



**Get inspired,
get involved**

How the Society's
members are shaping
its activities

Art by Roderick Scott, from his Mind and Memory show.

Editorial

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



We have certainly kicked off 2017 with a bang here at the Society and this issue brings together the latest developments and changes driven by you!

Jono's article shares what is currently being done to protect and promote pharmacology, on behalf of our more than 4,000 members (how super that we have so many members!).

Elliot Lilley, Sarah Bailey and Emma Robinson focus on one of the '3Rs', that being 'refinement'. They examine the meaning of refinement and provide examples of how 'small changes to everyday procedures can be implemented to refine experimental procedures'. Next, Vedia brings us the latest news from the Young Pharmacologists over the last few months. This is followed by an Ambassadors update, written by Aisah Aubdool, with some of the events she has been involved in at KCL.

Síle Lane discusses the implications of a lack of transparency around clinical trials – and what can and is being done by AllTrials, the Society and others.

In the next article, Teesha discusses the roles of the Advisory Groups in providing a 'two-way communication between the Society's membership and its Council and Committees'. She draws attention to the new International Advisory Group (which I am delighted to say I am part of). Staying with an international theme, Eyasu Makonnen presents an overview about the All Africa Congress on Pharmacology and Pharmacy.

Have you ever wondered 'what happens at Finance Committee meetings'? Well,

wonder no more! Mike tells us all about the Committee and its valuable work. This is then followed by the Affinity Groups update from Niall Hyland, Steve Safrany and Gary Stephens. Niall then pairs up with Susanne for our regular meetings update, covering past events and new meetings coming up in 2017.

Were you at the early morning education bootcamp at *Pharmacology 2016*? If not (or even if you were and it's a little fuzzy!), Steve Tucker, Lisa Wallace and Anna Zecharia round up all the key points from the bootcamp and other education-themed sessions from December's meeting.

In our last article, Roderick Scott tells us all about his transition from pharmacologist to artist – I can relate to his passion for art (and pharmacology) very much!

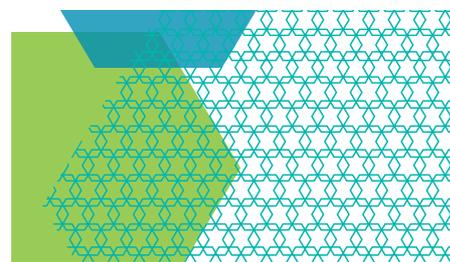
Many of you may know that my three-year term as Editor-in-Chief ends soon (June to be precise!). I really cannot believe where the time has gone!!! Writing my final Editorial is filled with mixed emotions: I am sad to be leaving, but I very pleased with how the publication has grown and I am excited to see the changes that your new Editor-in-Chief will bring.

I have fully enjoyed my term and I want to sincerely thank the editorial board and everyone at the Society (especially Kat) for their relentless determination, enthusiasm and help. It has been immense fun and I will miss you all.

Best wishes,
Felicity

Contents

Your BPS Jono Brüün	3
Using animals in research? It's time to refine! Elliot Lilley, Sarah Bailey & Emma J Robinson	4
Young Pharmacologists update Vedia Can	7
Ambassadors update Aisah Aubdool	9
The AllTrials campaign. Bring out your unreported trials! Síle Lane	12
The Society's Advisory Groups Teesha Bhuruth	14
All Africa Congress on Pharmacology & Pharmacy 2016 Eyasu Makonnen	17
Introduction to the Finance Committee Mike Poole	18
Affinity Groups update Niall Hyland, Steve Safrany & Gary Stephens	20
Meetings update Niall Hyland, Susanne Schweda	23
Education @ Pharmacology 2016 Steve Tucker, Lisa Wallace & Anna Zecharia	26
Switching occupation from science to art Roderick Scott	30



Editorial Team

Editor-in-Chief
Felicity Gavins

Managing Editor
Katharine Steer

Editorial Board

Vedia Can
Margaret Cunningham
Mike Curtis
Karolina Gherbi
Fraz Mir
Christopher Tsantoulas
Steven Tucker

Disclaimer

Opinions expressed in Pharmacology Matters are not necessarily those of the British Pharmacological Society. The publishers, authors, and designers cannot accept liability for errors or omissions. All rights reserved. No parts of this publication may be reproduced in any form without the prior written permission of the copyright holder and the publisher, application for which should be made to the publisher, The British Pharmacology Society. Registered office: The Schild Plot, 16 Angel Gate, City Road, London, EC1V 2PT. Tel: +44(0)20 7239 0171; Fax: +44(0)20 74170114; Website: www.bps.ac.uk. British Pharmacological Society is a company limited by guarantee, registered in England with No. 2877400, registered charity No, 1030623.



Jono Brüün
Chief Executive

In recent months British Pharmacological Society members have been encouraging us to do more to protect and promote pharmacology – whether in academic, industrial or clinical settings – and to communicate where we have real impact¹.

Against that backdrop, this section of *Pharmacology Matters* will let you know of some of the work that the Society has been doing to advocate our discipline.

First, I'd like to highlight that we have responded to concerns around gaps in *in vivo* and clinical pharmacology skills, by launching two important reports that are already shaping our relationships with stakeholder organisations and policy makers:

- *The Future of In Vivo Education & Training* report² highlighted the value and impact created by the Society's stewardship of the £22 million *Integrative Pharmacology Fund* over 14 years. On the back of this report, we have begun the process of working with other organisations in the wider *in vivo* science community to deliver on the 10 recommendations contained in that report.
- The PricewaterhouseCoopers report, *Clinical Pharmacology & Therapeutics: The case for savings in the NHS*³, which was commissioned by the Society and published at the end of 2016, highlighted six key benefits

in training and recruiting additional CPT specialists, and estimates cost savings of £62 million per year to the NHS. The report prompted a House of Lords debate on the value of CPT to the NHS⁴, and will underpin further work in this area in 2017.

These reports have been supplemented by other policy activity, including our responses to the STEM Skills Gap inquiry⁵, and our ongoing provision of evidence and comment to policy-makers on Britain's decision to exit the EU, notably, around our work on medicine's regulation⁶.

There is plenty more to come here, and I look forward to updating you on our responses to consultations on the Research Excellent Framework, publication ethics and medicines pricing in due course, alongside our ongoing engagement with the Office of Life Sciences and other key stakeholders as we seek to advocate for pharmacology against the backdrop of Brexit and the government's new Industrial Strategy – watch this space!

So, how has this work come about? In my view, it is due to the continued support of our membership, which exceeded 4,000 at the end of 2016, working in partnership with an enthusiastic and capable office team at the Schild Plot to ensure our policy work is increasingly focused on areas where we can have significant impact.

To increase our activities in these areas, and across the Society, and to underpin our activities with excellent administrative support, Council has chosen to grow the office team (<http://bit.ly/BPSteam2017>) to 21 by the end of April 2017. Each appointment has been driven by our desire to build on recent successes and maps to our long-term strategic priorities. I hope you will have a chance to be in touch and say hello to these new faces in the coming weeks, if you have not done so already.

We also try where possible to support and develop our existing staff. Peter Wright, who has been with us on a contract basis for a while, has been appointed to the new permanent role of Platform Manager, in order to support the delivery of the Prescribing Safety to Assessment to approximately 8,000 UK medical students each year and to help us deliver the assessment to new international markets. In addition, I mentioned in the last issue that Susanne Schweda had been appointed to Interim Head of Meetings & Events and I'm pleased that this promotion has been made permanent, so she will continue to lead our expanding calendar of scientific conferences. Well done to both Pete and Susi!

References

1. Research by Design. *British Pharmacological Society Membership Engagement Survey*. 2016.
2. Lowe JWE, Collis M, Davies G, Leonelli S, Lewis DI and Zecharia AY. *An evaluation of the Integrative Pharmacology Fund: Lessons for the future of in vivo education and training*. London: British Pharmacological Society. 2016. Available online: www.bps.ac.uk/futurein vivo. Last accessed: 30 March 2017.
3. PricewaterhouseCoopers. *Clinical Pharmacology & Therapeutics: The case for savings in the NHS*. 2016. Available online: <https://www.bps.ac.uk/BPSMemberPortal/media/BPSWebsite/Assets/CPT-case-for-savings-in-the-NHS.pdf>. Last accessed: 30 March 2017.
4. British Pharmacological Society. *The Society's campaign on clinical pharmacology & the NHS mentioned in House of Lords*. 2017. Available online: <https://www.bps.ac.uk/news-events/news/society-news/articles/the-society%E2%80%99s-campaign-on-clinical-pharmacology>. Last accessed: 30 March 2017.
5. British Pharmacological Society. *Response to 'Closing the STEM skills gap' inquiry*. 2017. Available online: <https://www.bps.ac.uk/about/policy-positions/consultation-responses/articles/response-to-'closing-the-stem-skills-gap'-inquiry>. Last accessed: 30 March 2017.
6. British Pharmacological Society. *The Society's campaign on clinical pharmacology & the NHS mentioned in House of Lords*. 2017. Available online: <https://www.bps.ac.uk/news-events/news/society-news/articles/the-society%E2%80%99s-campaign-on-clinical-pharmacology>. Last accessed: 30 March 2017.

Using animals in research? It's time to refine!

Elliot Lilley, Sarah Bailey & Emma J Robinson,
on behalf of the Animal Welfare & *In Vivo*
Pharmacology Sub-Committee



If you want to be an elite athlete, you have to pay attention to every detail. During the last Olympics in Rio, the Team GB medal haul was its best since 1908. Many commentators, including Sir Steve Redgrave attributed this incredible achievement to a new mind-set in UK sport called the 'aggregation of marginal gains'.

Simply put, this means breaking down the components that contribute to successful sporting performance and making every single one just a little bit better in a systematic, iterative way. Former British number one table tennis star Matthew Syed has written about the marginal gains concept in his 2015 book *Black Box Thinking: The Surprising Truth About Success*. We can apply this concept to refining techniques in animal research.

Refinement requires the systematic analysis of the animal's lifetime experience into its component steps, to identify potential sources of physical and psychological suffering and to put in place measures to eliminate or ameliorate this. In this article, we focus on the 'R' of refinement and present examples of how small changes to everyday procedures can be implemented to refine experimental procedures.



Figure 1. Microsampling technique.

Refining blood sampling in mice

If you need to take a blood sample from a laboratory animal the first port of call in looking for refined procedures should be the excellent NC3Rs website, which provides species specific information and guidance on method selection¹.

How much blood do you need?

The Home Office mandates that the maximum volume that can be taken is <10% total blood volume (TBV) on any single occasion to avoid hypovolaemic shock². For repeated blood samples this is typically limited to <15% TBV in 28 days. On average, mice have around 58.5 ml of blood per kg of bodyweight. So for an adult 30 g mouse TBV=1.75 ml and the maximum blood sample

you can take is 175 μ l. However, the biochemical methods used for analysing blood samples typically require small blood volumes. Smaller blood volumes (20–40 μ l) should be taken in the case of repeated sampling or when using juvenile mice, which may weigh only 10–15g. So we should collect just the blood that we need.

What are your options?

There are a large number of methods of collecting a blood sample from a mouse³. It's important to think about your sampling techniques and how to ensure you only take what you need. For example, consider the blood volume that collects in the syringe: can you reduce the dead space? Also, if you plan to do behavioural pharmacology, the use of anaesthesia or invasive indwelling cannulae might confound the behaviour you are



Figure 2. Cupping technique

studying. A number of microsampling techniques and devices are available to limit blood volume collected⁴.

Sadler and Bailey validated a refined method for repeated blood sampling in juvenile and adult mice using the tail incision method to sample from the lateral tail vein⁵. The lateral tail vein is an appropriate route for repeated sampling of small blood volumes from mice without anaesthesia, although vasodilatation may be required, which is in itself a potential stressor.

For this method the mouse is gently cupped by one person while the experimenter makes a small incision, about 2 cm from the tip of the tail, in the lateral tail vein using a razor blade (Figure 1). Blood is directly collected into small volume (20–40 µl as required) capillary tubes. Blood flow starts and stops spontaneously through the small incision or with a small amount of pressure so no blood is “wasted”. When corticosterone levels were used to assess whether repeated measurements (up to three times at 24-hour intervals) were stressful, there was no difference between corticosterone levels in samples taken on the third day compared with baseline.

With this methodology Sadler and Bailey demonstrated a minimally invasive procedure for blood sampling that refined handling of the animals (no restraint devices were used), no anaesthesia was used, the smallest

blood volume necessary was taken (and none wasted in needles or syringes), no tail warming was required and the procedure was demonstrated to be as stress-free as possible. Additionally, the ability to take samples from the same mouse at multiple time points reduces the number of animals required for an experiment, compared to taking terminal blood samples from large numbers of mice. Thus, this method is in keeping with the principles of both refinement and reduction of animal use.

Refining restraint methods for drug dosing

For most pharmacological studies an experiment will involve the administration of substances to the animal by injection or via oral gavage. The details of how animals were handled during the administration of the substance is not normally reported in the literature beyond general statements such as ‘lightly restrained’. There are in fact a wide variety of methods used to restrain rodents for drug dosing. The most refined methods currently recommended are described on the *Procedures with Care* website which includes video demonstrations of the techniques they recommend⁶. These approaches all use some form of physical restraint which can be both stressful and aversive to the animal. Stress has the potential to have major effects on results, changing an animal’s

physiology and potentially altering the pharmacological response.

Restraint stress is one of the most common methods used to induce a negative affective state in animals, and yet is used routinely as part of dosing procedures. It is also likely that the experience of the handler will have a major impact on the stress of the animal during dosing which can result in variability in the data and potentially limit reproducibility. Interestingly, methods to improve physical restraint have been adopted in other areas outside rodent research. For example, studies have shown that primates can be trained to accept injections and blood sampling without physical restraint and through the use of positive reinforcement training⁷. This approach has also been adopted in zoos where animals are trained to accept procedures through training, reducing the need for sedation, anaesthesia and the stress of restraint. So could the methods used to handle rodents be improved to minimise restraint so that stress is reduced and the processes refined?

A new approach

In 2015, Stuart and Robinson published a study reporting a modified handling technique for intraperitoneal dosing in rats which reduced measures of stress without impacting on the pharmacokinetics of the drug⁸. The authors developed a method whereby animals were minimally restrained during intraperitoneal dosing using

a cupping technique (see Figure 2). Rather than the conventional method of a firm restraint of the animal or scruff, the animal is positioned so that its abdomen is in a relaxed position. The animals show minimal response to the insertion of the needle in stark contrast to animals which have been restrained using a conventional method (see the online movie at bit.ly/PMApril). The study found a ~50% reduction in corticosterone levels in animals dosed using this refined method as well as reduced behavioural measures of stress (reduced struggling, vocalisation and faecal count). The method was tested across a number of different rat strains and age groups with similar benefits observed. The approach was particularly beneficial in well-handled animals illustrating the added value of habituation of animals to procedures.

Although not necessarily a technique that everyone will feel confident to adopt, the method clearly illustrates the advantages of reduced physical restraint during routine dosing methods. This is an important area for refinement as it can not only benefit the welfare of the animals but may also improve scientific outcomes. The work also highlighted the level of stress that even short restraint periods can trigger on an animal and the potential for this to adversely affect results.

Hopefully these examples will encourage you to think about your experimental design and practice. Things like: methods of restraint, choice of vehicle, route of administration, changes to housing and care, use of peri- and post-operative analgesia, use of dedicated welfare score sheets and humane endpoints. It's reassuring that when you talk to scientists many of these things are considered normal and "just how we do things" but they represent important refinements that can make a big difference to animal welfare. Perhaps we can all do more to report the refinements we use every day – big or small – and share good practice with the wider scientific community.

Refinement can be defined as the proactive application of methods and techniques that reduce the potential for pain, suffering, distress and lasting harm to be experienced by animals used for scientific purposes.

About the authors

Elliot is a Senior Scientific Officer in the Research Animals Department of the Royal Society for the Prevention of Cruelty to Animals (RSPCA). Prior to joining the RSPCA he spent 15 years as a pharmacologist in the pharmaceutical industry and has been a member of the British Pharmacological Society since 1994. He is an editor of the *British Journal of Pharmacology*, a former member of the British Pharmacological Society's Meetings Committee and a current member of the Animal Welfare and *In Vivo* Pharmacology (AWIVP) Sub-Committee.

Sarah is currently a Senior Lecturer in the Department of Pharmacy and Pharmacology, University of Bath, where she is also chair of the Animal Users Forum and also a Public Engagement Advocate and support innovative ways to increase engagement with research. Her research focuses on understanding molecular mechanisms underlying depression and anxiety. She is a Schools Ambassador for Understanding Animal Research and has worked with the Science Media Centre to promote the importance of being open about animal research in the development of medicines. Sarah is a member of the British Pharmacological Society and sits on the Policy & Public Engagement Committee and Animal Welfare and *In Vivo* Pharmacology (AWIVP) Sub-Committee. She is also a member of British Association for Psychopharmacology and have been elected to Council by the membership (2013-2017).

Emma completed her BSc(Hons) in Pharmacology in Bristol in 1995 and PhD in Psychopharmacology in 1999. In 2005, she was awarded an RCUK Academic Fellowship which included an opportunity to work at the University of Cambridge, Experimental Psychology Department. Now based in Bristol's School of Physiology, Pharmacology and Neuroscience, Emma's research focuses on studies to investigate the neural and neurochemical mediators of normal cognitive and emotional behaviour and how these are disrupted in psychiatric disorders. Her work on novel rodent models for depression research has also provided an opportunity to undertake objective assessments of laboratory animal welfare.

References

1. National Centre for the Replacement Refinement and Reduction of Animals in Research. *Blood Sampling*. Available from: <https://www.nc3rs.org.uk/3rs-resources/blood-sampling> [Accessed 8 March 2017].
2. McGill MW, Rowan AN. Biological effects of blood loss: Implications for sampling volumes and techniques. *Institute for Laboratory Animal Research*. 1989, October; 31 (4): 5-20.
3. Hoff J. Methods of blood collection in the mouse. *Lab Animal*. 2000, November; 29 (10): 47-53.
4. National Centre for the Replacement Refinement and Reduction of Animals in Research. *Microsampling Videos*. Available from: <https://www.nc3rs.org.uk/microsampling-videos> [Accessed 8 March 2017].
5. Sadler AM, Bailey SJ. Validation of a refined technique for taking repeated blood samples from juvenile and adult mice. *Lab Animal*. 2013, October; 47(4):316-9.
6. Procedures with Care. Available from: <http://www.procedureswithcare.org.uk> [Accessed 8 March 2017].
7. National Centre for the Replacement Refinement and Reduction of Animals in Research. *Training Animals* Available from: <https://www.nc3rs.org.uk/training-animals> [Accessed 8th March 2017].
8. Stuart SA. and Robinson ESJ. Reducing the stress of drug administration: implications for the 3Rs. *Scientific Reports*. 2015, August; (5) 14288.

Young Pharmacologists update

Vedia Can, on behalf of the Young Pharmacologists Advisory Group



Flash poster prize winner Sam Groom.



Satellite event networking session.

December 2016 was a super busy but a very exciting month for the Young Pharmacologists Advisory Group. Throughout the year, we were planning new events to help raise the profile of pharmacology and to involve the Society's younger members. We had three main events to execute prior to and during *Pharmacology 2016*, and to our delight the feedback from our younger peers was very positive.

Our satellite event – Shaping the future of pharmacology

To kick-start *Pharmacology 2016*, the Young Pharmacologists Advisory Group organised a special satellite event, which was held a day before the main conference. The half-day programme aimed to inspire younger scientists to engage in pharmacology in new ways.

This was the first time in the British Pharmacological Society's history that such an event has been organised and hosted, and we were delighted

to welcome young scientists from 14 different countries, from undergraduate and Master's students, through to PhD and post-doctoral researchers.

The afternoon was split into three main sessions, intended to highlight how younger scientists can make a difference through their involvement with a Learned Society, public engagement and policy work. Speakers shared their personal experiences of shaping the future of pharmacology, with a view to helping support younger pharmacologists in identifying how they could develop their careers across a variety of activities.

The meeting then concluded with a 'speed networking' event, where attendees were able to ask questions to a host of scientists from different career paths, including scientific writing, academic research, non-profit organisations and the pharmaceutical industry.

Our symposium on 'Organ on a chip'

The British Pharmacological Society's Meetings Committee annually calls for symposia and workshop proposals from the wider scientific community, to be submitted for the flagship annual meeting *Pharmacology*. We were delighted when our symposium proposal – organised by the Young Pharmacologists Advisory Group members Laura Ajram and Joanne Carter – was accepted for *Pharmacology 2016*.

Our symposium was on the developments in 'organ on a chip' technology, which we thought would appeal to a wide range of pharmacologists. Speakers were selected from leading research institutes across the globe. We would like to thank our panel for presenting their exciting research during our symposium: Dr Andries van der Meer, University Twente, Netherlands;



The author attending the satellite event.

Dr Jackie Mitchell, King's College London; Dr Agata Nyga, University College London; Dr Reyk Horland, TissUse; and Helen-Marie Dunmore, Medicines and Healthcare Products Regulatory Agency (MHRA). Thanks also to Joanne Carter and Dr Sam Jackson from NC3Rs for chairing the symposium so well.

On behalf of the Young Pharmacologists Advisory Group, I would also like to thank the British Pharmacological Society and everyone involved in helping us to host this symposium. We feel honoured and proud to have been given this opportunity to continue our successful momentum of organising and chairing a symposium at every recent British Pharmacological Society annual meeting.

Flash poster presentations

For the first time at the Society's annual meeting, a limited number of authors were selected to present their research as 'flash posters' in a dedicated space in the exhibition hall. The selected abstracts from the submissions to *Pharmacology 2016* were of a high standard and presenting authors were given the opportunity to deliver a 2-minute presentation to generate curiosity and attract attention to their work.

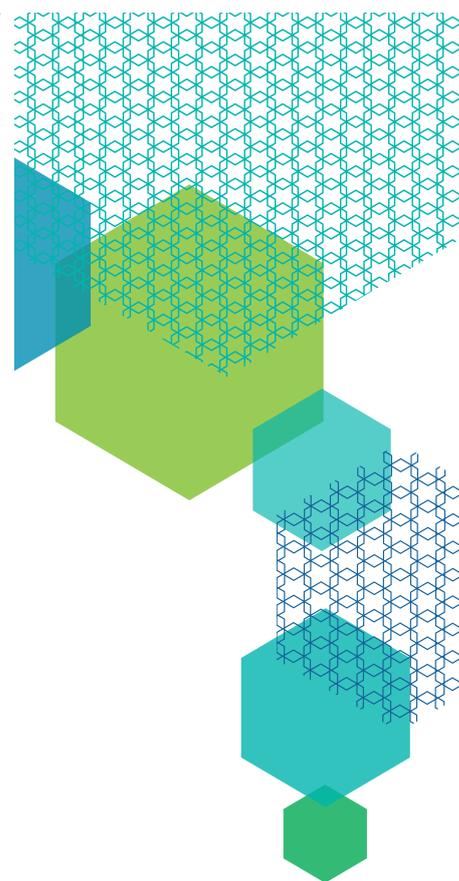
Thanks to the Meetings Committee for selecting the Young Pharmacologists Advisory Group to co-chair this prestigious event and for giving us the opportunity to help support the judges during the fantastic presentations presented by our peers. The winners for the best flash poster prizes were Dr Chris Green, Sam Groom & Dr Steven Tucker, who each received a prize of £250.

Looking ahead

2017 will prove to be another busy year for the Young Pharmacologists Advisory Group. We started the New Year by bidding farewell to a long-standing group member Dr Thomas Mercer. Tom joined the group in 2011 and made significant contributions to its activities. We would like to take this opportunity to thank him for all of his hard work over the past several years, the wisdom he has passed down to us and to wish him all the best for his future endeavours.

In January 2017, the Young Pharmacologists Advisory Group submitted a symposium proposal for *Pharmacology 2017*, which I organised with Young Pharmacologists Trustee Aidan Seeley. It is with delight to announce that the Meetings Committee has accepted this symposium proposal on 'Membrane trafficking – The highway to novel pharmacological targets'. We are super excited in organising this event, which will be held on 12 December as part of *Pharmacology 2017*.

The Young Pharmacologists Advisory Group has also re-launched our videos on 'How do Drugs Work?' on YouTube,



and are in the process of introducing international members onto the Young Pharmacologists Advisory Group. We look forward to updating you on these and other developments later in 2017.

About the author

Vedia is a Doctoral Researcher at the University of Westminster, specialising in immunopharmacology, and also a member of the Young Pharmacologists Advisory Group and Pharmacology Matters Editorial Board at the British Pharmacological Society. Her primary research focus is exploring how inflammatory pathways in an osteoarthritic model can be inhibited using novel compounds. Previously, she completed a Bachelor's degree in Biomedical Sciences and a Master's degree in Medical Molecular Biology.

Ambassadors update: Extending and celebrating the importance of pharmacology in London

Aisah Aubdool, The William Harvey Research
Institute, Queen Mary University of London



Firstly, I would like to thank the British Pharmacological Society for giving me an opportunity to be an ambassador, creating or supporting activities both at King's College London (KCL - where I was based until 2016) and Queen Mary University of London (where I am now based). This pilot scheme, running June 2015 until June 2017 as set out in *Pharmacology Matters* last year, is enabling me and other ambassadors to spread the awareness and importance of pharmacology locally. In this issue, I would like to highlight some of the events at KCL.

Ahead of Women's History Month in March, we organised a Women in Pharmacology event to celebrate the achievements of female pharmacologists at KCL. This event was a collaboration between British Pharmacological Society, KCL Bioscience Students' Association and KCL Pharmacological Society.

The event was opened by an engaging talk from Dr Julie Keeble, a lecturer at KCL and the chief scientist at International Space School Educational Trust. Dr Keeble's enthusiasm for public engagement and outreach, in addition to her pharmacology research, allowed her to build a collaboration with the International Space Station (ISS) where she works with talented young people, to design pharmacological experiment that can be carried out in the ISS! Audience members were equally inspired and thrilled to learn about Dr Keeble's journey into public engagement.

Dr Manasi Nandi, a senior lecturer in Integrative Pharmacology at KCL, gave an insightful talk about the hurdles, challenges, and determination that is required to pursue a career in academia; her honest and candid portrayal of her journey from researcher to a lecturer was informative and highlighted the crucial role of the Society in career development. Dr Nandi's current research is centered on developing translatable preclinical models, and refining research models to understand cardiovascular diseases and improve experimental animal welfare.

The third speaker, Dr Christina Warboys, a research fellow at Imperial College London provided an early career researcher perspective to the audience. Dr Warboys talked about her journey into recently gaining a British Heart Foundation Intermediate Research Fellowship in January 2016. Dr Warboy's research focuses on understanding the mechanisms by which endothelial cells sense and response to disturbed flow. Dr Warboy's talk was inspirational and she succeeded in defying her own expectations through perseverance, positivity and determination. She emphasized that, regardless of your chosen career path, the role of a mentor is beneficial and certainly helpful for the next career transition.

Dr Julie Keeble:

"The KCL Women in Pharmacology evening was a fantastic opportunity to discuss career opportunities in science with students and young scientists in an informal, relaxed atmosphere. A lot of students were very keen to get involved in outreach activities at KCL and it was great to be able to involve some of them in schools' activities following the event."

Nurjahan Saleque, BBSRC-funded PhD student at KCL:

"When I attended the event, I was a final year undergraduate student. The speakers were very engaging and I appreciated their honesty in how they all, as women, were able to balance a career in research with other aspects of life such as outreach and having a family. In turn, I became involved with the mission discovery programme, run by Dr Keeble for school children and, have embarked on a PhD. I hope to attend more events such as these throughout my PhD to facilitate my achieving a successful career as a woman in science."

**Fulye Argunhan,
MRC-funded PhD student at KCL:**

"The event was very much informal and the speakers were extremely approachable. I appreciated the advice from Dr Manasi Nandi. Whilst listening to the speakers, I learnt that perseverance was the major player in their success, as well as 'saying yes' to opportunities that come your way, even if initially, it does not sit well with you! I felt emotionally connected and inspired, and found the event very informative."

In December 2016, KCL Biomedical Society hosted a Careers Symposium, which was supported by the British Pharmacological Society. The event was a successful meeting that attracted not only undergraduate students from KCL, but other regional universities. This event was a great opportunity for the undergraduate students to meet pharmacology lecturers and early career researchers, and to learn more about careers in pharmacology, at both in academia and industry.



Participants in action at Pharmacology's Got Talent.



Left: Participants at the Pharmacology's Got Talent
Right: Professor Ian McFadzean.



The materials provided by the British Pharmacological Society were greatly appreciated by the students. The informal session encouraged the students to not only learn about pharmacology and the opportunities available to them, but also about different cultures, backgrounds and personal characteristics that shapes an energetic pharmacological scientific community. Dr Khadija Alawi, a postdoctoral researcher at KCL, has a strong devotion to the science of pharmacology and was invited to speak about her academic career, and the students were inspired to find more opportunities to enhance their educational and career opportunities.

In February 2017, KCL held the *Pharmacology's Got Talent* competition and the British Pharmacological Society supported the winner prizes. This event was well organized by both Professor Susan Brain and Dr Susan Duty, and attracted talented young undergraduate and postgraduate students. The audience was lively and engaged, hosted by the comperes, Drs Susan Duty and Andy Grant, who provided an 'Ant & Dec' style of hosting. The judges consisted of Professor Ian McFadzean, Dr Yanira Vasquez and PhD student Lizzie Mann.

The Animal Models Choir, led by the choirmaster Dr Aileen King, kicked off the event with a light-hearted *in vivo*-orientated parody of Gloria Gaynor's 'I Will Survive'. We also witnessed artistic performances ranging from piano to electric guitar, to Russian dancing. The event ended with some 'pharmacological' jokes from Professor Ian McFadzean. The feedback from the event was resoundingly positive.

**Professor Susan Brain,
Head of Pharmacology at KCL:**

"The Pharmacology's Got Talent event recently was a first for our Department and brought together a capacity audience. There were nine Acts and we were delighted that the prizes were donated by the British Pharmacological Society Ambassador for KCL, Dr Aisah Aubdool. The evening showcased some exceptional talents, which made the decision of the judges very difficult. I thank everyone who was involved in making the evening such a success. The winner was Sophie Kim, with runner up Kyle Dewar-Mckay and third prize went to Xenia Kodji."

**Xenia Kodji,
AJ Clark PhD student at KCL and third prize winner:**

"Pharmacology's Got Talent enriched everyone's Friday evening with music and laughter. Contributions came from students and lecturers, with scientific jokes included in honour of pharmacology and medicine, and a supportive audience put the performers at ease. Overall, a wonderful evening which highlights the multi-talented members of the pharmacology staff and students."

**Pratish Thakore,
KCL Graduate Teaching Assistantship-funded Phd student:**

"The highlight of the evening was the "choir", never has animal research been sung so majestically! The only thing missing from the evening was an ileum stringing up contest."

About the author

Aisah is a postdoctoral researcher in the Heart Centre at The William Harvey Research Institute, where she studies the role of endothelial C-type natriuretic peptide in angiogenesis and vascular remodeling in the lab of Professor Adrian Hobbs. Prior to this, she graduated with a BSc (Hons) in Pharmacology and completed her MRes and PhD studies in Cardiovascular Medical Research under the supervision of Professor Susan Brain at King's College London. Her doctoral research concerned the role of TRPA1 in the vasculature. Aisah has been a STEM ambassador since 2010 and BPS Ambassador since 2015.



The AllTrials campaign. Bring out your unreported trials!

Síle Lane, head of international campaigns and policy, Sense about Science



Clinical trials are at the heart of modern medical research. They are the best means we have of testing whether a medicine is safe and whether it works. Around the world, pharmaceutical companies, universities, government research institutes and medical charities run tens of thousands of trials every year. Some of these trials can involve thousands of patients, take many years to complete and costs hundreds of millions of pounds.

So it's a problem that the results of around half of all clinical trials currently remain hidden¹. Results from these trials have never been posted or published anywhere. As a result, a huge amount of medical research goes to waste. Potentially valuable findings are lost, research teams unknowingly duplicate each other's work, and gaps in knowledge are hard to identify. This has a direct impact on doctors' and patients' abilities to make informed choices about treatment options.

For example, Saudi Arabian doctor Dr Aus Alzaid discovered that a clinical trial relevant to his patients with diabetes had been conducted years earlier and had shown that a medicine had been linked to an increased risk of dementia, but the trial results had never been made public. As Dr Alzaid said, "In the meantime, millions of people were taking the drug [tested in the trial] and could be at risk of dementia unless the work was published."

The AllTrials campaign calls for all clinical research – past, present and future – to be registered and the methods and results to be fully reported. Watch our TEDx video². Over 700 patient, carer and community support organisations worldwide have joined the campaign. Together,

these groups represent more than half a billion people. Leading medical associations including the American Medical Association and the British Medical Association are part of the campaign too, and of course the British Pharmacological Society was one of the earliest groups to stand up and support AllTrials.

Working together, this broad coalition has already achieved some major successes. In 2013, GlaxoSmithKline became the first company to make strong public commitments to publish results of its trials. That same year, thousands of AllTrials' supporters convinced the European Parliament to include laws on trial reporting in the EU clinical trial regulations, and the US Food and Drug Administration also agreed to monitor reporting more closely. In 2015, the World Health Organization called for the public disclosure of all results, past and present, and investment groups and pension funds worth more than €3.5 trillion called on pharmaceutical companies to post trial results. And late last year, in September 2016, the United Nations called on every government around the world to mandate trial reporting.

While positive change is happening, it is not happening quickly enough. Every day, missing results are becoming lost results as researchers, and software, retire. If those responsible for trials that haven't yet been published do not act fast, vast troves of vital medical knowledge will be lost forever.

That's what the AllTrials campaign is focusing on now. Late last year, we launched a roadmap to transparency setting out what doctors, researchers, universities, patient groups, and



professional associations can do to help drive forward change³. It includes examples of good practice that's already happening, such as when the British Pharmacological Society and the American Society for Pharmacology and Experimental Therapeutics announced they would support the publication of negative findings from early clinical trials through their jointly published journal, *Pharmacology Research & Perspectives*.

Meanwhile, AllTrials is rapidly growing into a truly global campaign. National and regional branches recently launched in the United States, Italy, Norway, and Spain-Iberoamerica are amplifying the call for all trials to be registered and all results reported, leading a cultural shift away from the lax reporting practices of the past. Their joint aim is to establish systems of responsibility and accountability that will endure beyond the life of

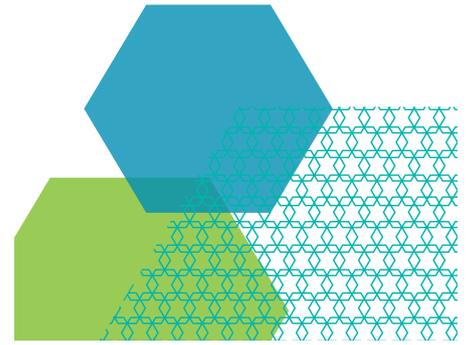
AllTrials. In the US, nearly 100 medical and patient groups have added their voices and are calling on every other organisation in their sectors to join.

However, a shift in research culture and new regulations alone will not be sufficient to uncover all unreported past trials, particularly in academia. The only way to turn this around is to start to pin point trials that remain unreported. AllTrials is going to work with the new suite of tools and trackers (such as TrialsTracker <https://trialstracker.ebmdatalab.net/> built by a group at Oxford University) that automatically flag unreported old trials to help trial funders and researchers to identify if they are responsible for trials that need reporting. We're here to help them get the results out, and we'll loudly celebrate each new trial that gets uncovered. Join us!

Learn more about the AllTrials campaign and get in touch at www.AllTrials.net.

About the author

Síle is head of international campaigns and policy at Sense about Science (SaS), the charity that promotes understanding and use of scientific evidence and challenges its misrepresentation. She runs the AllTrials campaign for clinical trial transparency, and oversees SaS's Brussels office, which works to mobilise European citizens and researchers to scrutinise EU policymaking. Síle joined SaS as public liaison in February 2009 to work with patient groups, civic society organisations and medical research charities to promote the tools of scientific thinking and challenge misleading claims. Before this she was a post-doctoral researcher at Imperial College London working on stem cells.



References

1. AllTrials. *AllTrials briefing*. March 2016. Available online: <http://www.alltrials.net/wp-content/uploads/2016/03/AllTrials-briefing-doc-how-many-clinical-trials-unreported.pdf>. Last accessed: 7 March 2017.
2. Lane, S. *The hidden side of clinical trials*. TEDxMadrid 2016. Available online: <https://www.youtube.com/watch?v=-RXrGLolGc&feature=youtu.be>. Last accessed: 7 March 2017.
3. AllTrials. *A roadmap to clinical trials transparency*. October 2016. Available online: <http://www.alltrials.net/news/roadmap/>. Last accessed: 7 March 2017.

BAP

British Association for
Psychopharmacology



Featuring a range of non-clinical and clinical presentations across of range of neuropsychiatric conditions

- The psychopharmacology of emerging calcium channel targets
- Behavioural and substance addictions: Similarities and differences
- Adverse and beneficial effects of cannabinoids - new insights from genetics and clinical trials
- The role of brain connectivity in brain disorders and their treatment
- Psychopharmacology of the older and, almost certainly, degenerating brain
- The brain-gut axis: Breaking the dichotomy between physical and mental health

summer meeting 2017

Harrogate International Centre,
King's Road, Harrogate
Sunday 23rd to Wednesday 26th July

Guest Lecture presented by Professor Sir Robin Murray

Preclinical Workshop

How can we refine preclinical psychopharmacology?

Trainees' Workshop

This year the overarching theme will be "How to ..."

PLUS bursaries, prizes and poster sessions

Welcome Reception and Disco

Conference Dinner at The Royal Hall including presentation of the 2017 Prizes and Awards

For full details of the meeting go to
www.bap.org.uk/BAP2017

The Society's Advisory Groups – guest starring the new International Advisory Group members



Teesha Bhuruth, Engagement Manager

The British Pharmacological Society is proud to have four Advisory Groups to represent the interests and views of its diverse membership. The Advisory Groups are essential in providing a two-way communication between the Society's membership and its Council and Committees, and make a valued contribution to the Society's activities by ensuring that members needs are listened to and addressed.

The Society established its Women in Pharmacology Advisory Group and Young Pharmacologist Advisory Group in January 2015 after the Society reviewed its governance structures, and the Speciality Training Registrar

Advisory Group followed in August 2016. The success of these Groups and the valuable contributions they have made to Society activities have paved way for the formation of one additional group in 2017: the International Advisory Group.

The Advisory Groups are a great way to get involved with the Society: they regularly share announcements about activities in the Society's email newsletters such as volunteering in activities, funding opportunities, and prizes and awards. Members can subscribe to these newsletters by updating their membership profile preferences online (login required).

Each Advisory Group consists of a core group of members who act as a steering group. These members were initially selected and approved by Council, but new members are chosen by the core group (subject to ratification from Council). The Groups will advertise vacancies and invite applications from members through the Society's email newsletter as well.

In addition, the Advisory Groups would welcome any thoughts and ideas you might have, and you are invited to get in touch (you can find contact details under each Group heading below).

Women in Pharmacology Advisory Group

With our growing membership, over a third of the Society's members identify as female, and the Group exists to capture the needs of this member demographic, help promote careers for women in pharmacology and clinical pharmacology and to address the under-representation of women at senior level.

Chair: **Vacant, to be appointed in 2017**

Office support: **Anna Zecharia, Head of Education, Training & Policy and Teesha Bhuruth, Engagement Manager**

Get in touch: wip@bps.ac.uk

Young Pharmacologist Advisory Group

Over a third of the Society's total membership are under the age of 30 and the Young Pharmacologists Advisory Group represents the voice of younger members to the Society's Council and other committees. The Society consider younger members to be inclusive of undergraduate, postgraduate and early career membership categories.

Chair: **Professor Clare Stanford, University College London**

Office Support: **Teesha Bhuruth, Engagement Manager**

Get in touch: teesha.bhuruth@bps.ac.uk

Speciality Registrars Advisory Group

Our Society champions the importance of clinical pharmacologists in the NHS: their multi-faceted role includes treating patients, training other clinicians in prescribing best practice, and the development of innovative new medicines.

The Society has well-established, dedicated annual training and assessment sessions for Clinical Pharmacology and Therapeutics (CPT) Speciality Registrars during the annual *Pharmacology* meeting.

The Speciality Training Registrar Advisory Group was established by the Society to represent the interests and views of these members, and to provide two-way communication between the Advisory Group, Council and Committees. The Group ensures the needs of the Speciality Training Registrars are catered for by the Society and promotes the contribution of these members to the Society's activities, particularly our policy and educational initiatives.

Chair: **Dr Emma Morrison, University of Edinburgh**

Office Support: **Lee Page, Clinical Education, Training & Policy Manager**

Get in touch: lee.page@bps.ac.uk

New! International Advisory Group

Now more than ever, the Society is committed to engaging our ~800 international members in efforts to promote and advance pharmacology worldwide, including publishing, scientific meetings and educational initiatives. An International Advisory Group has been established to ensure that the Society delivers its commitment to addressing the needs of all its members, regardless of geography.

In January 2016, we conducted a survey to all members with valid emails based outside of the UK. It was very encouraging that 52% chose to participate in the survey (417 international members), with 89% considering that an International Advisory Group would be valuable, and 74% expressing an interest in joining the Group themselves.

When we called for expressions of interest, we were pleased to receive 46 applications from members – and were impressed by the apparent enthusiasm and experience that the Group would be able to draw upon. Of course it proved to be a challenge for Council in the selection process to whittle the applications down to just 14, but it was important to launch with a core group of a reasonable size.

For its initial three-year term, Council selected the members outlined below. Led by the Chair, Patrick Sexton, and the Deputy Chair, Felicity Gavins, the first meeting of the Group was held in March 2017.

It is anticipated that exciting collaborations and projects will arise from their activities and we look forward to updating on developments in the near future.

Chair: **Professor Patrick Sexton (please see overleaf)**

Deputy Chair: **Dr Felicity Gavins (please see overleaf)**

Office Support: **Teesha Bhuruth, Engagement Manager**

Get in touch: teesa.bhuruth@bps.ac.uk

The International Advisory Group



Name: **Patrick Sexton, Chair**
Resident: **Australia**

Professional occupation: Theme Leader, Drug Discovery Biology, Monash Institute of Pharmaceutical Sciences



Name: **Felicity N. E. Gavins, Deputy Chair**
Resident: **USA**

Professional occupation: Assistant Professor & Director of Small Animal Imaging Center, Louisiana State University Health Sciences Center-Shreveport



Name: **Wan Amir Nizam Wan Ahmad**
Resident: **Malaysia**

Professional occupation: Senior Medical Lecturer, Senior Medical Lecturer, Universiti Sains Malaysia



Name: **Hesham Al-Sallami**
Resident: **New Zealand**

Professional occupation: Senior Lecturer, University of Otago



Name: **Ingolf Cascorbi**
Resident: **Germany**

Professional occupation: Professor of Pharmacology, University of Kiel



Name: **Serge Cremers**
Resident: **USA**

Professional occupation: Associate Professor/Laboratory Director, Columbia University Medical Center, Reviews Editor of British Journal of Pharmacology, and member of the British Pharmacological Society Meetings Committee



Name: **S.J. Enna**
Resident: **USA**

Professional occupation: Associate Dean for Research & Graduate Education and Professor in the Departments of Physiology and of Pharmacology, University of Kansas Medical Center



Name: **Thomas Griesbacher**
Resident: **Austria**

Professional occupation: Professor, Medical University of Graz



Name: **Rehab Hegazy**
Resident: **Egypt**

Professional occupation: Researcher, Pharmacology Department, Medical Division, National Research Centre



Name: **Olayinka Ogunleye**
Resident: **Nigeria**

Professional occupation: Senior Lecturer and Consultant Physician/Clinical Pharmacologist, Lagos State University College of Medicine and Teaching Hospital, Lagos



Name: **Kevin Pflieger**
Resident: **Australia**

Professional occupation: Head, Molecular Endocrinology and Pharmacology, Harry Perkins Institute of Medical Research and The University of Western Australia



Name: **Sonia Roberts**
Resident: **Switzerland**

Professional occupation: Principal Scientist (Drug Safety), F. Hoffmann-La Roche, Basel



Name: **Richard Schulz**
Resident: **Canada**

Professional occupation: Professor, Department of Paediatrics & Pharmacology, University of Alberta



Name: **Divya Vohora**
Resident: **India**

Professional occupation: Professor of Pharmacology, Jamia Hamdard University

About the author

Teesha is the British Pharmacological Society's Engagement Manager. Having graduated with a First Class BSc in Biomedical Sciences from the University of Southampton, her Technical Support and Field Sales Representative roles for laboratory specialists Anachem Ltd (Mettler Toledo) were followed by a year as Employment Contracts Officer for University College London. She works with the membership team, other staff and members, to develop and nurture the Society's relationships with its growing membership, potential members, stakeholders, and members of the public. Teesha also manages the delivery of the Society's public engagement initiatives as well as supporting the Society's Ambassadors pilot scheme.

All Africa Congress on Pharmacology & Pharmacy 2016



Eyasu Makonnen, Addis Ababa University, Ethiopia

The All Africa Congress on Pharmacology & Pharmacy was held in Muldersdrift, Gauteng, South Africa, 5–8 October 2016. It was jointly hosted by the Department of Pharmaceutical Sciences of the Tshwane University of Technology (on behalf of the Academy of Pharmaceutical Sciences South Africa) and the Department of Pharmacology and Therapeutics at the SefakoMakgatho Health Sciences University (on behalf of the South African Society for Basic and Clinical Pharmacology). The organizers also represented Pharmacology for Africa (PharFA).

The congress coincided with the 50th anniversary of the South African Society for Basic and Clinical Pharmacology, the 6th All Africa Congress of Basic and Clinical Pharmacology (ACP 2016), the 10th anniversary of Pharmacology for Africa (PharFA), and the 37th annual meeting of the Academy of Pharmaceutical Sciences South Africa.

I would like to thank Prof. Douglas Oliver, Prof. Tiaan Brink and the rest of the organizers for their hard work towards realizing this congress and especially Prof. Oliver for his efforts bringing us all together from different

corners of the continent. I would also like to express my gratitude to the British Pharmacological Society for supporting me and other participants through a generous bursary grant to PharFA. This support was valuable and has played a significant role in promoting the growth of pharmacology on the African Continent.

Participation in this important congress also enabled me to commit towards forming the Ethiopian Pharmacological Society. To this effect, I have drafted the bylaws and received feedback from potential members, and the next step is to call for a general assembly of members to approve the bylaws. This process will incur expenses, therefore I am currently seeking financial support for this activity. Any assistance in the formation of our society is highly appreciated.

I wanted to attend the All Africa Congress to share my research findings with the audience, to get informed on studies by other African colleagues and to gain insights about how other countries formed their own societies. I was able to meet researchers and pharmacologists from Africa as well

as other continents and discuss the future of Pharmacology. Overall, attending this congress has greatly encouraged me to advance science in the field of Pharmacology.

The theme of the congress, "Evidence in Action" was brilliantly selected. The congress was well organized and met its objectives, with highly relevant topics. The scientific findings presented via oral and poster sessions demonstrated the quality of research carried out in Africa, which made me really proud of our continent. The plenary sessions were highly educative and interesting.

Though we have a long way to go for PharFA, this was a very promising beginning, which gives us hope that it will grow fast. At this meeting, members showed their commitment to PharFA, and welcomed the opportunity to form national as well as regional societies to promote pharmacology across Africa.

About the author

Eyasu is currently working as a Professor in the Department of Pharmacology, School of Medicine, College of Health Sciences, Addis Ababa University, Ethiopia. He is involved in teaching both undergraduate medical students and graduate students (MSc and PhD in Pharmacology). He has published over 140 scientific papers in peer-reviewed journals. His areas of research include clinical trials and phytomedicine.

ALL AFRICA CONGRESS ON PHARMACOLOGY AND PHARMACY

5-8 OCTOBER 2016
MISTY HILLS HOTEL AND CONFERENCE CENTRE,
MULDRSDRIFT, GAUTENG, SOUTH AFRICA



Introduction to the Finance Committee



Mike Poole, Finance & Commercial Director



The Finance Committee at the British Pharmacological Society may seem a little mysterious in comparison with those committees more directly relevant to members' areas of primary interest and expertise. This article will give a bit of an insight into what the Committee is really like, the value it adds to the work of the Society and the experience of members who serve on it.



"It is interesting to be a member of the Finance Committee if you really want to get to grips with how the Society operates. It is all about maintaining and expanding income streams - involves development of exciting new ventures, and how the money is spent - always wisely, to promote what are ambitious but realistic goals."

Barbara McDermott
(served on the Committee 2014-2016)

Those on the Committee certainly get to understand how existing and new Society activities are financed, including the flagship annual meeting *Pharmacology*, the AJ Clark studentship and educational initiatives such as Focus on Pharmacology and the Prescribing Safety Assessment.

The Committee is very forward-looking: it reviews budgets, financial forecasts and projections. It also encourages new developments and innovation and considers new proposals carefully to ensure they will proceed successfully. In this regard, the financial strategy is a key output of the Committee as it helps the Society meet the ambition of its 5-year strategy, while balancing it with resources so as to ensure the long-term viability of the Society.

Of course there are lots of figures! However, the emphasis is on useful summaries to enable the Committee to "zoom in" on relevant details. Reasons for any unexpected financial performance are sought and provided, to ensure accountability and improve forecasting.



"My main role was to see that money was allocated wisely, particularly in regard to the longer term aims and ambitions of the Society. Consequently, membership proved to be both interesting and worthwhile, and joining this Committee has to be of interest to anyone wanting to be involved in both the future of the Society and pharmacology in general."

Richard Green
(served on the Committee in 2016)



The Society currently has £5million of investments and the Finance Committee is the primary place where important matters such as the investment policy and portfolio are reviewed, the balance between risk and potential reward is set, and performance is monitored.

Its remit means the Committee has access to all areas of the Society's activities, and this is further reinforced by its wide-ranging scope, including:

- Ensuring that risks faced by the Society are properly identified and managed
- Human Resources – in particular overall affordability of staffing arrangements and pensions
- Impact measurement and reporting (an important, developing area for the Society)

Clearly then, the Committee is not only about financial matters!

"There are many quite different strands in the remit of the Committee, so the work is varied. Consideration of the investment portfolio may be riveting for some."

Barbara McDermott
(served on the Committee 2014-2016)

Committee members are supported by access to a plethora of external experts with relevant expertise and qualifications, from fields such as:

- Accountancy and audit
- Taxation and VAT
- Investment management
- Legal

Relevant internal expertise is provided by staff, including David James (Head of Innovation & Commercial Development), Amandeep Bhardwaj (Finance Manager) and myself.



"It is most interesting to see the financial workings of the Society – and most reassuring to see how well the Society is run financially. I would very much encourage other members to get involved."

Nick Barnes
(served on the Committee 2013 to date)

In turn, these advisers, their advice and all this expertise improve the business skills of those who serve on the Committee. The Honorary Treasurer, Robin Plevin, chairs the Committee and encourages members, by agreement with them, to focus on particular aspects of the Committee's work that will meet their individual interests, expertise and areas for development. This also helps to ensure that each item of business is more thoroughly considered, as well as enhancing members' knowledge and expertise in each area.



"Finance Committee broadens my financial and management experience, useful skills for those school and university negotiations!"

Nicholas Holliday
(served on the Committee 2013 to date)

There are four meetings per year of between 2 to 3 hours' duration and participation by teleconference or videoconference is welcome. The Committee has vacancies arising every year; if you are interested in finding out more about its work and possibly applying to join, please contact Mike Poole mike.poole@bps.ac.uk or Robin Plevin r.plevin@strath.ac.uk



About the author

Mike is an ACA-qualified Chartered Accountant with a wealth of financial and business expertise. His priority as Finance & Commercial Director is to support the British Pharmacological Society's 5-year strategy with robust financial and business disciplines that protect, diversify and grow income while increasing efficiency. He is responsible for corporate services, including finance, IT, HR and facilities.

For more information about the Society's most recent budget and forecast, members can log on to the 'My Society' part of the website and view the presentations from the most recent Annual General Meeting: bit.ly/AGMInfo

Affinity Groups update

Niall Hyland, Vice President – Meetings, with Steve Safrany & Gary Stephens, co-chairs of the Molecular & Cellular Pharmacology Affinity Group



Amrita Ahluwalia spoke at an Affinity Group-supported symposium at Pharmacology 2016.

The British Pharmacological Society's Affinity Groups (see 'The Affinity Groups' box for a list) were established in 2015 to ensure: 1) all areas of pharmacology are well represented in the Society's activities, 2) to facilitate networking and discussion amongst researchers within the area and 3) to uphold the scientific quality of any of the Society's events relating to the Affinity Groups' activities.

Largely, to date, the Affinity Groups have worked with the Society's Meetings Committee in recruiting and reviewing symposia proposals and have assisted in programme development of the Society's meetings calendar, in particular for the flagship annual meeting *Pharmacology 2016* where attendees may have noticed symposia and posters aligned to particular Affinity Groups.

Symposium proposals are welcome across the wide range of interests within the Society, both for future annual and other associated meetings, as well as specialist scientific events, such as those advertised on the Society website. For example, the Molecular & Cellular Pharmacology Affinity Group supported the Society-sponsored symposium on "Small molecules inhibitors of ion channels in chronic pain states" at the 7th European Congress of Pharmacology meeting in Istanbul in June 2016. Arising from this symposium, the *British Journal of Pharmacology* Themed Issue "Targeting ion channels to treat chronic pain" was proposed and is currently in advanced preparation.

It is important to mention that each Affinity Group has its own co-chairs who are responsible for championing

their respective areas across Society activities, recruiting members to join their Affinity Group and providing support to the Meetings Committee – but these co-chairs would welcome support from the wider membership. As the Affinity Groups are still relatively new, all members are encouraged to sign-up to one or more Affinity Group and to let the co-chairs know how you think the specific Affinity Group can best serve your needs.

The Affinity Groups:

- Cardiovascular & Respiratory Pharmacology Affinity Group
- Drug Discovery, Development & Evaluation Affinity Group
- Education & Skills Affinity Group
- Systems & Integrative Pharmacology Affinity Group
- Molecular & Cellular Pharmacology Affinity Group
- Neuropharmacology Affinity Group
- Toxicology Affinity Group

To sign up to the Affinity Groups, and find out more about the areas they represent and the Affinity Group co-chairs, visit bit.ly/affinitygroup (member log in required) or contact the Society directly at affinitygroups@bps.ac.uk.



Jennifer Pluznick spoke at an Affinity Group-supported symposium at Pharmacology 2016.

In this issue of *Pharmacology Matters*, the recent activities of two of our Affinity Groups – Systems & Integrative Pharmacology and Molecular & Cellular Pharmacology – are highlighted.

1) The Systems & Integrative Pharmacology Affinity Group (co-chairs: Dr Niall Hyland, University College Cork, Ireland & Dr James Fullerton, UCLH, London, UK) serves members who study complex systems or take a whole animal approach to understand drug action or toxicity at molecular, cellular or organ system levels. Scientists working across several systems, or working in systems without a defined Affinity Group, would be ideally suited for the Systems & Integrative Pharmacology Affinity Group.

At *Pharmacology 2016*, the Systems & Integrative Pharmacology co-chairs along with Dr Pamela Hornby (Chair, Division for Translational and Clinical Pharmacology, ASPET) jointly organised a symposium entitled: "The Long Reach of the Bowel: Translating Microbiome Science into Therapeutics for Systemic Human Diseases". The symposium provided translational insights and a range of views on the promise and challenges of microbiome hypothesis generation and testing. In addition, the latest pharmacological tools and potential therapeutic approaches for drug discovery using bacteria were presented.

The topics within this symposium included:

- Mining the human microbiome for bioactive small molecules – Jan Claesen, The Institute of Food Research, UK
- Gastrointestinal hormonal responses upon FFA2 (GPR43) activation in mouse models – Helen Cox, King's College London, UK
- Bacterial signaling in the gut-brain axis – Niall Hyland, University College Cork, Ireland
- Renal and vascular sensory receptors that modify blood pressure control in response to changes in gut microbial metabolites – Jennifer Pluznick, Johns Hopkins Medical School, USA
- Engineered probiotics that reduce systemic ammonia levels in urea cycle disorder mice – Dean Falb, Synlogic, USA

2) The Molecular & Cellular Pharmacology Affinity Group (co-chairs: Professor Steve Safrany, RCSI Bahrain Royal College of Surgeons in Ireland, Bahrain & Professor Gary Stephens, University of Reading, UK) serves members with interests that cover a broad range of molecular signalling pathways and cellular aspects relevant to pharmacology, including basic biological processes and their dysfunction and

pharmacological manipulation under pathophysiological conditions.

The Molecular & Cellular Pharmacology Affinity Group supported three symposia during *Pharmacology 2016*:

- One symposium, organised and chaired by the Editor-in-Chief and Senior US Editor of the *British Journal of Pharmacology* (Amrita Ahluwalia and Paul Insel, respectively) covered "Non-traditional/orphan GPCRs as novel therapeutic targets". This symposium provided a good link with the Society's journal.
- The second symposium organised by the Molecular & Cellular Pharmacology Affinity Group was entitled: "Biochemical strategies in drug discovery and targeting". This symposium was organized in association with the Biochemical Society, who also had a stand in the exhibition hall.
- The final symposium was organized in association with the Chinese Pharmacological Society and was entitled: "Anti-tumor pharmacology and traditional Chinese medicine". The Chinese Pharmacological Society was a guest society during the meeting, continuing the Society's track record of collaboration with our Chinese counterparts.

The Molecular & Cellular Pharmacology Affinity Group also supported well-attended oral communications and poster sessions. The co-chairs would like to encourage Affinity Group members to get involved with chairing sessions and judging posters at future meetings. If you are interested please contact affinitygroups@bps.ac.uk.

What's next for the Affinity Groups?

Later this year, members of all of the Affinity Groups will be invited to volunteer as abstract reviewers or on-site poster reviewers, and to chair oral communication sessions at *Pharmacology 2017*. During the annual meeting, delegates will continue to be able to navigate symposia by Affinity Group topics.

New co-chairs will be recruited for a number of the Affinity Groups, strengthening the links with our journals with a view to providing content for themed issues and reviews, and working on developing new opportunities by which the membership can engage with the Affinity Groups. Watch this space!

Coming up for the Molecular & Cellular Pharmacology Affinity Group

The Molecular & Cellular Pharmacology Affinity Group has input into the forthcoming 8th European Workshop on Cannabinoid Research, the Society's Focused Meeting at the University of Roehampton on 31 August–2 September 2017 (see <https://www.bps.ac.uk/ewcr2017>).

At *Pharmacology 2017*, the Molecular & Cellular Pharmacology Affinity Group will support symposia on "Fostering orphan GPCR for novel therapeutic options"; "Membrane trafficking – the highway to novel pharmacological targets"; and "Protein-protein interactions: from biochemistry to drug discovery and pharmacology".

Looking forward, the Molecular & Cellular Pharmacology Affinity Group will also support the Society-sponsored symposium on "Calcium signaling in the CNS: ion channels and receptors" at the 18th World Congress of Basic and Clinical Pharmacology in Kyoto, July 2018.

About the authors

Niall was appointed Lecturer in Pharmacology in the School of Medicine at University College Cork in 2008. He also holds a Faculty position at the APC Microbiome Institute where his research focuses on the microbiota-gut-brain axis. Niall has a PhD in Pharmacology from King's College London and trained in both the USA and Canada. He is Co-chair of the Society's Systems and Integrative Pharmacology Affinity Group and is a member of the Editorial Board of the

British Journal of Pharmacology. He also contributes to the activities of the European Society of Neurogastroenterology and Motility and The American Gastroenterological Association Institute Council.

Steve obtained a degree in Medicinal and Pharmaceutical Chemistry from Loughborough University before moving to Leicester University Medical School for his PhD and a postdoc position studying inositol signalling under Stefan Nahorski. In 1994, he moved to the National Institute of Environmental Health Sciences, USA to work with Steve Shears and gain biochemical experience, continuing in the area of inositol phosphates. He returned to the UK (Dundee University) in 1999, having received a Royal Society University Research Fellowship. Further appointments at the universities of Bath and Wolverhampton predate his current position as Associate Professor of Pharmacology at Royal College of Surgeons in Ireland (RCSI)-Bahrain. His research interests include: inositol phosphates and sigma receptors.

Gary's research interests are in the use of *in vitro* electrophysiology to investigate modulation of ion channels and receptors and their role in presynaptic function. In particular he is interested in molecular determinants involved in the modulation of voltage-gated calcium channels and uses heterologous expression systems and native neurons in this work. He also studies inhibitory synaptic transmission in mammalian cerebellar brain slices, and excitatory transmission in hippocampal brain slices, with a focus on models of disease, namely ataxia and epilepsy, respectively. An area of current focus is on mechanisms of action of plant-derived cannabinoids.



Meetings update



Niall Hyland, Vice President – Meetings
Susanne Schweda, Head of Meetings & Events

Recent highlights

Pharmacology 2016

13–15 December 2016 | London, UK

At our recent annual meeting, *Pharmacology 2016*, we welcomed 1,122 guests from 44 countries to the Queen Elizabeth II Conference Centre in Central London.

The Society hosted a record number of 16 symposia ranging across all aspects of pharmacology, including three sessions organised by our guest societies; the American Society for Clinical Pharmacology and Therapeutics (ASCPT), the American Society for Pharmacology & Experimental Therapeutics (ASPET), the Biochemical Society and the Chinese Pharmacological Society (CPS). *Pharmacology 2016* attracted the greatest number of symposia (32) and abstracts submissions (450) to date, which emphasises the growing popularity of the meeting.

Pharmacology 2016 also saw the introduction of the career bootcamps, flash poster presentations and a delegate lounge. Following the feedback received from attendees in our post-meeting survey, all three additions will be featured again at *Pharmacology 2017*. The most popular sessions continue to be the plenary prize lectures, which filled the lecture theatre to capacity throughout all three days.

To celebrate the 85th anniversary of the Society, a special Welcome Reception was held as part of *Pharmacology 2016* at the prestigious National Gallery for a maximum of 250 people (the limit was 150 in 2015). This increased capacity for reception guests was well-received by responses in the feedback survey, as it allowed more delegates to participate and network.

We are delighted that the *Pharmacology 2016* app was downloaded by 41% of attendees and we will be looking into improving user experience and accessibility going forward, to ensure all visitors who want to can benefit and engage.

For all the photos and videos from *Pharmacology 2016*, please visit www.bps.ac.uk/pharmacology2016



Over 1,000 delegates from around the world attended *Pharmacology 2016*.



The Welcome Reception at the National Gallery.



ITMAT in Edinburgh

17 March 2017 | Edinburgh, UK

The Institute for Translational Medicine & Therapeutics (ITMAT) Meeting was held on the theme of 'Big Data & the Development of New Medicines' and was supported by the Royal Society of Edinburgh and the British Pharmacological Society. The meeting welcomed 113 delegates from the UK and Europe, both early and established researchers, from across science and medicine. This was the first ITMAT meeting to be held in Europe, and we are thrilled to have been a part of this successful and well-received event.

Upcoming meetings



8th European Workshop on Cannabinoid Research

31 August – 2 September 2017 | London, UK

The field of cannabinoid research has been one of most vibrant and active areas of pharmacology and biomedical sciences in the recent years. The British Pharmacological Society is proud to host the 8th European Workshop on Cannabinoid Research at the University of Roehampton.

This three-day conference in London will focus on basic and translational cannabinoid research, with perspectives provided by a range of high-profile speakers from around the world. The programme of plenary lectures and scientific sessions/symposia has been arranged by the Organising Committee to bring together scientists from across this changing and exciting field. The symposia will

cover the actions of cannabinoids across a broad range of themes/systems including, drug discovery, brain function, inflammation, cardiovascular, gastrointestinal, metabolism, cancer and drug abuse. Students, Post-docs and early career scientists are encouraged to submit their research, and abstracts will be selected for additional oral presentations.

The Organisers look forward to welcoming established academics/researchers, clinicians, postdoctoral researchers and early career investigators, postgraduate students, pharmaceutical industry representatives, policy makers, government agencies and members of the media.

Joint meeting with the Society for Medicines Research

5 October 2017 | London, UK

The Society will be organising a joint meeting with the Society for Medicines Research on emerging paradigms in drug discovery. This meeting is specifically geared towards young researchers with an interest in drug discovery research, welcoming attendees from the UK and Europe.

The one-day programme will feature the internationally-recognised speakers Professor Chas Bountra (University of Oxford), Professor Steve Charlton (University of Nottingham) and Dr Darrin Disley (Horizon Discovery). It will provide an opportunity for young researchers to present their research through oral and poster presentations and to network with other scientist working in the field of drug discovery.



Pharmacology 2017

11–13 December 2017 | London, UK

We have had consistent feedback from exhibitors, delegates and other key partners that the original dates for *Pharmacology 2017* were too close to Christmas and may have prevented significant numbers from attending – especially coinciding with the peak Christmas travel period.

At the start of this year, the Meetings Team worked hard with the Queen Elizabeth II Conference Centre to move the meeting to our preferred dates: Monday 11 – Wednesday 13 December 2017. This decision was made, with Council approval, to enable a larger cohort of delegates and sponsors to attend, and it is hoped that it will be much more economical for many.

Pharmacology 2017 will welcome the Japanese Pharmacological Society as a guest society. Earlier this year, the Meetings Committee Members and Affinity Group Co-chairs reviewed all session proposals and started to put together an attractive programme, which will include 15 symposia and four workshops alongside prize lectures, and an array of other opportunities to learn about recent advances in pharmacology and to network with pharmacologists from around the world.

For further details and programme information please visit the *Pharmacology 2017* web page: www.bps.ac.uk/pharmacology2017

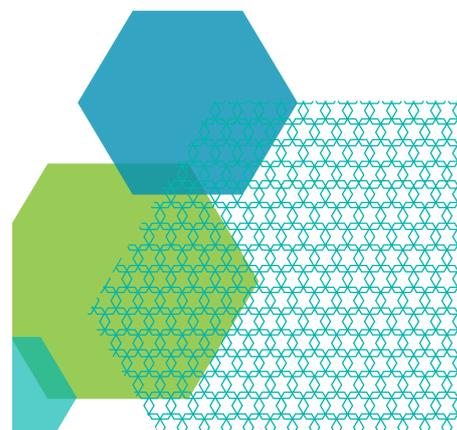
About the authors

Niall was appointed Lecturer in Pharmacology in the School of Medicine at University College Cork in 2008. He also holds a Faculty position at the APC Microbiome Institute where his research focuses on the microbiota-gut-brain axis. Niall has a PhD in Pharmacology from King's College London and trained in both the USA and Canada. He is Co-chair of the Society's Systems and Integrative Pharmacology Affinity Group and on the Editorial Board of the *British Journal of Pharmacology*. He also contributes to the activities of the European Society of Neurogastroenterology and Motility and The American Gastroenterological Association Institute Council.

Susanne joined the British Pharmacological Society from the Royal Society of Medicine, where she had looked after a number of medical specialities and organised clinical and non-clinical meetings and events. Previous to that Susanne lived and worked in Bournemouth and Brussels where she organised educational and pharmaceutical conferences in Europe and North America. She is responsible for the logistical organisation and management of upcoming meetings and events.

Changes within the Meetings Team

As a result of the growth of the Society's growing meetings and events calendar, the Meetings Team has appointed a new Events Co-ordinator who will support the existing team in the delivery of their many activities. This will increase the Meeting Team to three members of staff. Sophie Bowtell joined the team in this new role at the start of April.



Education @ Pharmacology 2016

Dr Steve Tucker, Deputy Chair, Education & Training Committee
Dr Lisa Wallace, Vice President - Academic Development
Dr Anna Zecharia, Head of Education, Training & Policy



The morning of 14 December 2016 saw the official launch of the new Pharmacology Core Curriculum¹ by Dr Lisa Wallace and Professor Ian McFadzean, new and outgoing Vice Presidents Academic Development of the Society and Chairs of the Education & Training Committee, respectively. The launch was the culmination of over a year of work by the Committee. It was the result of two education community workshops that book-ended an online Delphi survey process - where a broad group of experts drilled pharmacology learning outcomes down to a set of core consensus statements. The Committee has always seen the development of the core curriculum as the backbone of building our pharmacology education community. Through our workshop discussions it has become clear that there is both a need and an appetite for the Society to do more to support our educators, specifically in bringing people together to share experiences and expertise. Propelled by the enthusiasm of all involved, we decided to jump right in and pair the curriculum launch with both a boot-camp on education careers pathways and an interactive demonstration workshop to kick-start both of these priorities.

Despite the 8am start, the room was full of energy for the boot-camp, deftly chaired by Ian McFadzean. Professor Jamie Coleman, Dr Christine Edmead, Dr Clare Guilding and Professor Simon Maxwell discussed their routes into pharmacology education and gave some top tips to the audience (see

box 1). It was clear that those in the room also had questions about pharmacology education in its broadest sense, with the Teaching Excellence Framework (TEF) and the need for education to be embedded within hiring matrices emerging as key discussion topics. The Committee and the Education & Skills Affinity Group are listening, and are looking into the Society's role in these issues.

There followed a new and interactive focus on innovative teaching strategies by a group of demonstrators with exciting new practices to share with the community. The Education Workshop gathered pharmacology educators from across the Society to share their interactive, innovative and interesting approaches to delivering elements of the aforementioned Pharmacology Core Curriculum. Set out as a series of eight stations to demonstrate exciting new educational approaches, the session was aimed at developing

networks and collaborations centred around delivering pharmacology teaching and training to the highest level. This practice-sharing event aimed to raise the profile of activities taking place across the Society, driving the dissemination of ideas and initiatives more broadly. It also served as a precursor for the renovation of a Pharmacology Compendium of teaching and learning approaches currently being planned by the Committee. The workshop attracted a large number of delegates who were offered the opportunity to test run and participate in the teaching innovations arranged around the room. The enthusiasm emanating from the demonstrators was matched by the engagement of the participants, creating a collegiate, collaborative and lively atmosphere throughout the two-hour session, resulting in considerable sharing of email addresses and ideas between Society members.

1. Top tips for a career in pharmacology education Lecture outside your comfort zone

- Take external opportunities
- Communicate your work
- Look at the promotion criteria in your institution and work to that framework
- Don't be afraid to try new things
- Engage with your peers and find a mentor
- Make sure that you engage students in resource development
- Find and develop your niche

The afternoon saw education oral and poster sessions, with everyone coming together at the end of the day for some well-earned refreshments.

The positive vibe was palpable during the whole day. Delegates said that they were really impressed by the extent of education activities at the annual meeting and that for them this had made it 'the best meeting so far'. The Society has been working hard to bring people together, to listen to the challenges they face as educators and to understand where it can best support this part of the pharmacology community. We've heard that better links between educators and industry and support for key topic areas like *in vivo* sciences would be highly valued. The latter is something that the Society is already working on, and we look forward to updating you as this progresses². We've also heard the call for more networking (within the community itself and with industry) and more support for professional development, which we are looking forward to exploring. During the workshops of 2016, a strong message was that educators also want an online hub where they can share teaching resources and learn from each other. This was echoed by feedback from the workshop, and is something that the Education and Training Committee will be moving forwards with enthusiasm in 2017. Watch this space!

If you'd like to get involved in developing our online resources hub, by telling us what you think or attending focus groups, get in touch with the Society at education@bps.ac.uk. If you'd like to get more involved in Education at the Society, join our Education & Skills Affinity Group by indicating your interest as part of your online member profile.

Boxes 2-9 offer brief outlines of the demonstrations along with the contact details of the demonstrators involved to continue and enrich the impact of this session and its ideas.

2. A pharmacokinetic teaching toolkit

Demonstrator:

Dr Steven Tucker, University of Aberdeen. s.j.tucker@abdn.ac.uk

Outline:

The demonstration involved access to and interaction with a variety of online teaching tools to enable and enhance pharmacokinetic learning. The session involved delegates trialling these tools and demonstrated the flexibility of their applications across different curricula.

Resource availability:

Contact Steve Tucker.

3. Gamification in Pharmacology and Therapeutics

Demonstrators:

Prof. Jamie Coleman, University of Birmingham.

j.j.coleman@bham.ac.uk;

Sarah Pontefract, University of Birmingham,

s.k.pontefract@bham.ac.uk

Outline:

A number of games were demonstrated that have been designed to support and enhance learning in pharmacology and therapeutics. The session involved delegates competing against each other in a game of Pharmacology Blockbusters, and having access to other examples of games, such as Pharmacology Top Trumps and Heads Up, that can be used to supplement formal teaching.

Resource availability:

Contact Jamie Coleman or Sarah Pontefract.

4. To delegate or not? Innovative ways of providing education, training and CPD in *in-vivo* pharmacology.

Demonstrator:

Dr Dave Lewis, University of Leeds. D.i.lewis@leeds.ac.uk

Outline:

This demonstration showcased animal and non-animal alternatives for providing education, training and Continuing Professional Development in laboratory animal sciences and *in vivo* pharmacology, including ideas for undergraduate laboratory practicals, home-made models and training aids, and free online resources. Collectively these resources cater both for colleagues working at Institutions with and without animal facilities

Resource availability:

www.etrils.leeds.ac.uk.

5. Excel-based simulations of classic pharmacology methods

Demonstrator:

Dr Richard Prince, University of Manchester

Richard.prince@manchester.ac.uk

Outline:

This demonstration was of a suite of laboratory simulations that run in Microsoft Excel. In the space of a few minutes, workshop participants found themselves conducting radioligand binding experiments, measuring functional responses in the guinea pig ileum and conducting TEVC experiments on *Xenopus* oocytes.

Resource availability:

<http://personalpages.manchester.ac.uk/staff/richard.prince>

6. How Do I Apply? – Interactive approaches to enhance the application of knowledge

Demonstrator:

Dr Christine Edmead, University of Bath **C.E.Edmead@bath.ac.uk**

Outline:

This demonstration showcased a range of in-class and online resources aimed at encouraging and supporting students to integrate information across related pharmacological topics, to build conceptual pictures and apply this knowledge to solve case study based scenarios. Participants observed how the use of Flipped teaching approaches and videos of laboratory techniques, for students to engage with before classes, had increased interaction in the class leading to an enhanced learning experience.

Resource availability:

Contact Christine Edmead.

7. Combining interactive voting technology and high-fidelity patient simulations in the lecture theatre

Demonstrator:

Dr Clare Guilding, Newcastle University **Clare.Guilding@newcastle.ac.uk**

Outline:

This demonstration showcased lecture theatre based simulations of medical emergencies using SimMan, a high fidelity virtual patient. Delegates took on the role of students and had to vote on the most appropriate pharmacological intervention to save SimMan's life! There were discussions around the best practice principles, technology and logistics surrounding set up and use of simulation combined with class voting. Alternative and affordable methods of delivery were also explored with the delegates.

Resource availability:

Contact Clare Guilding.

References

1. British Pharmacological Society. *Undergraduate Core Curriculum*. London: British Pharmacological Society. 2016. Available online: <https://www.bps.ac.uk/education-careers/teaching-pharmacology/core-curricula/undergraduate-pharmacology-core-curriculum>. Last accessed: 23 March 2017.
2. Lowe JWE, Collis M, Davies G, Leonelli S, Lewis DI and Zecharia AY. *An evaluation of the Integrative Pharmacology Fund: Lessons for the future of in vivo education and training*. London: British Pharmacological Society. 2016. Available online: www.bps.ac.uk/futureinvo. Last accessed: 23 March 2017.

8. Computer-aided learning software for drug-receptor pharmacology and pharmacokinetics with formative submission capability

Demonstrator:

Dr Samir Ayoub, University of East London s.s.ayoub@uel.ac.uk

Outline:

This was a demonstration of a newly developed programme with a set of data analysis exercises that include dose-response curves, pD₂, pA₂, K_d and pharmacokinetic modelling. These exercises were built in such a way as to allow module tutors to formatively assess students work in a robust and time-conserving manner. Thus helping to easily identify students in need of further support and improving module outcomes.

Resource availability:

Contact Samir Ayoub.

About the authors

Steve is a senior lecturer in Pharmacology and Medical Science at the University of Aberdeen, where he heads the undergraduate Pharmacology programmes and is deputy lead for the post-graduate Clinical Pharmacology programmes. As a current member of the Society's Education & Training Committee and a BPS Ambassador, one of Steve's interests is advancing teaching methods and approaches in pharmacology and in particular pharmacokinetics, which he teaches at both undergraduate and postgraduate levels. By development and sharing of innovative approaches across

the discipline, Steve believes pharmacology can inspire the public and the next generation of pharmacologists alike.

Lisa is an Associate Professor in medical sciences at Swansea University Medical School where she is the Programme Director for the Applied Medical Sciences BSc degree. She is currently the Society's Vice President – Academic Development, after having served as Deputy Chair of the Education & Training Committee. Lisa is interested in finding innovative ways to integrate science curriculum design and teaching excellence. As such, she has served on the QAA Benchmarking Groups for Biosciences and Biomedical Science, the Royal Society of Biology Degree Accreditation Committee and

internationally with organisations such as the Norwegian Agency for Quality Assurance.

Anna is the Head of Education, Training & Policy at the Society. She works closely with the Education & Training Committee to support pharmacology education and educators. She also leads the Focus on Pharmacology project which aims to develop our understanding of UK pharmacology education and the impact delivered by pharmacology. Anna believes that investing in our education community is at the heart of ensuring that pharmacology education and training delivers for students, employers and society.

Switching occupation from science to art



Roderick Scott, University of Aberdeen

On the third Sunday in September 2004 my life changed with a single encounter when I went to Susie Hunt's North East Open Studios (NEOS) exhibition. A week later I was going to her art classes. One year on I had my own NEOS show, in the local tennis club. I had got the bug.

I started evening courses in printmaking and painting at Gray's School of Art in Aberdeen, acquired a studio and two printing presses. I found making art and printmaking in particular a great "life jacket", which protected me from the ups and downs of life BUT I did not have to pay the bills from selling artwork which is altogether a different thing.

In 2014 after nearly 19 years of coordinating the BSc in pharmacology at the University of Aberdeen I took exceptionally early retirement and began working full-time on art, mainly printmaking but sometimes painting and sculpture, leaving the pharmacology course organisation in the expert hands of Dr Steve Tucker.

It may sound like a radical move, but working as a scientist and conducting experiments is not that different from making artwork in a studio. Creativity, experimentation, discipline, determined hard work, intellectual challenges, the influence of peers and previous practitioners and exposure of work to scrutiny of others all make aspects of science and art similar. To go further, printmaking and electrophysiology both involve a number of parameters being correctly in place for any chance of success, and a rapid transition from struggling with a "mud pie" to a eureka moment.

I had great good fortune in the build-up to becoming a full-time artist. I gained art experiences with NEOS, an artists' collective called "Limousine Bull", training in printmaking techniques at the gas works print studio with Lyndsey Gibb and Peacock visual arts, designing CD covers for the "Doghouse roses" and exhibited work with Aberdeen Artists Society and a few commercial galleries. So, when retirement arrived I had a clear idea of how to undertake projects and the materials and equipment ready to go.

My first big project was to produce a series of linocut prints on the political theme of wellbeing and equity in education. My wife Dr Jennifer Spratt was writing a book based on her PhD and I created a black and white linocut print image for the start of each

chapter¹. I have an interest in political prints and these formed the basis of my first solo show entitled "A brief view of the present", in the Monymusk studio gallery. I have produced expressionistic work on industrial action, civil strife, Donald Trump, Ai Weiwei, conflict, poverty and Brexit. With collective responsibility in mind I have made several prints on the theme of a "Zombie Nation", the first relating to the telephone hacking scandal and the second on our recent descent into chaos (Figure 1); I can't keep up but more are in production!

As an artist, conducting experiments is a part of creative development, even if you end up re-inventing. In this vein, I have been using prints to create 3D structures. Specifically, I have been experimenting with printing onto

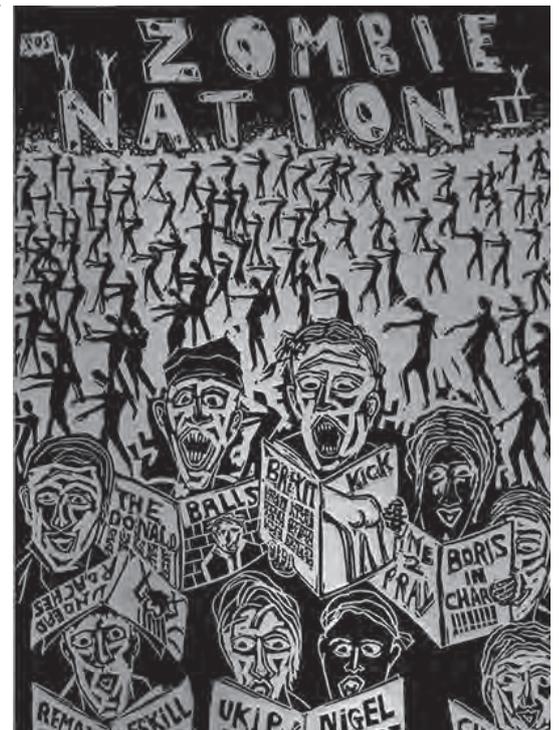


Figure 1. *Zombie Nation* print

paper bags, cellophane and old overhead projector acetate sheets and then suspending the prints on fishing lines to produce large scale installations. Just to show that you can take a scientist out of science, but not science out of a scientist, two of my projects in the last year have blended art and science. Inspired by Dr John Baird in Zoology at Aberdeen and influenced by my first published paper², I made a swarm of locusts printed on cellophane for insect week 2016. "The swarm" was suspended in a cabinet in the Zoology museum (Figure 2).

A second project linking science and art involved organising an exhibition of over 80 artworks by 56 artists. Professor Bettina Platt was organising an Alzheimer's Research UK 2017 conference in Aberdeen and, over a



Figure 2. *The swarm*

drink, we wondered about a themed exhibition, the Mind and Memory Art show, to run along side the science.

Preparing art exhibitions with an open call and invited artists is similar to organising a science meeting in that you can't be sure who will turn up and with what. A suitable venue for an art show can be a serious stumbling block but Alzheimer Scotland had opened the Aberdeen Dementia Resource Centre and the staff and volunteers there enthusiastically welcomed the prospect of a show. Art work was submitted by the centre users, carers, scientists and artists working in the north east of Scotland, London, Edinburgh, Liverpool and South Glamorgan. Some work was inspired by molecules, neurones and brain structure while other artists called on their deep personal experiences to produce work, some pieces as collaborative efforts. Many of the artists provided statements explaining how their work related to the theme.

It was amazing how some patients had loved producing artwork for the show late into their illness, even if they

were unable to get to the exhibition but could view it on Facebook. For this exhibition, I produced two prints (one of which is featured on the front page of this magazine) and a small installation recycling used video and audio tapes. The work in the exhibition can be viewed on Facebook at bit.ly/RScottArt.

For some people there clearly are enormous benefits to their later life experiences from art groups and producing artwork, the activity and the socialisation having comforting and pleasurable influences. I set up a group of artists, scientists and a dementia centre user to review the work and four of us hung the exhibition of paintings, prints, drawing, textiles, ceramics and 3D installations. Alzheimer Research-UK provided six prizes and more than a hundred people attended the opening. The exhibition exceeded all expectations and was enthusiastically covered by the local press with news features. I personally found the organisation of this unusual art show enjoyable, educational and

emotional. The legacy of the month-long show includes greater awareness of the centre, insights into aspects of dementia from the artwork, increased participation in art groups at the centre and donations.

Much of what I have learnt over the years in different institutions and science departments under the guidance of many different scientists are of great value to me as I develop as an artist. I am greatly indebted to them for enabling me to make such a comfortable transition to a new and exciting occupation.

About the author

Roderick graduated from the University of Nottingham with a BSc in Zoology and a PhD supervised by Dr Ian Duce on the actions of GABA and avermectin on locust muscle. He then worked at St. George's Hospital Medical School in the Department of Pharmacology with Professor Annette Dolphin FRS on the modulation of neuronal whole cell voltage-activated calcium channel currents by neurotransmitters, working through G-protein coupled receptors. In 1989 he became lecturer in Neuroscience in the Department of Physiology and was promoted to senior lecturer in 1993. In 1995 he moved to the Department of Biomedical Sciences in Aberdeen.

References

1. Spratt J. *Wellbeing, equity and education: A critical analysis of policy discourses of wellbeing in schools*. First edition, Cham, Switzerland: Springer 2017
2. Duce IR and Scott RH. Actions of dihydroavermectin B1a on insect muscle. *British Journal of Pharmacology* 1985; 85: 395-401



BRITISH
PHARMACOLOGICAL
SOCIETY

TODAY'S
SCIENCE
TOMORROW'S
MEDICINES

Submit your research & register

8TH EUROPEAN WORKSHOP ON CANNABINOID RESEARCH

31 August–2 September 2017
University of Roehampton, London



For more information about attending or presenting
please contact meetings@bps.ac.uk or visit www.bps.ac.uk/ewcr2017