BHF all mandate this licence for work they fund), to more restrictive licences such as CC BY-NC which specifies reuse of work can only be for non-commercial purposes, or even CC BY-NC-ND which allows sharing of an article only if the work remains unchanged, and also not used for commercial purposes.

## Making British Pharmacological Society journal content readily available in developing countries

Those who promote 'gold' open access publication often promulgate the idea that a major benefit of open access over subscription journal publishing is that 'gold' open access allows researchers in countries that cannot afford to pay for expensive journal subscriptions free, immediate access to leading scientific publications. However, most of the leading medical research publishers, British Pharmacological Society included, do in fact provide free or very low cost immediate online access to the content of their journals to local, not-for-profit institutions in low and middle income countries through the WHO HINARI Access to Research for Health Programme. Eligible countries are listed on the HINARI website (<http://www.who.int/hinari/en/>). Currently the full content of BJP and BJCP is available to researchers and teachers in 4,800 institutions in the developing world through this programme thus benefiting many thousands of health workers and researchers.

The combination of no manuscript handling charges, open access options, and a commitment to making content freely available for researchers in developing markets, means that readers can be assured that our journals are both fully funder compliant, and also accessible globally.

### About the authors

Graeme Henderson is currently British Pharmacological Society Vice President – Publications and a former President of the Society. He is a Professor of Pharmacology at the University of Bristol.

Kathryn Wilson is the Head of Publishing at the British Pharmacological Society. She has over eight years' experience working within academic publishing.

# What's next for UK *in vivo* education and training? Lessons from the Integrative Pharmacology Fund

Michael Collis, Dave Lewis & Anna Zecharia  
IPF evaluation project team members



*In vivo* knowledge and skills have always been essential in academic research labs that investigate basic physiology, ageing, diseases and their pharmacological treatments. Their importance has increased as researchers have sought to understand the functional significance of genomic information, particularly through the use of transgenic models. However, education and training in this area is a recognised challenge, and reports from the Association of the British Pharmaceutical Industry (ABPI), Biosciences Federation and others have stressed the acute shortage of UK researchers with these skills<sup>1</sup>. The Society took action in 2004, launching the £4m Integrative Pharmacology Fund (IPF) together with Pfizer, AstraZeneca and GlaxoSmithKline. It's now just over ten years on and an independent evaluation of the fund is near completion. The Society commissioned the evaluation with an aim to understand whether the IPF was successful, what worked and what didn't – and importantly, how to apply this learning to future initiatives. The full report will be launched on 1 December 2016, and will be available on the Society's website at this time.

## Why does *in vivo* science matter?

The Society is a signatory of The Concordat on Openness on Animal

Research<sup>2</sup> and supports the essential use of animals in research and the principles of the 3Rs (Replacement, Reduction, Refinement). The use of animals is currently an important link in the drug discovery and development chain. Numerous new drug targets have been revealed by the Human Genome Project and, together with high capacity screening of novel compounds in the pharmaceutical industry, have led to many new drug candidates with novel modes of action. Unfortunately, many of these have failed in the clinic and companies are attempting to reduce the risk of failure in their discovery programmes. This "de-risking" includes conducting preclinical animal studies to build confidence that a novel mechanistic approach is likely to be both efficacious and safe, identification of 'translational biomarkers' to facilitate 'go/no-go' decisions early in the clinical trial process, and studies to relate pharmacodynamics and pharmacokinetics for candidate drugs.

The reasons for the reported skills shortage were quantified by a British Pharmacological Society and Physiological Society survey in 2004<sup>3</sup> which showed that less than 2% of relevant students had any practical exposure to *in vivo* science. Furthermore, 25% of the staff who taught these skills were retiring in the next 5 years and were unlikely

to be replaced. *In vivo* training in the traditional model had become too expensive and time consuming for most universities to provide it. The IPF sought to address this in a holistic way, aiming to support *in vivo* pharmacological, physiological and toxicological education, training and research across the complete "academic pipeline" from undergraduate to established researcher or Lecturer. Over the twelve years of its existence, it has funded many initiatives including undergraduate education, Masters and PhD training, twenty new-blood lectureships; four Centres of Integrative Mammalian Biology (Centres of excellence for *in vivo* education, training and research) and pump priming research grants. Furthermore, the initial investment by the three pharmaceutical companies ended up leveraging a total of £22m through partnership funding from the research councils, HEFCE, SFC and the then Department of Trade and Industry.

## The IPF was successful – but we need to build on it

Over the last year, in partnership with the University of Exeter, the Society has evaluated the feedback from undergraduate *in vivo* courses, sent questionnaires to ~100 postgraduate recipients of IPF funding and followed

these up with over 24 hours of in-depth interviews. This was followed by a roundtable with representatives from the Centres of Integrative Mammalian Biology and a stakeholder workshop including representatives from academia, industry, research councils and animal welfare organisations. Throughout the evaluation process, the aim was to understand past interventions and to discuss the future of *in vivo* training and education. The headline conclusion was that the IPF successfully increased the ability for UK universities to deliver high quality *in vivo* education, training and research. However, there are significant concerns about its sustainability now that the funding had ceased. The Centres of Integrative Mammalian Biology were a particular success, with the development of strong local networks, the fostering of new research collaborations and the sharing of good practice. The evaluation team has reflected on these findings, and drawn up ten recommendations for future action from the evidence base and the principles that led to success.

### What's next?

It is unlikely that the level of funding provided by the IPF can be repeated. The report's recommendations will acknowledge this, and are clear on the need for the community to come together in order to support *in vivo* education, training and research in the UK with limited resources. A clear finding was the need for core learning objectives for undergraduate and postgraduate *in vivo* sciences modules. Such objectives should be developed in partnership with the community and guided by research into the outcomes of different *in vivo* education and training interventions. Financial support should be provided for these modules and e-learning resources developed to maximise their impact and reach. Research and training collaborations between academia, industry and the NHS should be encouraged and *in vivo* apprenticeships jointly established. Small "pump-priming" grants should be provided to help early career researchers who are using *in vivo* techniques. Laboratory animal technologists support many

research projects and their skills training and career progression should be high priority so that they can have greater involvement. There are opportunities for best practice in *in vivo* research to be communicated through networks and expert groups across the disciplines. Finally, public engagement and openness about animal research need to be promoted by all involved and supported by academic institutions.

### The role of the British Pharmacological Society

There is clearly much to do, and it cannot be done alone. The Society is proud to be a leader in the *in vivo* sciences, both in terms of practical support but also in its strategic thinking. The Society's Council has ratified the independent evaluation, supporting the recommendations and committing resource to exploring implementation with the wider sector. The work will be led by the Animal Welfare and *In Vivo* Pharmacology Sub-Committee, in collaboration with other committees, members and relevant organisations. The year ahead will see the Society embark on a number of specific initiatives, including a process to develop the core learning objectives, continuing to fund *in vivo* modules and expanding its activity to uphold the Concordat commitments. It will also be an opportunity to look forwards and develop a long-term strategy in partnership with the wider community.

For further information about the next steps for *in vivo* sciences at the Society or to register interest in the report launch, please contact Dr Dave Lewis (d.i.lewis@leeds.ac.uk).

### References

1. ABPI and Biosciences Federation (2007) *In vivo* sciences in the UK: sustaining the supply of the skills in the 21st century. See also: ABPI (2005) Sustaining the Skills Pipeline in the pharmaceutical and biopharmaceutical industries; and ABPI (2008) Skills Needs for Biomedical Research: Creating the Pools of Talent to Win the Innovation Race.
2. Understanding Animal Research. *Concordat on Openness on Animal Research* [Internet]. November 2016. Available from: <http://www.understandinganimalresearch.org.uk/policy/concordat-openness-animal-research/>
3. British Pharmacological Society (2004) A survey of integrative physiology/pharmacology teaching undertaken by the BPS and the Physiological Society, *pa2 Online* (BPS Newsletter) Vol. 3 No. 2: 10–11. Available online at: <http://www.pa2online.org/articles/article.jsp?volume=5&issue=2&article=31> Note that '*in vivo* education' here involved practical work conducted that required a personal licence.

### IPF Evaluation team

British Pharmacological Society  
Dr Dave Lewis  
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Dave Lewis is the Chair of the Animal Welfare and *In Vivo* Pharmacology Committee and a Senior Lecturer in Neuroscience and Scientific Ethics at the University of Leeds. He has a long standing interest and involvement in *in vivo* education and training, nationally and internationally.

#### Mike Collis

A former industrial pharmacologist and chief executive of the Physiological Society, Mike Collis has been involved in the organisation of the IPF from its inception and acted as co-ordinator for the IMB centres.

#### Anna Zecharia

A former research neuroscientist, Anna Zecharia is now Head of Education, Training and Policy at the British Pharmacological Society. As such, she leads the Focus on Pharmacology programme of which the IPF evaluation project is one strand.



# Banning psychoactive substances is not enough, we need education too

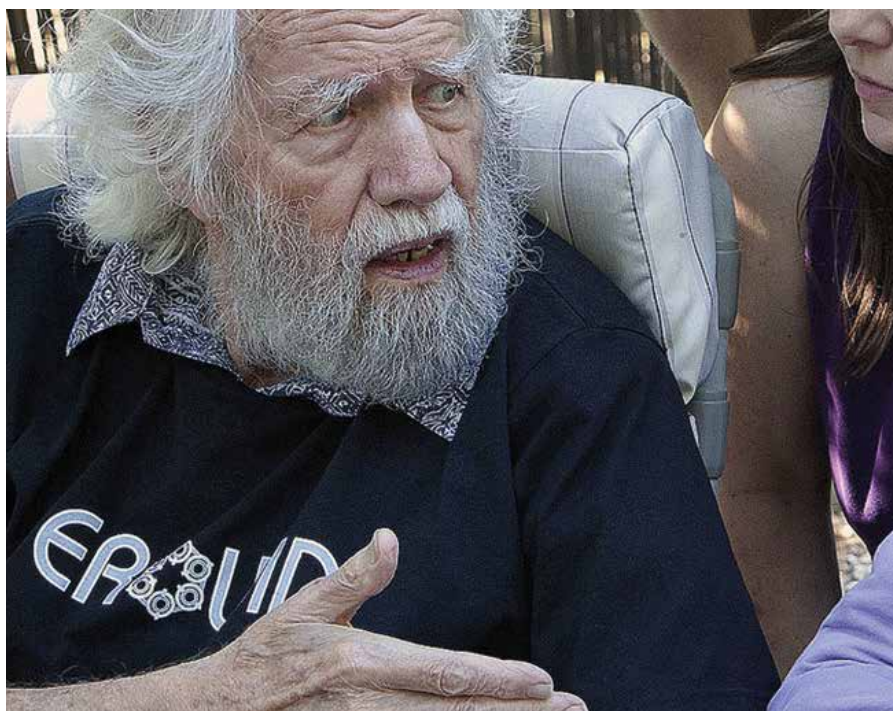


Lisa Lione, Senior Lecturer in the School of Life and Medical Sciences, University of Hertfordshire

## The Psychoactive Substances Act 2016

Novel Psychoactive Substances (NPSs), also referred to as 'legal highs', represent a bewildering array of unregulated psychoactive compounds, marketed globally as legal alternatives to well-known controlled drugs<sup>1</sup>. More than 40 years ago, the synthetic chemist Alexander Shulgin said that, in the future, underground researchers would synthesise novel psychoactive stimulants<sup>2</sup>. Shulgin's prophecy came true. Over the past ten years, the UK has witnessed the rapid emergence of NPSs, sold over the internet and in high street "head shops" facilitating availability. The content, interactions, side effects and abuse potential of these NPSs are often unknown, not only to users but also to healthcare professionals.

The UK is one of the biggest consumers of NPSs in Europe<sup>3</sup> with frequent reports of serious clinical and public health issues, particularly for vulnerable groups (prisoners, teenagers, homeless)<sup>4</sup>. 58% of NPSs were purchased online in the UK last year and NPS users are three times more likely to end up seeking emergency medical treatment than using traditional drugs<sup>3</sup>. The risk of potential harms, i.e. mental health issues, crime, debt and violence has prompted the UK Parliament to pass the Psychoactive Substances Act 2016<sup>5</sup>. This UK law says that if a person produces, distributes, supplies, imports or exports a substance capable of having a psychoactive effect – nicotine, alcohol, caffeine and medicinal products are excluded –



Jon R Hanna/Wikimedia Commons, CC BY-SA.

Alexander Shulgin predicted the rise of novel psychoactive substances.

they could receive a prison sentence of up to seven years. Possession is not an offence.

### Legality, drug demand & drug harm

Worryingly for me, the Government seemingly delayed this legislation because it had not established exactly how substances will be tested for 'psychoactivity'. This will be difficult given the wide range of the psychoactive substances that fall under this law. However, enforcement of this law will be vital to eradicate the open sale of NPSs on high streets, on UK websites and in our prisons.

However, the fact that Ireland has struggled to enforce its NPS law (use among young people has not only gone up since their law was introduced in 2010 but use is now the highest in the EU<sup>6</sup>) is cause for concern.

If the law is consistently enforced, the fear of imprisonment will no doubt deter open high street and internet sales of NPSs in the UK and make the likes of parents feel safer when their protégé socialise or surf the net. However, prohibition will not address supply of NPSs via the largely untraceable area of the internet, especially the dark net<sup>7</sup> nor will it address drug demand – the basic

human desire for seeking pleasure and altered states of consciousness. Worryingly, dark-net purchases are rising (4.5% to 6.7% in the past year<sup>3</sup>) and demands for NPSs made illegal under the UK Misuse of Drugs Act 1971, such as mephedrone, have not significantly changed in the last 3 years<sup>8</sup> indicating that simply making something illegal seems to have little impact on demand. There is also an early indication that future demand is unlikely to shift. A survey of 1,000 16–24 year olds found that nearly two thirds of respondents said that they are likely to continue to use NPSs, despite the ban<sup>9</sup>. NPS use is highest amongst 16–24 year olds who are more likely to enhance their experiences especially in social events (e.g. club nights) with key motivations being curiosity, boredom and peer pressure<sup>10</sup>.

Another consideration is that information from users via blogs or internet sales sites may not present an accurate picture to (potential) consumers. For example, methoxetamine (MXE), an arylcyclohexylamine derivate of ketamine, is a synthetic psychedelic drug with a recent history of use in the UK and globally (it is still uncontrolled in many countries). It was marketed as a legal, safer, ‘bladder friendly’ alternative to the more widely used dissociative anaesthetic ketamine, with no pharmacological evidence to support this claim<sup>11</sup>. Subsequent case reports of MXE users seeking emergency treatment and pharmacological studies indicate that MXE has a similar bladder toxicity to that of ketamine. Similarly, newer legal ketamine derivatives, diphenidine and methoxphenidine, are marketed as ‘bladder safer’ alternatives to ketamine. Removal of high street and internet sales of NPS in the UK will at least remove such false claims and misleading information, particularly to those not wise enough to question the evidence base of the information.

For centuries humans have used various psychoactive substances to achieve altered states of consciousness and seek pleasure,

the ancient Greeks, after all, took advantage of the opium poppy and cannabis leaf. Surely then the odds are stacked against this law influencing NPS demand unless there is also a clear communication of the consequences of consuming NPSs. Also, we must not lose sight of the fact that far more prevalent “lawful” psychoactive substances taken in the UK, alcohol and tobacco (exempt of this ban) are more harmful than many illegal drugs, such as cannabis and ecstasy<sup>12</sup>. A national prohibition of alcohol (1920–33) in the US led to an increase in alcohol consumption, crime, imprisonment and a switch to other dangerous illegal substances such as opium, marijuana, and cocaine<sup>13</sup>. The fact that this experiment failed on all counts is an important lesson. This new UK law makes no distinction between very harmful psychoactive substances, such as synthetic opiates and better tolerated ones, such as laughing gas. Ironically, whilst alcohol is legal, “alcosynth” being developed as a safer alternative to alcohol is now banned. This emphasises how legality has little to do with the potential for a drug to cause harm.

Surely then the key message the Government needs to convey to society, alongside any drugs regulation, is that, all substances (legal or illegal), including food, drinks and medical products are harmful if consumed in the wrong amounts. Even water. There have been a number of cases where people have died after consuming too much water (hyponaetremia) while on ecstasy. These deaths led to a fairly quick change in the standard harm reduction message back in 1999 “remember to drink water, but don’t drink too much water!”

### Drug education is the key to prevention of harm

The misleading terminology ‘legal highs’ has not helped the perception that the term ‘legal’ implies there has been some process of assessment deeming them safe for human consumption. Alongside the law, education is needed to emphasise

that ‘if something is legal it does not mean it is safe’ and anything you consume is potentially unsafe, it is simply a matter of how much of it you consume.

Public opinion in Europe ranks information and prevention campaigns as the second most important way for the policy makers to tackle society’s drug problems<sup>14</sup>. Second, that is, to punishing the drug dealers and traffickers, which this new law will do. To address public opinion this law needs to work in tandem with a comprehensive education and targeted public awareness campaign highlighting the potential risks and harms from these substances, particularly for the more vulnerable risk taking 16–24 year olds, parents and teachers. Currently, science is the only statutory subject that delivers drug education in UK schools, and this is largely confined to biological understandings of drugs<sup>15</sup>. Schools are expected to cover other fundamental components of drug education such as resilience to risk factors (e.g. peer pressure) – within personal, social and health education (PSHE<sup>16</sup>). A recent survey of 590 secondary school pupils in London and 288 teachers across England highlights the need for an improvement in national policy on drugs education particularly in relation to subject-specific teacher training and the need for a statutory status for PSHE<sup>17</sup>.

The UK Government has pledged to work with experts (including the Advisory Council on the Misuse of Drugs) to develop a new drugs education strategy but as yet there is no commitment to fund their information services (such as Talk to Frank, Mentor-Alcohol and Drug Education and Prevention Information Service) going into schools and universities to better deliver on evidence-based drugs education. At the moment there are a number of stand-alone public awareness campaigns (e.g. Angelus Foundation, Rise Above) that proactively outreach into schools and communities at a local level. Introducing a statutory PSHE programme into the national

curriculum will not only educate but build resilience and empower young people to make positive choices for their health including substance choices, especially when in peer pressure situations. Government support and professional training and development are essential ingredients in the provision of universal drug education in schools<sup>18</sup>.

This new law will not criminalise people for possession of psychoactive substances (unless they are already locked up). But surely educating and empowering people (particularly those in the most vulnerable groups) about the risks of psychoactive substances is key to preventing harm.

Prohibition coupled with easier global sales channels has fuelled the recent demand for legal alternatives. Surely further prohibition will only help reduce demand and, ultimately, harm if everyone is aware of the risks of using psychoactive substances. Only then can we make informed and educated choices about whether or not to use these substances, legal or not.



### About the author

Dr Lisa Lione is a Senior Lecturer in Pharmacology in the School of Life and Medical Sciences, University of Hertfordshire. Lisa's teaching and research is collaborative combining her specialised *in vivo* skills with industry experience in drug discovery and translational science. Lisa is particularly interested in the promotion and sharing of best practice in animal welfare, ethics and the 3Rs (she is a member of the British Pharmacological Society Animal Welfare In vivo Pharmacology committee and an instructor on the simulation British Pharmacological Society Organ Bath Pharmacology workshop) as well as raising awareness of pharmacology and drugs education in schools and universities (she is an expert advisory panel member for Mentor UK).

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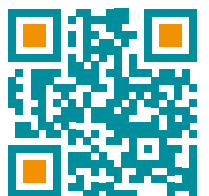


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# Public engagement at the Royal Society of Biology



Mark Downs CSci FRSB, Chief Executive, Royal Society of Biology

In October we celebrated the fifth annual Biology Week with life science celebrations happening all over the UK, including many biomedical events and activities.

The Learned Society Partnership on Antimicrobial Resistance (LeSPAR) of which the Royal Society of Biology (RSB) and the British Pharmacological Society are members, held a popular Policy Lates event on antimicrobial resistance (AMR). Participants examined the roles of innovation and regulation in tackling the AMR crisis from different perspectives, including veterinary research, biotechnology and public health.

This year we have also run several public engagement activities for a general audience, in partnership with British Pharmacological Society and our other Membership Organisations. In June the 'Biology Big Top' went to Cheltenham Science Festival and the Big Bang Fairs in Yorkshire and Humber, and in July we were at Lambeth Country Show. The British Pharmacological Society and RSB activities: 'Medicine Makers' and 'The Hungry Games' complemented each other alongside our other partners to engage people from all backgrounds in the breath of the life sciences.

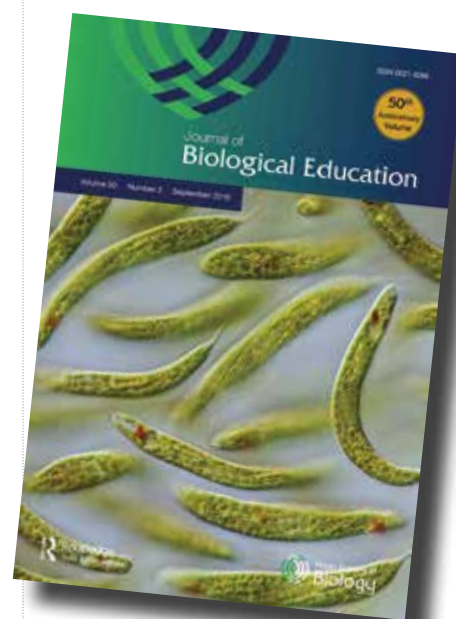
The RSB is continuing to work closely with all our Member Organisations (MOs), individual members, committees and advisory groups to ensure we fully engage policy makers and politicians on the implications of Brexit for bioscience. Working closely with colleagues in the biomedical sciences, we are also seeking to amplify the shared messages from across science, as we have done for the Teaching Excellence Framework (TEF) consultation.

Soon in the new year we hope to start working with our MOs on the annual Voice of the Future event. At Voice of the Future, young scientists and engineers quiz key political figures in the Houses of Parliament about the science policy issues that matter to them. It is a unique event – in no other part of Parliament is the normal select committee format completely reversed so that MPs have to answer questions rather than ask them. The event aims to highlight the importance of policy makers using reliable evidence and being held to account on their decisions and today's young scientists will be vital for this in the future. Last year the British Pharmacological Society's Young Pharmacologists Advisory Group members asked the committee, including Science Minister Jo Johnson MP, questions such as: 'Do you think business should offer greater incentives for young people to study STEM subjects at university to help fill the shortfall of skills in the science and engineering sectors?' (See Vedia Can's article in the June 2016 edition: 'Representing Young pharmacologists at Voice of the Future').

The Drug Discovery Pathways Group, or DDPG, is a partnership of learned societies that now includes RSB, but originally initiated by the British Pharmacological Society and the Royal Society of Chemistry (RSC), that has provided a single well-informed and representative voice on key issues associated with medicines research. The Group's work has focussed on three main areas: industry-academia partnerships, knowledge and skills. The DDPG has actively sought to influence the policy environment and offer proactive proposals to support

drug development. This has included a push to create better cross-sector exchange of information, people and knowledge through mechanisms such as a Drug Discovery Advisory Forum that could bring together medical charities, funding bodies, businesses, academics, the NHS and learned societies, to ensure patients' needs are met in a sustainable and cost-effective manner, and that the UK remains at the forefront of medicines research. There has been significant movement in this direction over the last five years and the DDPG is now considering how best to evolve its own objectives.

For anyone interested in biology teaching at all levels, I would encourage you to take a look at our recently launched free online 'virtual special issue' of the *Journal of Biological Education* (JBE) to celebrate its 50th birthday and highlight some of the incredible research it has published.



The *Journal of Biological Education* celebrates its 50th birthday with a special free edition.

Editor Professor Ian Kinchin CBIol FRSB put together the issue which includes 40 of some of the most cited and downloaded articles including: *Learning difficulties in biology*; *The epidemiology of a zombie apocalypse*; and *Using role play to debate animal testing*. These articles will be free to everyone until the end of 2016 (view the issue on <http://explore.tandfonline.com/page/ed/rjbe-50-anniversary-vsi>). The JBE is uniquely broad in its reach; it's a really accessible journal for people who teach the biosciences across the spectrum. Looking to the next 50 years of the JBE, I'm excited to see more research into the interface between school and universities.

#### About the author

Dr Mark Downs FRSB CSci is the Chief Executive of the Royal Society of Biology. He joined the Society at its inception in 2009.



Lambeth County Show.



'Biology Big Top' at Cheltenham Science Festival.

# Science is global

The British Pharmacological Society is proud to be a global community at the heart of pharmacology: our journals have a global readership, a fifth of our membership is international, and we represent scientists from more than 60 countries worldwide. As part of the Society's charitable mission to promote and advance the spectrum of pharmacology, we are committed to fulfilling the needs of our members regardless of geography.

The end of October marked the deadline for expressions of interest for our new International Advisory Group, which will initially be appointed by Council. The response rate was extremely positive. Please keep an eye on our website and in newsletters for information as it becomes available.

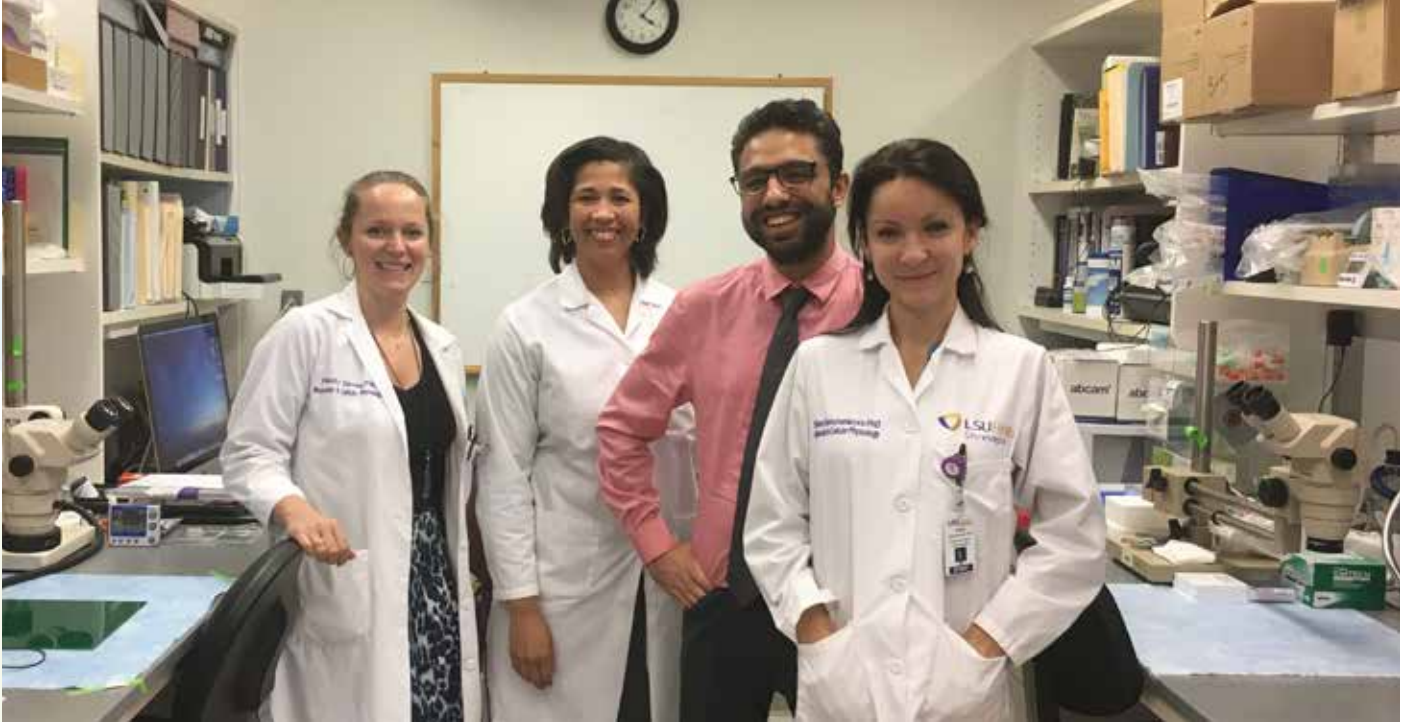
Members of the *Pharmacology Matters* editorial board compiled some images to showcase the importance of the international community in their own work. If you'd like to send us images of your own international workplace, please send them to Sophia Griffiths ([sophia.griffiths@bps.ac.uk](mailto:sophia.griffiths@bps.ac.uk)), the Society's Communications Manager.



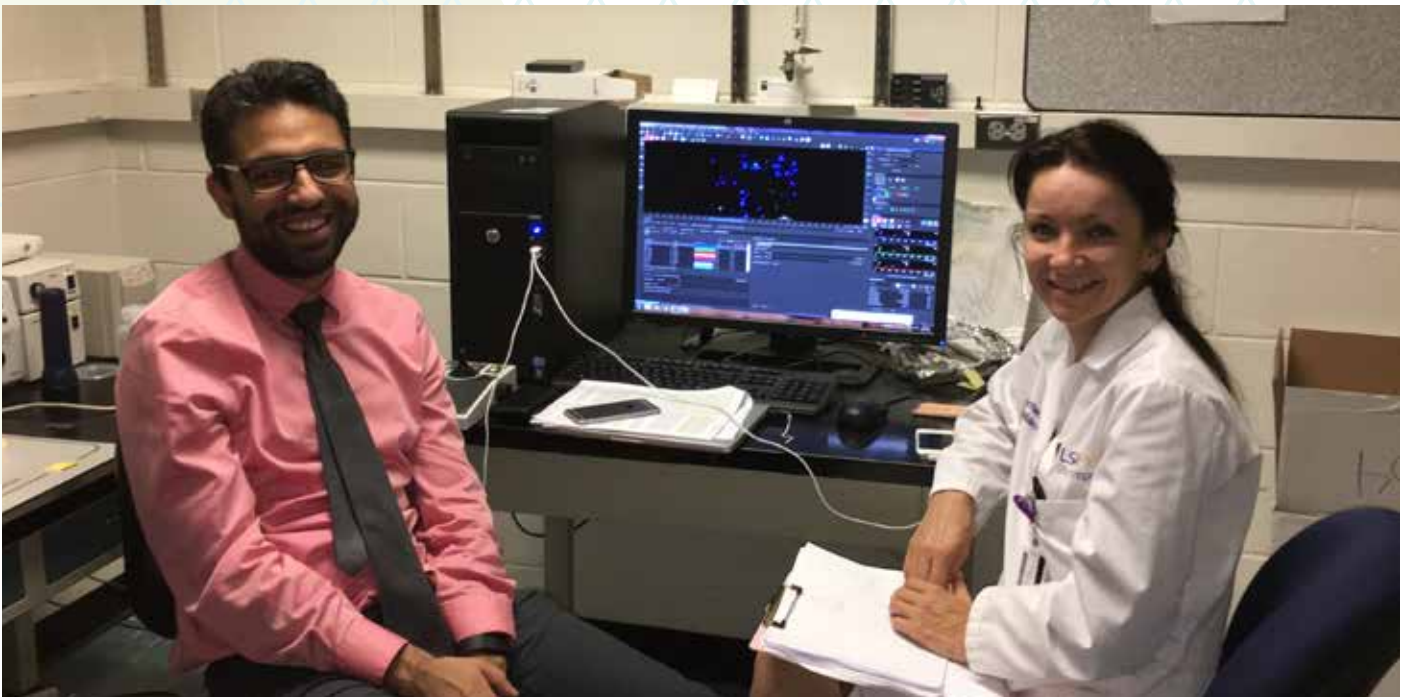
*The Molecular Pharmacology group at the University of Nottingham*



*Participants from the EMBO Laboratory Management course for group leaders (Leimen, Germany, 10-13 October 2016). Participants came from institutes all over (Lisbon, Munich, Glasgow, Boston, Paris, Gothenburg, Stockholm, Liverpool, Canterbury, Lausanne, Utrecht, Heidelberg).*



Some members of Dr Gavins' research team in Shreveport USA. From left: Dr Felicity Gavins, Miss Shantel Vital, Dr Junaid Ansari and Dr Elena Senchenkova.

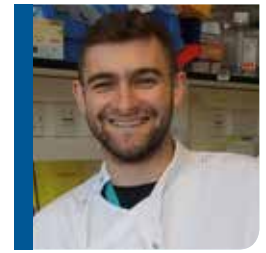


Drs Junaid Ansari (left) and Elena Senchenkova working on the analysis of neutrophil activation in samples from patients with sickle cell disease.



# William Harvey Research Institute 30th Anniversary Meeting

Hefin Rhys, PhD student at William Harvey Research Institute



In December 2015 the William Harvey Research Institute (WHRI) at Queen Mary University of London received a major recognition from the British Pharmacological Society: the UK Pharmacology on the Map award was presented to the WHRI for its outstanding contribution to the discovery and development of medicines.

The award celebrates research institutes and sites of importance, linked to particularly significant achievements in the discipline of pharmacology. The 2015 awardees of the Department of Pharmacology in the University of Oxford, The Institute of Cancer Research, The Frythe, and the William Harvey Research Institute.

The Institute, based near Barbican in Central London, was founded in 1986 by Nobel Laureate Sir John Vane, whose ground-breaking work on the mechanism of action of aspirin fathered research into the roles lipids play during inflammation. To commemorate this 30-year heritage, the WHRI held a 2-day celebratory conference over 22 and 23 June 2016, both acknowledging its past pharmacology achievements and exhibiting its ongoing research activities.

The conference, which took place at the Institute's picturesque Charterhouse Square site, was joined by internationally acclaimed researchers including WHRI alumni and former friends and colleagues of John Vane: Professors Daniela Salvemini, Rod Flower, Jane Mitchell and Bengt Samuelsson, and collaborators and friends of the Institute: Professors Charles Serhan, Robert Lefkowitz and Denisa Wagner.

The first John Vane Symposium session was opened by an engaging talk from Professor Daniela Salvemini of Saint Louis University, on novel therapeutic targets in the treatment of chronic neuropathic pain. Professor Salvemini, who carried out her PhD and first post-doctoral position at the WHRI with John Vane between 1987 and 1992, presented data demonstrating the analgesic effect of A3 adenosine agonists, which circumvent the hyperalgesia and antinociception associated with opioids. The session saw talks from two more of John Vane's PhD graduates, Professor Jane Mitchell from Imperial College London (who spoke about cyclo-oxygenase 2 and its role in cardiovascular health) and one of WHRI's current centre leads, Professor Chris Thiemermann (who gave a fond and humorous history of his time with John Vane,

and discussed how the antimalarial drug artesunate showed promising efficacy in reducing organ failure following experimental haemorrhagic shock).

This first session was closed by Professor Charles Serhan from Harvard University, who is a long-time collaborator and mentor to several WHRI researchers and who is widely regarded as the "father of pro-resolving lipid mediators" and the newly coined pharmacological sub discipline called 'resolution pharmacology'. Professor Serhan shared an exciting storyline of data, demonstrating the structural elucidation of lipid mediators which stimulate bacterial clearance and tissue repair.

Annually at its Institute-wide conferences, the WHRI awards its own John Vane Medal to a recipient who has made an outstanding contribution to pharmacology throughout their career. At this year's celebration, the medal was awarded to Prof. Bengt Samuelsson from the Karolinska Institutet, who shared the Nobel Prize with John Vane and Sune Bergström in 1982. After his entertaining talk on the evolution of the arachidonic acid cascade, the medal was presented, as per WHRI tradition, by Lady Elizabeth



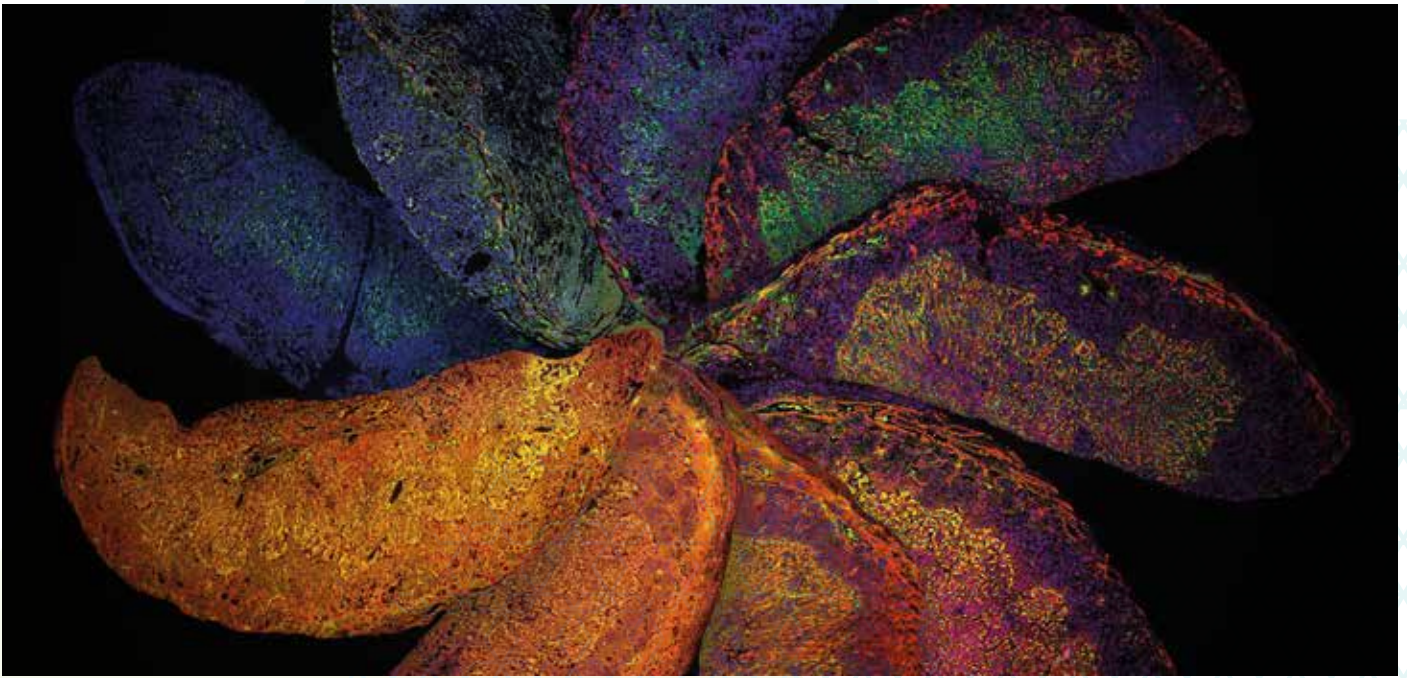
Photo credit to Sven van Eijl.

WHRI 30th anniversary conference.



Photo credit to Sven van Eijl.

Professor Denisa Wagner from Harvard University.



*The Placenta Rainbow by Suchita Nadkarni.*

Vane who remarked that they had often danced together at formal gatherings.

The second day of the conference was dedicated to showing off the young researcher talent within the Institute. The content showcased the interdisciplinary nature of the WHRI, with talks ranging from the role of ubiquitination in autoimmunity, causative mutations in delayed puberty, organ-selective immunosuppression and the in-house development of a novel therapy for age-related macular degeneration. The final guest speakers for the day were Professor Robert Lefkowitz from Duke University, and Professor Denisa Wagner from Harvard University. Professor Lefkowitz's talk simply entitled "G protein-coupled receptors" was a fascinating history of the story of his Nobel Prize-winning work, which elucidated the structural and functional characteristics of GPCRs. His memorable lecture covered the period when the term "receptor" was an abstract concept used to explain agonism in the presence of an agonist, through to the first cloning of the  $\beta$ -adrenergic receptor, the demonstration of G protein and arrestin-mediated signalling and receptor recycling, and the more

recent concept of biased agonism. These topics now form a major component of any pharmacology degree, and so after his talk Professor Lefkowitz was awarded the WHRI Outstanding Contribution to Science Medal. Professor Wagner, who has published extensively on thrombosis and its interplay with other inflammatory processes, gave a talk on her more recent work into the role of neutrophil extracellular traps (NETs). Despite her work being a newly explored area of neutrophil biology, Professor Wagner presented a wealth of data demonstrating a plausible role for NETs in aging, cancer, deep vein thrombosis, diabetes and cardiac fibrosis. In recognition of the impact her work has had on the field of inflammation and also on the work she conducted at the WHRI, Prof. Wagner was awarded the William Harvey Medal.

As the Institute believes strongly in investing in young researchers, the day of talks was concluded by awarding several prizes. Prizes for the best poster were awarded to Joanne Smith (for her work on the role of metabolic stress on T cell differentiation), Jianmin Chen (for her work in cardiac dysfunction) and Giulia de Rossi (for her work on the role of syndecan-4

in VEGF-induced angiogenesis), and the Best Young Investigator Award was given to myself (for our work on the role of vesicles in inflammation resolution). The winner of the Art of Science competition, which challenged young researchers to submit pieces of scientific artwork, was awarded to Suchita Nadkarni for her stunning image of mouse placenta sections, arranged into the petals of a flower.

Once the formal conference had concluded, the evening was reserved for celebrating, and the Institute did so the only way pharmacologists know how – with good food, great drink, live music and bad dancing!

#### About the author

Hefin Rhys has just started the fourth year of his PhD at the William Harvey Research Institute in London where he studies the role extracellular vesicles play in the resolution of inflammation, under Prof Mauro Perretti and Dr Lucy Norling. Prior to starting his PhD, Hefin completed an undergraduate master's degree in pharmacology at the University of Bath.

# The 19<sup>th</sup> SIF Seminar Rimini event – shaping the future together!



Olga Dorofejeva, PhD student, University of Westminster



Last day of the Società Italiana di Farmacologia (SIF) event. Four UK researchers who received funding to attend the conference. From left: O. Dorofejeva (London, UK), P.M. Heister (Oxford, UK), C. Read (Cambridge, UK) and G.M. Sloan (Glasgow, UK).

**Olga was one of the four young researchers to receive funding from the British Pharmacological Society's Young Pharmacologists Advisory Group to attend the Italian Pharmacological Society's conference.**

Firstly I would like to thank the Italian Pharmacological Society for giving me an opportunity to be part of the 19<sup>th</sup> Società Italiana di Farmacologia (SIF) Seminar Rimini event on pharmacology and similar sciences. At a time when many research communities around the globe are facing difficult challenges it is essential that the value and power of education, development and research are not overlooked. The 19<sup>th</sup> SIF Seminar Rimini event was a well organised and highly successful meeting that attracted

a large number of talented young researchers, who are at the beginning of their scientific careers. There was a wide variety of topics, such as inflammation, gastrointestinal, cardiovascular, pharmacovigilance, pharmacogenetics, neuroscience, metabolic and cancer. The plenary "Meet the editor" lecture, delivered by the *British Journal of Pharmacology* Editor-in-Chief, Amrita Ahluwalia, was particularly interesting, raising many critical points about publishing one's research. Such an international approach to networking brought the most diverse researchers of the pharmacological field together to share their experiences and to broaden their views. For me this event provided an excellent opportunity to get more experience in presenting my research and to get valuable feedback.

It was the first time I had presented an oral presentation about my work on protein tyrosine phosphatases of the R3 subgroup outside my University. I wanted to present my data to a wider audience in order to get any comments that would help me in my approaching viva. Despite the intense programme and a vast amount of new information, this event had a pleasant and relaxed feel since the majority of researchers were at the PhD and Postdoctoral level and could present their work without feeling intimidated by senior researchers. I personally gained so much from this event as it helped me to improve my presentation and communication skills and broaden my knowledge of the field of pharmacology. As a PhD student at the write-up stage it is very easy to isolate oneself from

everything and lose track of other research areas. I even started to doubt the importance of my project and to lose interest in doing research in the future. However, attending the 19<sup>th</sup> SIF Seminar Rimini event reminded me why I chose science in the first place and that I actually love what I do. I was always fascinated by human physiology and I think I owe it to my mother who is an anaesthetist. As a child I used to go to the hospital after school to wait for her to finish her work and would always ask about different medications. It was such a fascinating thing that such a tiny pill could help so many people. I wanted to know how it all works. Since then it has been a very long and tough journey. That is why I believe it is important to go to such events and see what great things we all do. Hearing what other speakers have done motivated me to carry on and to look at my research in a different way. I was particularly moved by the lecture on "Tumour Plasticity" by the director of the Wistar Institute Cancer Centre in Philadelphia, Dario Altieri.

This event was a great opportunity to meet new, like-minded people who share similar interests. Making new connections could prove valuable in the future. As a young researcher one is constantly told about the importance of networking and being at the 19<sup>th</sup> SIF Seminar Rimini event helped me to learn how research is done in different countries. I found it very useful to exchange ideas with people working in a similar field. It is also a good way to keep up to date with the latest research, new compounds and any changes that are occurring in the field of pharmacology.

Of course the event was not just about learning. The social part of this event was great fun and I met a lot of interesting people. The informal sessions, such as coffee and lunch breaks, of the event encouraged mingling and further discussion, not only about pharmacology but also about different cultures, backgrounds, hobbies and other key personal elements that shape us into a diverse, vibrant scientific community. The

evenings were filled with amazing food, music and a relaxing welcoming atmosphere. Creating a network of like-minded and enthusiastic friends will hopefully result in a positive impact in our future careers and opportunities. Together we can become highly skilled professionals, drive growth and productivity of pharmacological research and transform lives!

### About the author

Olga graduated from the University of Westminster with a BSc (Hons) in Pharmacology in 2012. She then enrolled on an MPhil/PhD at the University of Westminster in the Life Sciences Department. Her doctoral research focuses on protein tyrosine phosphatases of the R3 subgroup: the involvement of their extracellular domains in their regulation and function. She is in her final year of the PhD project and plans to continue in academia.

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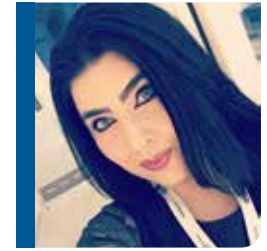
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# Early Career and Postgraduate Members granted the voting right

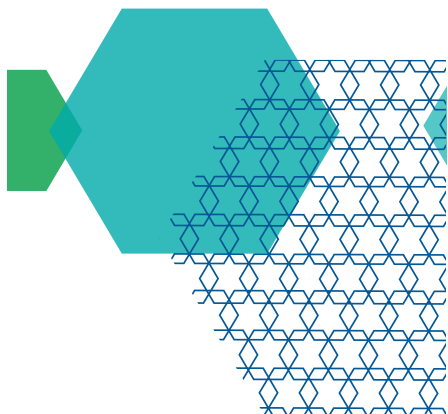


Vedia Can, University of Westminster

Prior to the approval of our proposal, only specific membership categories were given the voting right within the Society; Full Members, Fellows, Honorary Fellows, Retired Members and Retired Fellows. Members in other categories – Undergraduate, Postgraduate, Affiliate and Early Career Members – were not entitled to the voting right.

On 21 June 2016, Aidan Seeley (Young Pharmacologist Trustee) and Teesha Bhuruth (Membership & Community Officer) presented a proposal on behalf of the Young Pharmacologists Advisory Group (YPAG) to Council, which to our delight has been approved! This means that with immediate effect both Early Career and Postgraduate Members have the right to vote.

In previous years members of YPAG were not entitled to sit on Council. However, last year Council extended their membership to Young Pharmacologists. Aidan Seeley, who sits on Council volunteered to present a proposal (co-written with Teesha Bhuruth) to allow extension of the voting right to Early Career and Postgraduate Members.



## Voting right membership prior to inclusion of Early Career and Postgraduate members: voting members vs non-voting members

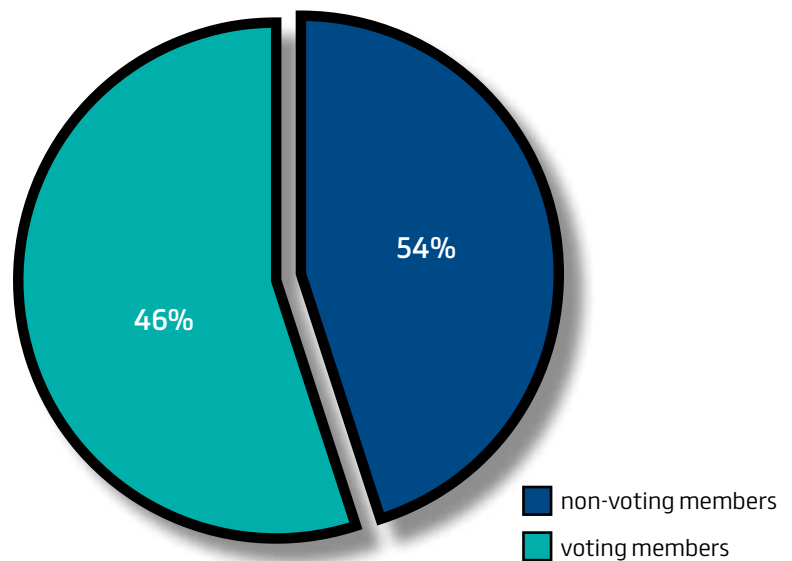


Figure 1. Representation of voting members (inclusive of Full Members, Fellows, Honorary Fellows, Retired Members and Retired Fellows) vs non-voting members (other remaining categories) as a percentage of total number of members in the Society.

## What entitlements and responsibilities are associated with the voting right?

- Vote in elections to appoint Society officers (President-Elect, Treasurer-Elect), Trustees and Vice President roles.
- Vote in resolutions: typically to change the Articles of the Society and to appoint auditors.
- Eligibility to self-nominate for Society officer position (Young Pharmacologist Trustee).
- Be a member within the meaning of the Companies Act.

- Be liable to pay up to £1 as a contribution to the Society's debts if it dissolves (10.2 Articles).

This extension of the voting right to Early Career and Postgraduate Members will have a positive impact on the Society. Prior to the approval of the proposal by Council, the proportion of voting members to non-voting members was 54% to 46%, and the voting group comprised only 23% female members. The Society has a commitment to ensure at least a 30% female representation on committees and groups. The extension of the Voting Right to include Early Career and Postgraduate Members has increased the proportion of voting

## Extension of the voting right membership: voting members vs non-voting members

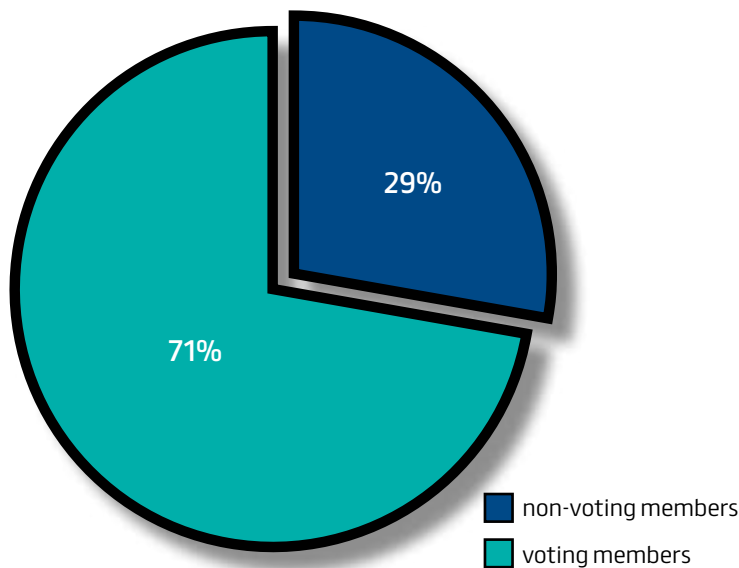


Figure 2. Extension of the Voting Right to Early Career and Postgraduate Member categories will mean our electorate will more fully reflect the Society's diverse membership. Voting members (inclusive of Postgraduate, Early career, Full, Fellow, Honorary fellows and Retired members) vs Non-voting members (other remaining categories) as a percentage of total number of members in the Society.

members to 71%, increasing the female representation in the voting category to 30%. This demonstrates that the Society has increased equality and diversity amongst its members, and our electorate will more fully reflect the Society's diverse membership. There will be more engagement amongst younger members with the Society's activities and discussions, which will allow the Society to build a stronger pharmacological community. Previous research confirms that both Early Career and Postgraduate Members are keen to learn more about the Society's discussions and to be involved in the decisions made by the Society during the Annual General Meetings.

Although, Early Career and Postgraduate Members have been given the Voting Right, it is important to highlight that they will not be eligible to self-nominate for Senior Society Officer roles (President-elect, Treasurer-elect), Vice-President and Trustee positions (with the exception of the Young Pharmacologist Trustee role).

By granting us the Voting Right, we would like to thank Council on behalf of Early Career and Postgraduate Members for recognising our commitment and enthusiasm to achieve the Society's vision.

### About the author

Miss Vedia C Can is a Doctoral Researcher in the Faculty of Science and Technology at the University of Westminster, specialising in immunopharmacology. Her primary research focus involves investigating the inflammatory pathways that contribute to the progression of Osteoarthritis and evaluating the effect of novel compounds. Previously, she completed a Bachelor's degree in Biomedical Sciences and a Master's degree in Medical Molecular Biology.

# Meetings update



Barbara McDermott, Vice President – Meetings  
Talja Dempster, Head of Meetings & Events (until 31 October 2016)  
Susanne Schweda, Interim Head of Meetings and Events (from 31 October)

## Meetings Update

### International Narcotics Research Conference

The International Narcotics Research Conference (INRC) brought scientists from around the world to Bath in July with over 200 attendees participating in oral and poster presentations concerning aspects of opioid research ranging from genetic and molecular to in vivo studies. The event ran during 11–14 July and it was the first time the Society had hosted the INRC conference. The feedback from the event was resoundingly positive and we are delighted to have been part of such a successful event.

### Pharmacological aspects of microvascular cell-cell signalling and CVS disease

There has been a dramatic increase in the understanding of cell signalling over the last five years, with key papers indicating the importance of endothelial cell projections as signalling microdomains, which appear subject to disruption by cardiovascular disease. This focused meeting provided a forum for over 70 pharmacologists and physiologists to come together to discuss vascular biology, with a particular interest in identifying novel therapeutic targets in endothelial cell dysfunction. The meeting was held at Magdalen College in Oxford on 21–22 September, and was organised by Professor Chris Garland, Co-Chair of the Cardiovascular and Respiratory Affinity Group. By all accounts the meeting was a great success so many thanks to everyone involved.



Poster session at 'Pharmacological aspects of microvascular cell-cell signalling and CVS disease'

## Pharmacology 2016

It is just a few weeks until our annual meeting *Pharmacology 2016*. There was a fantastic response to the call for abstracts with 450 submissions received, an 8% increase on submissions for 2015. If you have yet to register please visit [www.bps.ac.uk/pharmacology2016](http://www.bps.ac.uk/pharmacology2016) to do so as soon as possible.

It is exciting to announce some changes and additions to *Pharmacology* this year. As many of you will be aware, the Society is marking its 85th anniversary in 2016 and has lots of reasons to celebrate. To mark this milestone, the Young Pharmacologists Advisory Group will be hosting an extra special reception to welcome participants at all stages of their career attending *Pharmacology 2016*.

The ticketed Welcome Reception will take place on Tuesday 13 December from 18:45–21:45 at the National Gallery on Trafalgar Square (a 15-minute walk from *Pharmacology 2016*). The Society is delighted to have such an iconic venue for the Welcome Reception: this prestigious art gallery is a well-known landmark and will give members access to one of the greatest collections of paintings in the world while they enjoy refreshments.

In addition, we will be hosting three Career Bootcamp sessions aimed at students and early career researchers. Each Bootcamp will be an hour long and we will have one each delivered by the Industry, Publications and Education & Training Committees. The titles for these are as follows:

- **Industry Career Bootcamp:** *Opportunities for young pharmacologists at the interface between academia and industry – insights from careers in small, medium and large companies*  
Tuesday 13 December  
9:00–10:00
- **Education Career Bootcamp:** *Developing innovative practice, sharing approaches to teaching challenging areas of the core curriculum, recognition for teaching excellence and tips for promotion based on teaching and scholarship*  
Wednesday 14 December  
08:00–09:00



The British Pharmacological Society will be hosting their Welcome Reception at the National Gallery. By kind permission of the Trustees and Director of the National Gallery.

- **Publications Career Bootcamp:** *Understanding the publishing process. An opportunity to share experiences around publishing research, including advice and tips from the British Pharmacological Society journals' Editors-in-Chief on best practice, how to submit, handling reviewer feedback, and meeting journal and funder requirements.*  
Thursday 15 December  
08:00–09:00

The Society will be hosting three guest societies at this year's meeting (the American Society for Clinical Pharmacology and Therapeutics, ASCPT; the American Society for Pharmacology and Experimental Therapeutics, ASPET; and the Chinese Pharmacological Society, CPS) as well as a special symposium organised by the Biochemical Society. There is certainly more than enough on offer in the online programme so don't forget to register – registration closes on Friday 2 December.

## Meetings in 2017

### ITMAT

For the first time, the Institute for Translational Medicine & Therapeutics (ITMAT) Meeting will be held in Europe at the Royal College of Physicians of Edinburgh conference centre on Friday 17 March 2017.

The theme of the meeting is 'Big Data & the Development of New Medicines'. The organisers look forward to welcoming attendees from the UK and Europe, both early and established researchers, from across science and medicine. The one-day programme will bring together a faculty of internationally-recognised speakers, thanks to support from the British Pharmacological Society and the Royal Society of Edinburgh.

Registration and further information on the programme will be announced online ([www.bps.ac.uk/ITMAT](http://www.bps.ac.uk/ITMAT)) in the coming months. In the meantime, please save the date for what promises to be an exciting and engaging meeting.

## *In silico* and *in vitro* methods in modern drug discovery

There has been a marked deceleration in the rate at which new drugs are brought to the clinic and a loss of pharmacological expertise in the UK Industry through site closures. There is increasing evidence against the over-reliance on non-human *in vivo* models in the drug discovery process and an acceptance that failure in translational power can lead to incorrect dose selection and dangerously unpredictable adverse effects in first-in-man studies. There is a clear need to incorporate quantitative pharmacological approaches and the use of cutting edge *in silico* prediction in assessing PK/PD properties throughout the drug discovery process. This event, taking place during 24–25 April 2017 will provide attendees with the opportunity to explore these issues in more detail. This focused meeting will be hosted by the Drug Discovery, Development and Evaluation affinity group.

## Spanish Pharmacological Society Annual Meeting

The British Pharmacological Society will host three symposia at the Spanish Pharmacological Society's Annual Meeting, taking place in Barcelona, Spain on 18–21 June 2017. More information will be available on the main meeting website [www.sef2017.com](http://www.sef2017.com) soon.



## 8th European Workshop on Cannabinoid Research

The field of cannabinoid research has been one of most vibrant and active areas of pharmacology and biomedical sciences in the recent years. A search on PubMed using the search term 'cannabinoid' returns over 5,000 full published papers in the past five years, and nearly 700 have been published in the *British Journal of Pharmacology* (since 1999). The discovery of the endocannabinoid system has been a very exciting development and its potential as a therapeutic target across a wide range of diseases and disorders is widely recognized. Moreover, there has been considerable research activity in plant-derived phytocannabinoids as medicines and some recent successes in bringing compounds through clinical trials and into the market (e.g. Sativex®).

The British Pharmacological Society will be hosting the 8th European Workshop on Cannabinoid Research on 31 August–2 September 2017. More information on this event will be available on the Society's website soon.

## Integrated drug discovery: now & future

Biomedical research for several of decades was dominated by specialization in disciplines and reductionism that have produced important advances in drug discovery. Today a more holistic approach is emerging, recognizing and promoting collaborative science, in order to address the complexity of modern day drug research and the pressing societal and economic demands facing drug discovery and development.

It is within this context that the British Pharmacological Society and the Society of Medicine Research (SMR) symposium on "Integrative Biomedical Research: Past, Present and to its Future Future," aims to engage and inspire the next generation of biomedical scientists in embracing collaborative research across trans-disciplinary methodologies and analytical tools. The event will take place on 5 October 2017 at Charles Darwin House in London. More information on the event and how to register and submit abstracts will be available on the Society's website in due course.

## Meetings in 2018

If you would like to propose and organise a British Pharmacological Society meeting in the future please visit the Society's website [www.bps.ac.uk/propose](http://www.bps.ac.uk/propose).

## Changes within the Meetings Team

There are some updates within the meetings team from the end of October. After 14 months as Head of Meetings & Events, Talja Dempster will be leaving the Society to take up an opportunity at GSMA, where she will be leading a team to deliver 'Mobile World Congress Barcelona'.

Susanne Schweda, known to many of you as the Events Manager, will be stepping into the Head of Meetings & Events role, while Charlotte Cordrey joins the Society to step into Susanne's shoes as Events Manager, having previously worked in a similar role at the Royal Society of Medicine. Congratulations to Susanne, and a warm welcome to Charlotte!

# Physiologist Pharmacologist Biker!

Jon Robbins, Head of Department Neuroscience.  
Senior Lecturer, King's College London



I trained as a Physiologist, at University College London (UCL) (BSc) and United Medical at Dental Schools (UMDS) at St Thomas's Hospital (PhD), spent most of my working life in Pharmacology Departments, 7 years at UCL and 21 years at King's College London. However my longest obsession has been motorcycles. At the age of 16, like many teenagers in the mid-1970s, mopeds were the thing. For the younger readers these were 50cc motorcycles with pedals, yes pedals! The law at the time allowed 16-year-old learner riders to ride these on the roads with no prior training. As you might expect the death and injury numbers for motorcycles peaked at around 16 to 18 years of age. Today it's around 50 years, mainly mature men ("come back tos" as they are known) buying expensive high power motorcycles when the last thing they rode, 35 years ago, was a moped! However my dad was smarter than the transport regulations at the time: he said he would pay half for a brand new Indian ME100 – this was not a moped but a real motorcycle – but I could not ride it on the road until I was 17. This gave me a year of learning how to ride off road - much safer than my school mates who were falling off on the road. I passed my test at 18 on a Yamaha XS250 and have never looked back. I have given a list of bikes I have owned for the geeks among you (Box 1). As you can see, over the years there is a trend of increasing cubic capacity, which is not just about speed as handling, brakes and useable power improves with engine size.

However it's not all about roaring around on large motorcycles. I was a dispatch rider for Pony Express during my summer holidays as an undergraduate at UCL, this was before SatNav and I still have a pretty good mental map of London. I was a volunteer motorcycle training instructor for Hackney Council for many years, teaching learners how to ride safely before they ventured out on the roads. I also spent many Friday nights with no sleep, acting as a voluntary blood delivery courier for SERV (<http://www.serv.org.uk/site/>). I used to have a detailed knowledge of all the Haematology Departments at many London hospitals, including access codes. A number of times,

hospital staff seeing me in black leather carrying human blood in the middle of the dark rainy night looked concerned then relieved when I handed over the blood, often needed in an emergency.

On a less altruistic note, my wife, Sue and I had a great biking holiday in northern Spain. The Spanish seem to like motorcycles and motorcyclists: many times our bike was surrounded by the locals asking us where we came from and offering us drinks. Steve Marsh and I had a memorable run from Strasburg to London in one day (1000 km) having spent a week in Jerome Trouslard's lab doing some pilot experiments on retinal slices. We wanted to get home as quickly as possible, as this was the time that the Twin Towers in New York were destroyed.



Kawasaki ZZR1400FCF



Ducati 900SS

At present I have two motorcycles: the Kawasaki, which combines the outstanding engineering and electronics of the Japanese, over 200 brake horse power with anti-lock brakes, traction control, handles like a bike half its weight and it takes a

pillion. However my longest owned bike (not in Box 1), which I still have, is a Ducati 900SS in black and gold. I had this bespoke made by a company in Leytonstone from new old parts because at the age of 16 while walking down the high street in Ashford Kent one went past me, the sound and the look I still remember. By the time I could afford one Ducati had stopped making them. The purists amongst you will call it a "Bitsa" (a motorcycle made from original parts but not by the factory), but that is OK by me.

At present working for King's College London I have to manage a department over four campuses in South London, the only way I can do it is by riding my bike.

In memory of a much missed biker  
Dr James Vincent Halliwell.

## About the author

Jon completed his first degree in Physiology at UCL, and his PhD with Hisako Ikeda at UMDS. His post doc was with David Brown at UCL and he received a lectureship in Pharmacology at King's College London in 1993. At present, he is Head of Neuroscience Education and Education Lead for the Division of Neuroscience at the Institute of Psychiatry, Psychology and Neuroscience (IOPPN) at King's College London.

## Box 1. Motorcycles chronological order

Indian ME100  
Yamaha XS250  
Honda CB750F1  
Suzuki GS750N  
Honda CB900F  
Ducati 900GTS  
Yamaha SR500  
Honda CB1000FR  
Honda CB1300R3  
Kawasaki ZZR1400FCF