



**Thinking outside
the box:
how the Society
is widening
participation in
pharmacology**

Editorial



Margaret Cunningham
Editor-in-Chief, Pharmacology Matters

Firstly, I would like to take the opportunity to introduce myself as your new Editor-in-Chief, having recently taking over from Felicity Gavins.

Pharmacology Matters has grown from strength to strength during her term of office so I know I will have big shoes to fill over the coming years. I'm excited to be involved in driving *Pharmacology Matters* in new directions and I look forward to working with the new Managing Editor, David Adams, and the rest of the editorial team.

In this issue Jono reflects on the Society's 2012–2017 strategy and recent developments, including the many ways members' views are communicated externally to the government and policymakers to protect the voice of scientists. Vedia updates us on the growing Young Pharmacologists Advisory Group membership. We also hear from Samir Ayoub, one of the Society's Ambassadors, as he shares his recent successful outreach activities which includes inspiring insights into the Pharmacology Summer School he organises at the University of East London. We are then taken on a journey into the fascinating world of cruciverbalism, as Jeffrey Aronson takes a timeout from clinical pharmacology to share his 60 years' experience as a crossword puzzle setter.

The Society really cares about young researchers and has an increasing number of awards to recognise achievement and initiatives to support development of outreach to attract

young people into science. Two previous recipients of the Society's Schachter Award, Simon Cleary and Joanna Clarke, reflect on how this award helped them in their postgraduate studies. With Clinical Pharmacology Month just around the corner, we hear why it is important to raise awareness of the specialty and how you can get involved to support activities throughout October. We also catch up with Nicolas Monjotin, winner of the 2016 BJP Early Career Researcher Prize, and James Brown (The Biochemical Society) and Teesha Bhuruth discuss the importance of public engagement.

As always, you can find essential information about upcoming meetings so get your calendars out to note down those all-important registration and abstract submission deadlines! Niall Hyland and Susanne Schweda share highlights from the recent Focused Meeting in Nottingham which explored methods in drug discovery. We round up this edition of *Pharmacology Matters* with an update from the Drug Discovery, Development & Evaluation Affinity Group, who provide a taste of the type of symposia to expect at *Pharmacology 2017*.

Remember that in addition to the online magazine, the articles in this issue will go live on the *Pharmacology Matters* blog: www.bps.ac.uk/blog. Feel free to share your views or start up a discussion on any of the topics covered. We welcome your contribution, feedback and suggestions for future topics.

Best wishes,
Margaret

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Your BPS



Jono Brüün
Chief Executive

It's quite something to think that by the end of this year we will have delivered and reported on our 2012–2017 strategy. I'm struck by just how far we as a Society have come in that time: increasing and diversifying our membership, ramping up our engagement with policymakers, and sharpening our brand and how we present ourselves to the wider world, among other achievements.

All this has been on my mind in recent weeks as we here at The Schild Plot, along with Council, prepared for and then held a Strategy Retreat in Manchester in May to begin to set out the Society's strategic direction for the next five years. We are now in a position where we are strong and savvy enough to begin to lift our eyes above the operational and focus more on the broader vision for where we are and where we want to go next. I look forward to being able to share more information about this ongoing work with members in the coming months.

Back in the here and now, our Education, Training and Policy team have been busy communicating the Society and its members' views via a series of consultation responses to government and other policymakers. This has included responses to the

government's Industrial Strategy green paper¹, the Higher Education Funding Council for England's consultation on the second Research Excellence Framework², and the General Medical Council's consultation on a new Medical Licensing Assessment.

This is exactly where we need to be: drawing on the wealth of expertise within our membership to position ourselves as informed and important stakeholders in the big decisions that affect medical science in all its forms.

For the same reason I was pleased that we were able, in May, to sign the Science Media Centre's letter to the UK Cabinet Secretary, Sir Jeremy Heywood³, expressing concerns about how government was applying – or not being clear enough about – “purdah” to scientists and their work during the UK General Election (see page 14 for more on this).

Someone who has been with us on our journey throughout the last five years, and has played a huge part in helping the Society develop in that time, is Kat Steer, our Head of Communications and Membership. I'm sad to report that Kat will be leaving us in August as she relocates out of London. In almost five years with the Society, Kat has

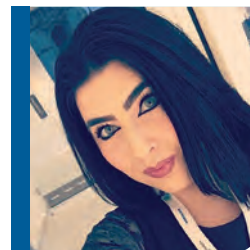
led a number of important initiatives to improve how we interact with members and how we communicate both to them and to the wider science community, and the public. She masterminded our rebrand and new website in 2014–15, has increased our media profile, and put in place member engagement surveys and recruitment and retention strategies that now form the backbone of how we operate. In 2012 we had 3,100 members; today we have 4,200. I can think of no better illustration of Kat's impact than that. I and all her colleagues in the office wish Kat the very best for the future.

This is also an opportunity to say a heartfelt thanks to Felicity Gavins, who is leaving her post as *Pharmacology Matters* Editor-in-Chief this summer after three years in the role. Felicity has done a tremendous job, modernising the magazine and overseeing its move into the blogosphere alongside its traditional format. Thanks for everything, Felicity – and welcome to our new Editor-in-Chief, Margaret Cunningham.

References

1. British Pharmacological Society (2017) Response to Industrial Strategy Green Paper. Available at: <https://www.bps.ac.uk/about/policy-positions/consultation-responses/articles/response-to-industrial-strategy-green-paper>
2. British Pharmacological Society (2017) Response to HEFCE consultation on the second Research Excellence Framework. Available at: <https://www.bps.ac.uk/about/policy-positions/consultation-responses/articles/response-to-hefce-consultation-on-the-second-resea>
3. British Pharmacological Society (2017) Society signs open letter to Cabinet Secretary on application of 'purdah' to scientists. Available at: <https://www.bps.ac.uk/news-events/news/society-news/articles/society-signs-open-letter-to-cabinet-secretary-on>

Young Pharmacologists update



Vedia Can, University of Westminster

At the British Pharmacological Society, we define a “young pharmacologist” as an Undergraduate, Postgraduate or Early Career member, usually individuals who are no more than five years post-PhD or medical qualification.

The Young Pharmacologists Advisory Group (YPAG) therefore tries to reflect this demographic in its Advisory Group members. We try to ensure a broad spectrum of expertise when recruiting new group members, with representation from clinical, academic and industrial career backgrounds, from undergraduate through to post-doctoral level – and regardless of geography, being inclusive in all that we do. This is why we welcomed international and UK applications from our younger membership in our recent recruitment call in March 2017. We also co-opted the Society’s current AJ Clark students for the duration of their studentship (AJ Clark students have been awarded a studentship from the Society and are young scientists carrying out PhD research in pharmacology).

A growing group

As of March 2017 seven new members have joined the Group (with two new members based in Lithuania and Denmark), increasing the group to 15 members.

The core Advisory Group serves a much larger network of over 2,000 of the Society’s members in the Undergraduate, Postgraduate and Early Career membership categories.

While it is often said that younger scientists are the future of pharmacology, given the size of our group, the YPAG is very much the present for the British Pharmacological Society!

The Group works hard to deliver a range of activities to support younger members. In this spirit, since 2016, a Young Pharmacologist Trustee – Aidan Seeley, Queen’s University Belfast, UK – has sat on the Society’s Council, giving an important voice to younger members at the highest level of decision making. One of the decisions the Trustees recently approved was to give Early Career and Postgraduate Members the right to vote at our Annual General Meeting and elections, joining Full Members, Retired Members, Fellows and Honorary Fellows in the Society’s ‘electorate’.¹

If you would like to get in touch with the Group, please contact Teesha Bhuruth, Engagement Manager (teesha.bhuruth@bps.ac.uk).

About the author

Vedia is a Doctoral Researcher at the University of Westminster, UK, 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.

References

- 1 For more about this see the November 2016 issue of *Pharmacology Matters*: www.bps.ac.uk/Pharmacology-Matters-libraryscience-media-centre

Meet the group – and welcome our seven new members!



Mr Aibinu Adebayo
Glasgow Caledonian University, UK
PhD Student



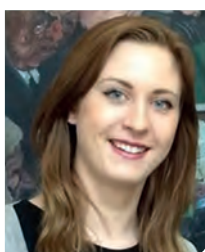
Miss Laura Ajram
King's College London, UK
PhD Student



Mr Oliver Bell
University of Bristol, UK
PhD Student



Miss Vedia Can
University of Westminster, UK
PhD Student



Dr Joanne Carter
Synchrogenix
Regulatory Writer



Dr Caroline Copeland
St George's, University of London, UK
Postdoc



Mr Sam Groom
University of Westminster, UK
PhD Student



Miss Laura Humphrys
University of Nottingham, UK
AJ Clark Student



Dr Thomas Andrew Jepps
University of Copenhagen, Denmark
Postdoc



Dr Ross King
Queen Mary University of London, UK
Postdoc



Miss Xenia Kodji
King's College London, UK
AJ Clark Student



Miss Aurelija Noreikaite
Lithuanian University of Health Sciences, Lithuania
PhD Student



Miss Chloe Peach
University of Nottingham, UK
AJ Clark Student



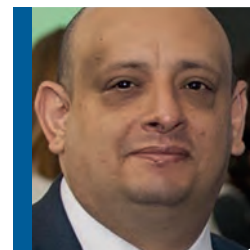
Mr Aidan Seeley
Queen's University Belfast, UK
Appointed Trustee



Professor Clare Stanford
University College London, UK
YPAG Chair

Ambassadors update: Pharmacology Summer School at the University of East London

Samir Ayoub
University of East London, UK



As an Ambassador for the British Pharmacological Society, and the Schools and Colleges Liaison for Bioscience at the University of East London (UEL), I engage in outreach activities in the local area to help promote pharmacology within the further education sector. For the past few years, I have predominantly been visiting schools and colleges to deliver talks about pharmacology.

At each one of these sessions, I normally start off by asking the students if they have ever heard of pharmacology. The answer I get from the vast majority of students is “no”. To those who say that they have heard of pharmacology, I then ask “What do you think pharmacology is?” Most of the responses I receive tell me that the students are thinking of pharmacy. I expect this will sound familiar to colleagues from other universities engaged in outreach activities.

For us at UEL, this told us that it was time for a different strategy: so instead of telling students what pharmacology is, we decided to give them an experience of what it means to be a pharmacologist. To this end we set-up a two-day pharmacology Summer School for year 12 students, which ran in June 2016.

The aim of the Summer School was to give the students not only a flavour of what it means to be a pharmacologist, but also a real experience of how new medicines are developed. So the Summer School was built around the idea that all enrolled students would play the role of research scientists working for a “pretend pharmaceutical

company” for which I played the role of the CEO. Six of our current second-year pharmacology students played the role of Research Team Leaders and one of the PhD students played the role of the Head of the Neuropharmacology Research Unit. To make the exercise as realistic as possible, the company was given a name – “Ceutical Pharmaceuticals” – a mission statement, strategy, goals and a company profile. The goal of the “Neuropharmacology Research Team” of Ceutical Pharmaceuticals was to screen for a new Alzheimer’s drug, hence the title given for the Summer School was “Discovering the next blockbuster drug for the treatment of Alzheimer’s disease”. The students worked in teams of five, each headed by their UEL student Team Leader, and were responsible for the screening of a different set of compounds. In the laboratory experiments, the students engaged in an *in vitro* organ bath experiment in which drugs were screened for activation of a muscarinic receptor. To test for selective activation of a muscarinic receptor, compounds that gave responses (in the form of contractions of smooth muscles of the ileum) were then tested in the presence of atropine (as a selective antagonist of the muscarinic receptor).

On the first day the students were introduced to the various activities, took part in “ice-breaking sessions” and given an overview of the company, its mission statement and goal. After the usual health and safety talk, the students were briefed on pharmacology and Alzheimer’s disease.

“I have a more practical insight into pharmacology. It has affirmed my interest in carrying on with pharmacology in higher education or university.”

Pharmacology Summer School student



The students get ready to add a drug to the organ bath.

“I really enjoyed preparing for the presentation and completing the presentation overall.”

Pharmacology Summer School student

“Good experience overall and I now have something to write on my personal statement.”

Pharmacology Summer School student



In preparation for the organ bath experiment, one of the team leader shows the students how to use the pipette



One of the Team Leaders demonstrates to the rest of the team how the organ bath preparation works.

The rest of the day was spent in the laboratories working with the Team Leaders in small groups carrying out ileum organ bath experiments, being guided on the technique and data capture. On the second day, the students worked with their Team Leaders to analyse and evaluate their experimental data by working out potency and efficacy values for the compounds tested. They were also tasked with preparing a presentation in the afternoon in a boardroom setting to the company CEO (me), Board and investors (made up of other academics). During these presentations, the teams were quizzed about the experiments, results and asked to question their colleagues' presentations. The distance travelled from day one to day two was remarkable. The students not only handled the questions with professionalism and clarity, they also discussed in depth all the findings from across the groups and asked intelligent and thought provoking questions. It was amazing to see how much the students had learnt about pharmacology in such a short time.

The real unsung heroes of the Summer School were our second-year



One of the Team explains organ bath results to the rest of the team.

pharmacology students who played the role of Team Leaders as they were the ones who guided the students through the experiments, data analysis, and preparation for presentations.

Indeed both UEL students and year 12 students gained experience in how basic pharmacological research translates into clinical practice and also how the pharmaceutical industry works. More importantly for their own personal development, the students gained an understanding of the importance of transferable skills, including research and problem-solving skills; the ability to plan and manage projects; analysis of scientific data; critical thinking and developing arguments from scientific perspectives; communication and presentation skills, and of course team work – all of which are just what their future employers will be looking for.

The feedback from students was that they gained a very positive experience of higher education and of what it would be like to become a pharmacologist. On the evaluation forms 100% agreed or strongly agreed that after the Summer School they had a better understanding of pharmacology and that they felt better informed about the role of pharmacologists in drug development. 67% agreed or strongly agreed that attending the Summer School had inspired them to study a specific subject at university. And perhaps most gratifyingly of all, 100% said that they would now consider a career in science.

Given the popularity of the Summer School, we will be running two more Summer School sessions later this year.

Acknowledgements

I would like to give a huge thanks to the university's Education and Community Partnerships team for providing highly professional administrative support for the Summer School during the event and with all the prior publicity work.

About the author

Samir is a Senior Lecturer in Pharmacology and the Programme Leader for Pharmacology at the University of East London (UEL). He has engaged with various pharmacology outreach activities and is currently a British Pharmacological Society Ambassador. For over 15 years Dr Ayoub has been and continues to lead on research aimed at elucidating the mechanism of action of paracetamol. Dr Ayoub completed his PhD in Pharmacology at the William Harvey Research Institute (WHRI) in 2004 and went on to win an Early Career Fellowship from the Leverhulme Trust as a post-doctoral scientist at WHRI. He moved on to join Leukocyte Biology, Imperial College London in 2009 before moving to UEL in 2011.

“Empty columns and or rows devised primarily to confuse?” (9)



Jeffrey Aronson
University of Oxford

A cruciverbalist (Latin *crux* = cross and *verbum* = word) is “A person who compiles or solves crossword puzzles; a crossword enthusiast” (Oxford English Dictionary). The earliest recorded instance dates from 1971. The term “cruciverbalist” appeared in a letter written in 1939, quoted in Alexander Waugh’s family biography *Fathers and Sons*, but this appears to be a hapax legomenon.

I have been a cruciverbalist for over 60 years. My earliest recollection of an interest in word puzzles is when, around 7 years old, I badgered my parents to buy me a Penguin book of 100 crosswords (1953), price two shillings, that had originally been published in *The Observer*. They were sceptical about my ability to tackle the puzzles, and they were right. I managed to solve just one clue in the whole book and didn’t understand many of the published answers, although a clue about faulty traffic lights introduced me to Kathleen Winsor’s risqué book *Forever Amber*.

In those days our regular newspaper was *The Daily Express*. I tackled its blocked puzzle, each day checking the solution of the previous day’s puzzle. It took me about a year to work it out and one triumphant day I solved it completely. I then graduated to *The Times*, which a classmate and I attempted every day at the back of the science lab, severely impairing our understanding of physics and chemistry.

At 13 I was given a handsome leather-bound edition of *Chambers Twentieth Century Dictionary* (1959, Revised Edition with Supplement), consulted it repeatedly to near destruction, and had it rebound in buckram. Blessed with an eidetic memory until my late

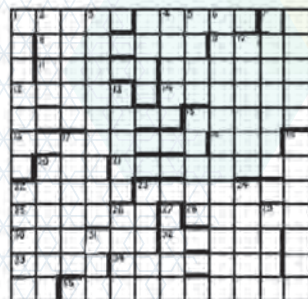
teens, a precious gift now lost, I could recite many of its definitions verbatim (“clair: a cake, long in shape but short in duration...”), and could even recall the precise place on any page of many individual lemmas.

It was three events in 1964 that turned me into a lifelong addict: the publication of *The Connoisseur’s Crossword Book*, 50 difficult specialist puzzles collected by Alan Cash and published by Penguin Books; the appearance of the first *Observer* colour magazine in September 1964, with its puzzles by Derrick Macnutt (“Ximenes”); and the discovery of the weekly house magazine of the BBC, *The Listener*, now defunct, which contained what was once described by the novelist Vikram Seth, a self-confessed addict, as “the puzzler’s apotheosis”, which survives as “The Listener Crossword” in Saturday editions of *The Times*.

CROSSWORD

2,595: Patrons by Foxglove

Prizes: a £10 book token for each of the first three correct solutions opened. Closing date: Monday, 4 May. Entries should be on the printed diagram and sent to the Editor, THE LISTENER, 35 Marylebone High Street, London W1M 4AA, marked ‘Crossword 2,595’ to the top left-hand corner of the envelope. The Editor’s decision is final.

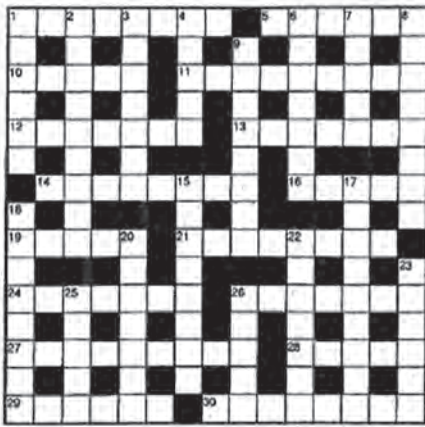


The Listener

Eventually, I decided to try my own hand at composition and submitted a puzzle to *The Listener*. Such was the length of the publication pipeline that I heard nothing, beyond an acknowledgement of receipt, for

about five years. Then to my surprise I received a letter from the fastidious vetter of submissions, Jim Evans, telling me that my puzzle was acceptable for publication. His timing was impeccable: “Patrons” by Foxglove appeared on St George’s Day 1981.

Oxford, a home to linguistic philosophers, has more than its fair share of cruciverbalists (or Club of Queer Trades, as Alan Coren once called us, quoting GK Chesterton). In 1989, out of the blue, one of them got in touch: Colin Dexter, many of whose characters, not only Morse and Lewis, are named after cruciverbalists. Would I be interested in setting puzzles for *The Oxford Times*, along with him and two others? Would I? “Send me a puzzle,” he said, “and we’ll see.” See if it’s any good, he meant! I did, and he invited me round to discuss it. After some light conversation over tea and cakes he pulled out my effort and went through it clue by clue. “Let’s see,” he said, “1 across. Oh yes, that’s very good. But why don’t you do it this way?” And he rewrote the clue, using my original idea, but much more elegantly. “Now what about 5 across? Oh yes, that’s very good. But ...” More rewriting. And so on all the way through. A tactful masterclass in the art of clue-writing. Finally, “You’ll do. Now what about a pseudonym?” Most puzzles are published anonymously or pseudonymously. “Whatever you decide, it must have an X in it,” was his instruction. Colin’s pseudonym was Codex, neatly fabricated from the first letters of his two names. I went home and thought about it. I replaced the J in my initials with an X: XKA, then topped and tailed it: Exkalibur. My puzzle appeared in January 1990 and I contributed every fourth puzzle to the paper for nearly 11 years.



No 582 by Exkalibur

The Oxford Times

In 1992, another member of what has been called the Oxford Mafia, Don Manley, asked me to contribute puzzles to *The Church Times*. Not my scene, I suggested, but he reassured me that the paper was very ecumenical. I submitted a sample. OK, he said, but I would have to use my proper name – the paper wouldn't publish anything pseudonymously. I wondered if my Hebrew name would do. Was it my real name? Well, yes. In fact I was given my Hebrew name before my regular name was registered. So I started publishing puzzles in *The Church Times* (references strictly Old Testament) under the non-pseudonymous Yosef Kalman ben Shmuel. My father, the "Shmuel" in my patronymic, was highly amused.

CHURCH TIMES
Crossword No. 135
by Yosef Kalman
ben Shmuel

Last week's solution



The Church Times

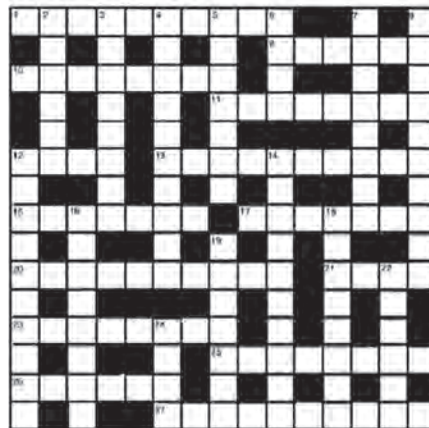
In 1998 an invitation from the crossword editor of *The Telegraph*, Val Gilbert, had me contributing occasional puzzles, when the regular compilers, who included the jazzman Steve Race, had a day off. Some had pairs of clues in rhyming couplets, as a challenge to myself. It's surprising how many solvers don't realize that the clues are in verse, or, more accurately, doggerel.

In 2011 the regular composer of the weekly puzzles in the *Times Literary Supplement*, the TLS, had to go into

hospital, and the crossword editor asked if I could fill in for a few weeks. Since he had decided to give composers of the puzzle bylines, I could choose a new pseudonym. Remembering Colin Dexter's injunction, I wrote down XTLS and out came Praxiteles, the Athenian sculptor whose name I now use in sculpting every fourth puzzle in the paper. Since then other TLS composers have copied the idea. When the regular composer returned he called himself Tantalus; others are Talos and Myrtilus. When Tantalus died his successor, Peter Biddlecombe, who also edits the *Sunday Times* puzzles, called himself Broteas, after one of the sons of the Titan Tantalus.

TLS Crossword 897 by Praxiteles

- | ACROSS | DOWN |
|---|--|
| 1 Yearn for the chap who wrote <i>Ulysses</i> (10) | 2 Part of actor on telly, a friend of Alcibiades (6) |
| 9 Have trust about one that's liberal truly (9) | 3 Cheek about wall being smashed – what a pest! (3) |
| 10 Caricature – career ripe for criminal, say? (3-5) | 4 Commensurate outcome? You crew, so they say (10) |
| 11 Where this battle occurred is described as OK! (8) | 5 Allergy suffered in very big way (7) |
| 12 You'll have to have one of this Japanese shoe (4) | 6 Bird starting to roost in Cobden's great city (4) |
| 13 Mole or Rat relate about carrying Pooh (10) | 7 Fuller of London is tops – good and witty (8) |
| 15 A quiet delay – comes round every fourth year! (4,3) | 8 Synonym our broadcast of Christmas's <i>Affair?</i> (10) |
| 17 Sneeze that demands just one hanky, we hear (7) | 12 Global hope ruined, letting such as Voltaire (10) |
| 20 Commander and hero, drunk, learnt to the West! (10) | 14 Style of guitar, needing courage and cheek (10) |
| 21 From swank Royal Society's after the best (4) | 16 Holstein's spirit, "originally" Greek (8) |
| 22 Ah! What I translated? A poem by I... (3) | 18 Endure has seduction in poem by I? (8) |
| 25 ... A poem composed while E.C. takes a run? (3) | 19 Case to connect with conclusion of Donne (7) |
| 26 Be about to have sex, a bit sultry, the pigs! (9) | 22 Heartless ride about night-time, resistance has none? (6) |
| 27 If snake is resolved, he'll burgle your digs (3,5) | 24 Thanks to beards of Romaine, it brought all the news (4) |



The TLS

A question I am often asked is how long it takes to compose a puzzle. I don't know. Composing the grid takes about half an hour, but the clues emerge piecemeal, composed hypnagogically, or in the shower, or when walking to and from work. It hardly encroaches on my regular activities.

The contest between setter and solver is one that the setter must contrive to lose. He (although pseudonymity gives women equal opportunities, there are

vanishingly few female setters) must make the problem challenging without ambiguity or insolubility, avoiding solver frustration.

There is some science in the study of cruciverbalm. Consider, for example, a paper by Friedlander & Fine, "The grounded expertise components approach in the novel area of cryptic crossword solving"¹. It's available free on PubMed, and the abstract succinctly describes the solving process and the qualities needed.

Finally, the best clue ever? Everyone has their own favourite. Mine is by another member of the Oxford Mafia, Les May ("Nox"): "Bust down reason? (9)" The answer is BRA/IN/WASH.

Oh, and the answer to the title of this piece? Crossword, of course (c[olumn]s + or rows + d[evised]; anagram).

About the author

Jeff is Honorary Consultant and Clinical Pharmacologist in the Centre for Evidence Based Medicine in Oxford's Nuffield Department of Primary Care Health Sciences. He is a President Emeritus of the British Pharmacological Society and currently Vice President – Publications. He was Editor-in-Chief of the *British Journal of Clinical Pharmacology* 2002–2007, Editor of *Meyler's Side Effects of Drugs – The International Encyclopedia of Adverse Drug Reactions and Interactions*, 16th edition (seven volumes and online, 2015), and co-editor with John Talbot of *Stephens' Detection and Evaluation of Adverse Drug Reactions: Principles and Practice*, 6th edition (2011). His weekly blog on medical words appears at <http://blogs.bmj.com/bmj/category/jeff-aronsons-words>.

References

- 1 Friedlander K.J., Fine P.A. "The grounded expertise components approach in the novel area of cryptic crossword solving" *Frontiers in Psychology* 2016: 7(567). Available at: <http://journal.frontiersin.org/article/10.3389/fpsyg.2016.00567/full>

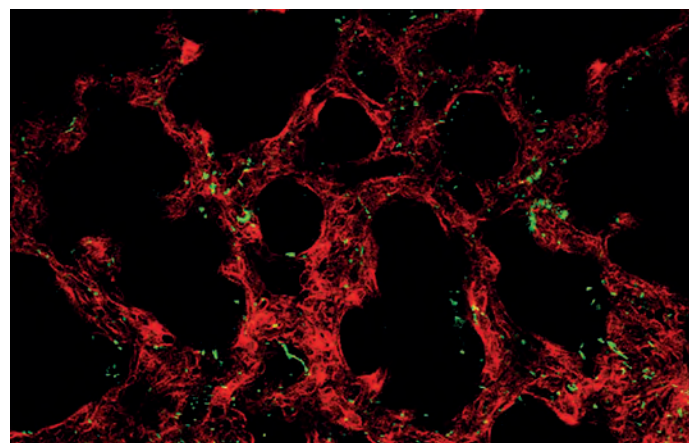
The Schachter Award in action

Twice a year the British Pharmacological Society awards the Schachter Award to a postgraduate research student. The award provides up to £1,850 to support them to visit another laboratory to learn a new technique that cannot be conducted at their home institute. The award was established in 2002 by a generous donation to the Society from Mrs Ruth Schachter in memory of her late husband, Dr Melville Schachter.

Here, the two winners from 2016, Simon Cleary and Joanna Clarke, report on their Schachter Award visits and reflect on what they gained from their experiences.

Simon Cleary

King's College London, UK



Platelets passing through inflamed lung microcirculation visualised using the multiphoton microscopy technique.

Receiving the Schachter Award enabled me to visit the laboratory of Professor Mark Looney at the University of California, San Francisco (UCSF), USA. During this placement, from late October to the middle of December in 2016, I was able to learn intravital microscopy techniques for imaging cellular events in the living lung, and develop a new method to measure platelet adhesion in the context of lung inflammation.

My PhD project has been to develop methods to describe and measure the poorly understood phenomenon of recruitment of platelets to inflamed lungs, which may be important for driving inflammatory responses. Platelets are of interest to pharmacologists working to identify new targets for drugs to treat inflammatory lung diseases,¹ and the research groups of my supervisors at King's College London, Simon Pitchford and Clive Page, and Mark Looney's group at UCSF, are trying to identify how platelets contribute to inflammatory responses in lungs to guide development of future therapeutic interventions.

Due to the small size of platelets and the position of the lungs inside the ribcage, directly visualising platelets in lungs requires slices of lungs that until now has necessitated killing a laboratory animal, or accessing autopsy or invasive biopsy samples from human donors. At UCSF, mice have been bred to have green fluorescent protein (GFP) expressed in their platelets.² A small vacuum window, which sits between the ribs in order to immobilise the surface of the lung to a coverslip, is inserted into anaesthetised mice and with the use of a specialised multiphoton microscope (which can focus deeper into tissue than other regular microscopes) the GFP platelets can be observed moving through the bloodstream in the lung.

With direction from Mark Looney and working with postdoctoral fellows Emma Lefrançois and Beñat Mallavia, I captured multiphoton microscopy videos of platelets passing through healthy and inflamed mouse lungs, and developed a new method for analysing the resultant videos to determine the number of platelets that were adhesive to the lung as opposed to moving through the lungs in the blood.

This method has great potential for use as an *in vivo* pharmacological assay, and I am excited to use it again to help identify new targets and drug interventions for conditions such as inflammatory lung diseases and pulmonary thrombosis.

Thanks to the added interest in my work resulting from this opportunity, I have been invited to present this work at my first oral communication at an international conference at the International Society on Thrombosis and Haemostasis Congress in Berlin in July (come and say hi if you are going!). I am currently preparing a manuscript from my PhD thesis incorporating my work at UCSF and further investigations into the mechanisms of inflammatory platelet recruitment for submission as a journal article.

My visit to UCSF would not have been possible without the generosity of the Society and the Schachter family, and I am very grateful to both for this experience which has allowed me to grow as a scientist, to make new friendships, and has helped our laboratory to establish a new international collaboration.

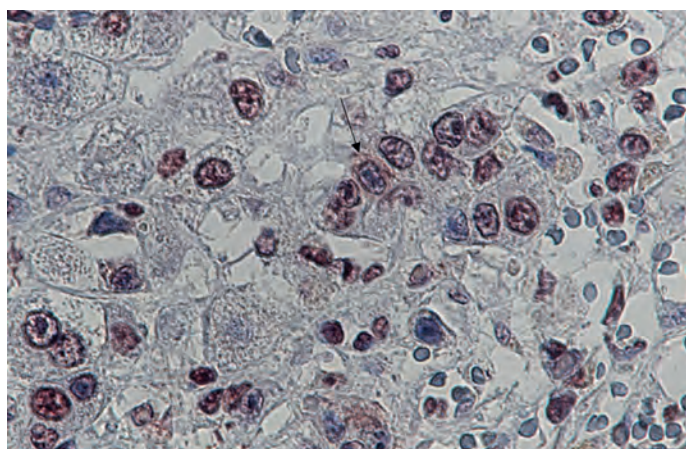
Joanna Clarke

University of Liverpool, UK



With the funding I received from the Schachter Award I was able to carry out work in Switzerland at the Novartis headquarters in Basel and the University of Zürich.

My PhD research concerns the evaluation of novel drug-induced liver injury (DILI) biomarkers – molecules that can be measured to give an indication of liver status following a possible toxic event, highlighting any potential damage and thus enabling subsequent patient stratification.



Novel biomarker HMGB1 can be identified undergoing cytoplasmic shuttling

At Novartis I was able to learn histological staining techniques (in situ hybridisation and immunohistochemistry) to detect several biomarkers within human liver tissue from healthy individuals as well as sections taken from patients following a liver transplant due to paracetamol overdose. These techniques are not currently available in my department at the University of Liverpool, so the opportunity to learn them was a really valuable outcome from this placement – and exactly the sort of opportunity the Schachter Award is designed to offer.

Following my three weeks at Novartis I moved on to the University of Zürich, where I was able to learn how to use and apply an innovative computer software that enabled the quantification of biomarker expression – allowing us to put numbers to our findings and make a closer assessment of the patterns we had detected.

There is a need for new biomarkers of DILI to complement current methods and improve our safety assessment of both new and existing medicines. The work I was able to carry out in Switzerland could facilitate a more comprehensive understanding of the underlying molecular events within otherwise inaccessible tissue, allowing us to piece together the evidence to better interpret and utilise biomarkers released from the liver. Ultimately, incorporation of these novel biomarkers to current methods can potentially make it easier to identify patients that need more intervention,

while simultaneously reducing the number of patients that are being unnecessarily treated under current regimens (reducing the use of harmful and costly treatments and freeing up hospital beds in the process).

Learning and performing these techniques has not only improved my experimental knowledge and enabled me to attain valuable and novel data, but additionally these placements have given me a very useful insight into alternative research settings. At Novartis I was able to gain insight into the pharmaceutical industry, and my time at the University of Zürich gave me a flavour of how things are done in another academic department and indeed another country.

Both experiences gave me the opportunity to develop new professional connections, and the chance to work independently and abroad has definitely boosted my self-confidence.

I am really grateful to have had this opportunity. I thoroughly enjoyed my time in Switzerland; it was an incredibly productive trip that would not have been possible without the Society's Schachter Award. I would like to acknowledge collaborators at the University of Edinburgh, UK as well as Aintree Hospital and the Transplant Unit, Edinburgh for provision of the samples involved in this project.

References

- 1 Pitchford, S. C. "Novel uses for anti-platelet agents as anti-inflammatory drugs" *British Journal of Pharmacology* 2009: 152, 987-1002.
- 2 Lefrançois, E. et al. "The lung is a site of platelet biogenesis and a reservoir for haematopoietic progenitors" *Nature* 2017: 544, 105-109.

About the authors

Simon Cleary

Following a BSc in Physiology & Pharmacology at King's College London, Simon stayed on for a PhD supervised by Dr Simon Pitchford and Professor Clive Page at the Sackler Institute of Pulmonary Pharmacology and the Institute of Pharmaceutical Science at King's.

Simon hopes to submit his thesis in the autumn of 2017 and continue with a career doing research into the mechanisms underlying health and disease.

Joanna Clarke

After graduating from the University of Liverpool with a first class honours degree in Pharmacology, Joanna continued postgraduate studies and subsequently received a distinction in their Biomedical Sciences & Translational Medicine Master's course.

Joanna is now working towards her PhD, which is principally based in the Centre for Drug Safety Science at the University of Liverpool and supervised by Dr Dan Antoine, Dr Ian Copple and Dr Chris Goldring. Joanna hopes to submit her thesis and complete her PhD later in 2017 before pursuing a career in clinical research.

OCTOBER

Clinical Pharmacology Month – get involved!



Lee Page, Clinical Education,
Training and Policy Manager

Clinical Pharmacology and Therapeutics (CPT) is the only medical specialty in the NHS focusing on the safe, successful and cost-effective use of medicines. This means clinical pharmacologists play a crucial role in managing our medicines, refining how they are used today and developing the pioneering medicines of tomorrow. This can take clinical pharmacologists on diverse career paths, working, for example, in the NHS, regulatory bodies, clinical trials units, universities or the pharmaceutical industry.

What is Clinical Pharmacology Month?

The Society is organising the first ever Clinical Pharmacology Month, to take place in October 2017. We invite you to help us celebrate and raise awareness of the Clinical Pharmacology and Therapeutics (CPT) specialty.

Many clinical pharmacologists, trainees and others working with the specialty have already volunteered to run local activities to raise awareness of CPT. Members plan to publish articles and blogs and run lectures, careers fairs and even Grand Rounds. But it doesn't matter what you do, as long as you get involved – all we ask is that you target medical students, junior doctors or other allied healthcare professionals by promoting the work done by clinical pharmacologists to improve the health of the nation. By raising awareness, we aim to attract more people to the specialty. So tell us about your plans so that we can expand our community and increase our reach.

Why is the Society running Clinical Pharmacology Month?

There are currently only 72 clinical pharmacologists in the UK, making it a small specialty. Despite this, CPT continues to be at the very forefront of medicines management, leading this approach to healthcare provision internationally. It has never been more important to have healthcare professionals with these skills, especially as people are living longer and with multiple comorbidities. In addition, delivering accelerated access to new medicines has increased the demand for leaders in translational medicine. Training enough physicians with the skills of a clinical pharmacologist has become a recognised priority by many leading societies and organisations¹.

The British Pharmacological Society is targeting an increase of 78 clinical pharmacologists in the UK to reach a target of 150 by 20252. We need your help to raise awareness of the specialty and help attract high quality junior doctors to clinical pharmacology.

Part of the problem currently is that many medical students are unaware of the specialty, so first and foremost there is a need to raise awareness. I recently visited a medical school to interview medical students about CPT and its low career visibility. One student pointed out that there are no clinical pharmacology wards in hospitals. It is also true that many medical schools use an organ-based curriculum, with pharmacology interwoven through it.

Without commenting on the educational merit of that approach, it certainly does little to improve the visibility of the specialty, "buried" as it is within other studies.

We therefore want to do all we can to help clinical pharmacologists share their interests, research and experiences under the banner of Clinical Pharmacology Month to better connect people and increase awareness.

What's the plan?

The Society plans to promote the diverse world of clinical pharmacology by dedicating each week in October to a different area where the specialty has a great impact: beginning with CPT in the NHS before moving on to industry (first-in-man studies), medicine regulation, and finally education (prescribing skills).

We have developed a number of activities for the month, including:

- Medical student competition (led by our Specialty Registrars Advisory Group) – submit an abstract related to clinical pharmacology and win a cash prize
- "Faces of clinical pharmacology" – send us a case study about you and your role about your role, which we will publish on the website
- Grand Rounds – an important teaching tool within hospitals, these present interesting clinical problems in medicine and offer solutions for the benefit of certain patient groups

You can find full details of all this and more in the Clinical Pharmacology section of the Society website:

www.bps.ac.uk/october.

We also want to hear your own ideas: if you have an idea to run something in your local area about a clinical pharmacology topic you are passionate about, please let us know by emailing me at lee.page@bps.ac.uk. Anything from poisoning to drug development, polypharmacy or biomarker studies. Whatever you do, no matter how big or small, please get in touch with us so that together we can make October 2017 the time to share our stories.

Here are some examples of what's already being planned, to inspire your own thinking.

Professor Emma Baker has Grand Rounds as the focus of her Clinical Pharmacology Month activities:



At St George's we see Clinical Pharmacology Month in October as a fantastic opportunity to capture the hearts and minds

of the next generation of clinical pharmacologists. Our theme will be 'what have clinical pharmacologists ever done for us?', echoing the famous Monty Python question 'what have the Romans ever done for us?' In week one, a Grand Round based on clinical cases of adverse drug reactions and polypharmacy will showcase the versatility of the specialty. In week two, medical students will present their entries to the abstract competition as oral presentations and listen to a keynote speaker talk about careers in clinical pharmacology. In week three, a public engagement event will showcase the contribution clinical pharmacology makes to society. Around these main events we are planning satellite activities including a promotional stall, newsletter articles, and clinical pharmacology sessions in foundation and core medical training programmes.

*Professor Emma Baker,
St George's, University of London – Deputy Chair
of the Clinical Committee*

Professor Sir Munir Pirmohamed sees Clinical Pharmacology Month as a time to highlight several important areas in which CPT consultants contribute:



Clinical pharmacology contributes widely to the NHS. We provide excellent clinical care, and this is going to become increasingly important with an ageing population admitted to our hospitals with comorbidities and on multiple drugs. Clinical pharmacologists have been trained to handle this challenge. Clinical pharmacologists are highly sought after in industry and regulatory bodies, both as employees and advisors. I do not know any clinical pharmacist that is under-employed. As a clinical pharmacist, I do something different every day, which is really exciting. It is important we highlight how important clinical pharmacology is to the wider NHS.

Professor Sir Munir Pirmohamed, University of Liverpool – Chair of the Clinical Committee

Dr Emma Morrison shares her plans for Clinical Pharmacology Month:



The Specialty Registrar-led, medical student competition is only a small part of a larger set of planned activities I will be involved in during Clinical Pharmacology Month. Within the University of Edinburgh, we have a variety of events planned to raise visibility and promote the specialty to doctors at all stages of training. Clinical pharmacologists are presenting at Grand Rounds in our two largest hospitals, highlighting local expertise in education and poisoning. As a department, we are also providing targeted plenaries and workshops for foundation and core medical trainees, to draw attention to clinical pharmacology as a key part of their core skill set. Finally, we are engaging with primary care and emphasising the role of clinical pharmacologists in the NHS, via a series of articles in our regional prescribing bulletin. Through these activities, we aim to highlight how clinical pharmacology plays a role in all medical careers and is an inspiring specialty in which to forge a career.

*Dr Emma Morrison, University of Edinburgh –
Chair of the Specialty Registrar Advisory Group*

How to get involved

To find out more visit www.bps.ac.uk/october. If you want to get involved, we would love to hear from you. If you need support in advance with advertising or would be prepared to share feedback afterwards please contact me at lee.page@bps.ac.uk or tweet us @BritPharmSoc.

References

- 1 Association of the British Pharmaceutical Industry (2015) *Bridging the skills gap in the biopharmaceutical industry*. Available at: http://www.abpi.org.uk/our-work/library/industry/Documents/Skills_Gap_Industry.pdf
- 2 British Pharmacological Society (2017) Clinical pharmacology & the NHS. Available at: <https://www.bps.ac.uk/about/our-campaigns/clinical-pharmacology-the-nhs>

About the author

Lee was formerly a Medicinal Chemist with 12 years' experience working in the pharmaceutical industry with GlaxoSmithKline and Astex Pharmaceuticals. Lee joined the Society in 2016 from the Royal Society of Chemistry where, as Education Executive, he project managed a series of successful online resources and assessments for A-level students. Lee is a Chartered Chemist and has an MChem in Chemistry from Heriot Watt University, Edinburgh, UK.

Purdah – protecting the scientist’s voice

Jono Brūin
Chief Executive



Back in May, in the run up to the UK General Election, the British Pharmacological Society joined many other leading organisations from across the scientific community in signing a letter to Sir Jeremy Heywood¹, Cabinet Secretary and Head of the Civil Service. The letter asked for clarification from government on how ‘purdah’ affects science and scientists in the run up to an election, and it received significant attention in the media in the days following publication².

Over the last few years, the Society has been building its engagement with government, other scientific groups and our broader community of patients and the public. We’ve done this deliberately and carefully, as part of a plan to be helpful to decision-makers and to those who are affected by policy choices. We have championed the importance of pharmacology and clinical pharmacology to people at home and abroad. We have talked about the affordability of medicines to

the NHS, about the misuse of drugs for physical and image enhancement and the associated risks to young people, about the impact of leaving the EU, about how we might learn more and improve future outcomes when clinical trials go badly wrong, and about how we can support the kinds of skills needed to discover, develop and deliver new medicines to a growing base of patients in years to come.

While the Society was not directly prevented from speaking out on these issues during purdah, we recognise that there is a risk to everyone in the science community if valuable expertise and insight cannot be shared. As a body of scientists and clinicians whose work directly affects the health and wellbeing of patients, this feels like a critical issue.

So, we were proud to join colleagues from across the wider scientific community to sign this letter. We received an engaging response from

government³ and expect the debate to continue in the months and years ahead. Whatever the outcome, we look forward to continuing to promote the advice and support of our members on critical issues affecting public health, no matter when they arise.

References

- 1 British Pharmacological Society (2017) “Society signs open letter to Cabinet Secretary on application of ‘purdah’ to scientists”. Available at: <https://www.bps.ac.uk/news-events/news/society-news/articles/society-signs-open-letter-to-cabinet-secretary-on>
- 2 “Gagged Science” *The Times* 18 May 2017. Available at: <https://www.thetimes.co.uk/edition/comment/gagged-science-vsmrjbj9r>
- 3 Cabinet Office (2017) Cabinet Secretary letter to the Science Media Centre. Available at: <https://www.gov.uk/government/publications/cabinet-secretary-letter-to-the-science-media-centre>

2016 *British Journal of Pharmacology* Early Career Researcher Prize



Nicolas Monjotin
Pierre Fabre Medicament

Each year the Society awards an annual prize of £1,000 for the best paper published by an early career researcher in an issue of the *British Journal of Pharmacology* (BJP) during the previous 12 months. The goal of the BJP Early Career Researcher Prize¹ is to recognise outstanding work by young pharmacology investigators and to encourage them to submit their most exciting pharmacological work to BJP.

In 2016 the prize went to Nicolas Monjotin for his paper 'F16357, a novel protease-activated receptor 1 antagonist, improves urodynamic parameters in a rat model of interstitial cystitis'.² Six months on, we caught up with Nicolas to find out a bit about the impact of winning the prize, and what he's up to now.

What was the main discovery from your paper?

In this paper, we demonstrate the presence of Protease Activated Receptor-1 (PAR-1) in the rat bladder and its involvement in bladder function and sensation. The local administration of the novel selective PAR1 antagonist F16357 elicits robust and durable effects on bladder contractility, urodynamics and bladder pain sensation. Hence, F16357 could represent an interesting candidate for Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) treatment because it improves most of the pathological features, namely, pelvic pain, inflammation and detrusor dysfunction.

Where do you work now and how did you get there?

Since 2016 I have been Head of Scientific Outsourcing at the pharmaceutical company Pierre Fabre Medicament in Toulouse, France. I joined Pierre Fabre in 2008 as a technician and have worked my way up through various roles in the years since. I now coordinate the strategy of all of our scientific experiments, which are steadily increasing as a proportion of Pierre Fabre's total business. There are three main elements to my role:

- As Head of Scientific Outsourcing, I functionally manage a team of 30 people made up of scientists and colleagues working in support services (intellectual property, legal, project management, purchasing etc).

- As Outsourcing Manager, I facilitate the interaction between Pierre Fabre Scientists and contract research organisations (CROs). I challenge the scientific needs, I determine the added value in outsourcing, and I help to design the best experimental procedure and to initiate the studies.

- As a Pharmacologist, I design and manage pharmacological experiments for the external evaluation of compounds.

Before joining Pierre Fabre I spent three years at UROSPHERE, a Toulouse-based CRO specialising in preclinical urogenital, gastro-intestinal and oncological pharmacology studies.

How did it feel to win the prize? How has winning it helped you?

When I received the email to tell me that I had won the Early Career Researcher Prize, I called my thesis supervisor, Nathalie Vergnolle, to ask her if it was true or if it was a spam email! I must confess that until then I had not heard of the prize, but since winning it I have been pleasantly surprised to see how well recognised it is within the pharmacology community. After the news was announced, I received congratulations from lots of scientists I didn't even know, which has been really gratifying. Winning the award has been a great way to raise the visibility and profile of my research in a way that would not have happened otherwise.

Winning the prize also boosted my profile within my company, as they decided to communicate the news to all staff and in our internal magazine. I was even congratulated by our Research and Development Director. The company recognises that the prestige of being associated with the BJP in this way is good for its own reputation, not just mine personally!

What are your plans for the future?

For the near future, I want to follow my mission to set up and coordinate our scientific outsourcing process because it is a real education to see how a large company like Pierre

Fabre works. I work with a fabulous team which is dedicated to improving our scientific efficiency and to helping all our scientists to perform experiments in CROs to the same standards we achieve internally. This new experience is very interesting but after I have fulfilled this mission, I would like to move to a more scientific one.

Regarding F16357, its development will continue in a collaboration with a biotech firm and I hope to see this compound become a medicament in the coming years because it could really improve the pathological features of IC/BPS.

Do you have any advice for young researchers?

Be persistent! I started out nearly a decade ago as a lab technician and I have ended up coordinating part of the activity of hundreds of people. This couldn't have happened without persistence.

Be proud of what you do. A lab is a very creative place – you must always recognise the creativity in what you do, and take pride in that.

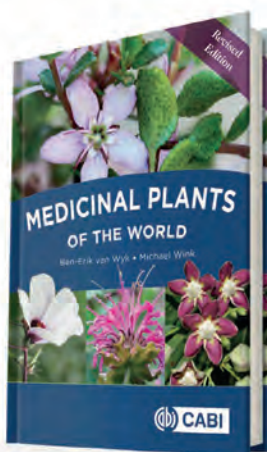
And finally, work in a team, because it is the only way to achieve “impossible” things. I would like to thank everyone in my own extraordinary team – I could not have won this prize without you!

About the author

Nicolas is Head of Scientific Outsourcing at Pierre Fabre Medicament in Toulouse, France. He has been with the company since 2008, before which he spent three years with the contract research organisation UROSPHERE and one year with the research laboratory Organon (now Merck). He obtained a technologic diploma (DUT) in 2003, a licence in physiology in 2004, became Engineer in Life Science in 2011 and obtained his PhD in pharmacology in 2016. He won the BJP Early Career Researcher Prize in 2016.

References

- 1 *British Journal of Pharmacology* “BJP Annual Prize for Early Career Researcher/Independent Research Fellow”. Available at [http://bpspubs.onlinelibrary.wiley.com/hub/journal/10.1111/\(ISSN\)1476-5381/journal-features/journal-prizes.html](http://bpspubs.onlinelibrary.wiley.com/hub/journal/10.1111/(ISSN)1476-5381/journal-features/journal-prizes.html)
- 2 Monjotin N. “F16357, a novel protease-activated receptor 1 antagonist, improves urodynamic parameters in a rat model of interstitial cystitis” *British Journal of Pharmacology* 2016: 173(14). Available at <http://onlinelibrary.wiley.com/doi/10.1111/bph.13501/abstract>



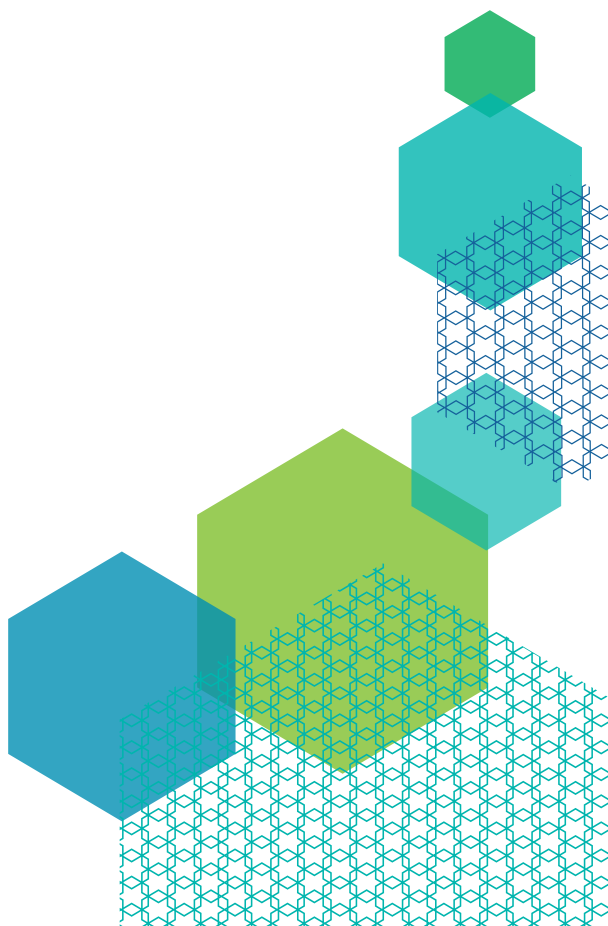
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KNOWLEDGE FOR LIFE



Meet the Medicine Makers



Teesha Bhuruth, Engagement Manager with James Brown, Biochemical Society

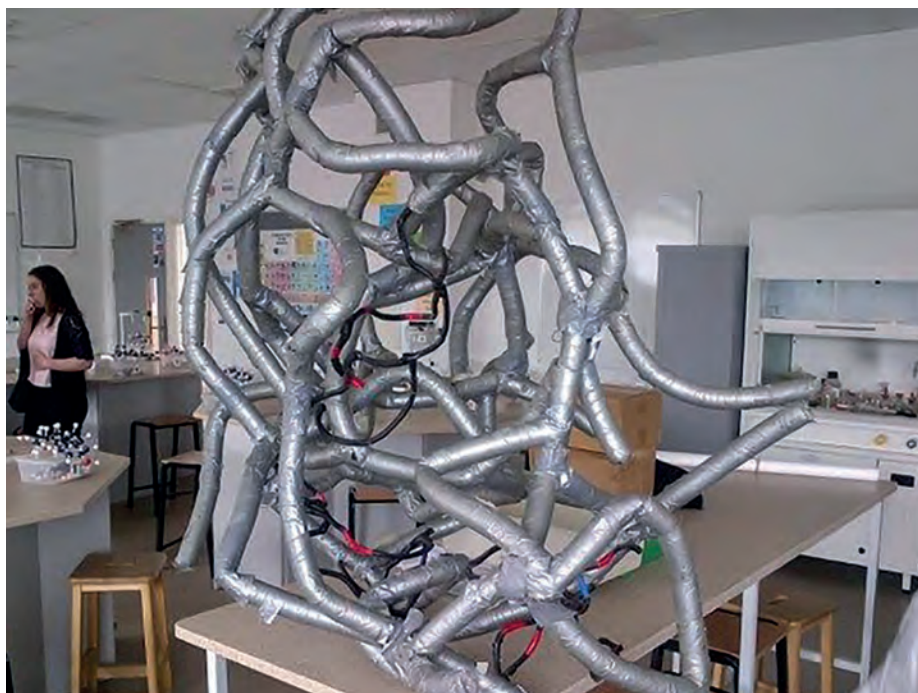
It all began with the 1962 hit novelty song, *Monster Mash* by Bobby "Boris" Pickett. In 2009, Dr Steven Rossington from the University of Salford, UK used a Biochemical Society Scientific Outreach Grant to create a giant 3D molecular modelling workshop for schools. When bemused colleagues asked what he was building, he would cheekily reply that he was creating a monster – one he subsequently named **BORIS** – the Biological ORIgins of Systems.

BORIS is a 5ft, 3D model of a protein which Dr Rossington used to introduce his audience to the subject of drug therapy through a 'hands-on' theoretical approach to molecular modelling. The audience 'dock' their designed drugs to various active sites on the model and explore drug design and various molecular modelling techniques.

Taking this original concept, the British Pharmacological Society and the Biochemical Society worked together to create a (somewhat scaled down) version of the activity which could be used by our members for outreach and public engagement purposes, and *Medicine Makers* was born.

The Medicine Makers toolkit

The *Medicine Makers* toolkit is an engaging, fun, 'hands on' activity involving toobers, pipe cleaners, coloured card and hama beads. The activity pack comes with a step-by-step facilitators' guide and seeks to introduce participants to the basic mechanism of how painkillers work in our bodies; looking at how our bodies respond to pain and how these medicines help us to overcome it.



BORIS in action

The toolkit has been taken out on the road at various festivals across the country and the Society was delighted to see its members, alongside Biochemical Society members, test the toolkit at some popular science festivals such as the Lambeth Country Festival and the Big Bang Fair in Birmingham in 2016.

Medicine Makers and its evolution from 'BORIS' sets a precedent, demonstrating how seeding funds invested into new projects have the potential to be developed into valuable resources for public engagement activities. That's why the British Pharmacological Society has relaunched its Engagement Grants (previously named Outreach Grants) in 2017 to include seeding funds (up to £250) and larger lump

sums (up to £1,500) to support the creation and/or development of high quality engagement activities for communicating pharmacology to student, stakeholder or public audiences. Most importantly, the criteria of the new Engagement Grants encourage proposals to have a clear output for activity which can be fed back into Society resources for our members to use, much like how the *Medicine Makers* toolkit evolved from 'BORIS'.

The Biochemical Society also offers scientific outreach grants up to £1,000 for activities that communicate the excitement of molecular bioscience to young people and the community, check out the details at the end of the article for who to contact for further information.

The BPS website already hosts a library of public engagement resources, including Medicine Makers. The vision is for this resources hub to become home to a whole range of similar toolkits to help educate students, stakeholders and public audiences about the importance of pharmacology – and to spark those all-important conversations.

The importance of public engagement

It's always surprising where those conversations can take you; there's no predicting what sort of questions or ideas might come up. An activity such as Medicine Makers is designed to be accessible to a broad audience and a wide age range. For the youngest participants it can act as a craft activity and a chance to discuss shapes and colours. As visitors get older we can start to introduce ideas such as molecules, atoms and the concepts of drugs. Following on, we introduce protein structure and enzyme inhibition before moving onto open-ended discussions about drug use, efficacy, safety, drug design and the history of medical discovery. All that, and you get to play with coloured pipe-cleaners and beads! What's not to like?

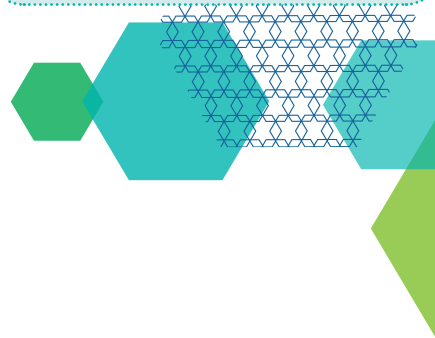
Of course, it's important for activities such as these to not be used solely as a didactic teaching exercise. Public engagement is fundamentally a two-way dialogue, so be sure to really listen to what participants have to say. What are their opinions on drugs and pharmaceuticals? Where are they getting their information about medicine safety and usage? How confident are they in understanding scientific issues? What is it about your work that interests or excites them?

Needless to say, every audience will be different. There is no such thing as the "general public" and adapting your approach to the current circumstances will ensure that both you and your audience are able to engage fully with the activity. Medicine Makers can be adapted or changed to suit your needs. It can be used with small school groups in a classroom, or with hundreds of visitors at a science festival. It can be simplified or complicated, general or specific.

So if you're looking for an activity to use in schools, at science festivals or other events, download Medicine Makers today! www.bps.ac.uk/medicine-makers-toolkit

For more information please contact Teesha Bhuruth, Engagement Manager, teesha.bhuruth@bps.ac.uk

To find out more about the Biochemical Society, including information about their Scientific Outreach Grant scheme, contact James Brown, Education and Public Engagement Officer, james.brown@biochemistry.org



Public engagement resource hub

Medicine Makers is available as part of a new online library of resources on the British Pharmacological Society website: www.bps.ac.uk/medicine-makers-toolkit

The library includes toolkits, animated videos and leaflets to encourage members and other scientists to get involved with public engagement and outreach activities. Many materials were aligned with the Society's ongoing campaigns on performance and image enhancing drugs, and the costs and affordability of medicines.

Engagement calendar

International Biology Olympiad, University of Warwick, UK, 27 July 2017

British Science Festival, Brighton, 6–9 September 2017



The Medicine Makers toolkit in action at Lambeth Country Show in 2016

About the authors

Teesha is the British Pharmacological Society's Engagement Manager. Having graduated with a First Class BSc in Biomedical Sciences from the University of Southampton, UK, 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, UK. 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.

James is the Education and Public Engagement Officer at the Biochemical Society. He has Master's degrees in Molecular and Cellular Biochemistry and Education as well as a PGCE in secondary science. James was a teacher for six years, working in England and Canada, with ages from pre-school up to 18 year olds. He has taught biology, chemistry, physics, maths, IT, photography, gardening and Canadian history (of which he knew very little). For the last two years he has worked in outreach and public engagement, first at Northumbria University, UK, with Think Physics, and now at the Biochemical Society.

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Meetings update



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

Recent highlights



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

24–25 April 2017 | Nottingham, UK

At our most recent Focused Meeting, the Society welcomed delegates to the University of Nottingham for a two-day conference organised by the Society's Drug Discovery, Development and Evaluation Affinity Group co-chairs Professor David Kendall (Pharmnovo AB, UK) and Dr Elizabeth Rosethorne (University of Nottingham, UK). The audience discussed novel *in silico* and *in vitro* techniques that are being developed to accurately predict human toxicology as well as human dosage prior to clinical trials which may reduce drug attrition during clinical trials, and speed up the route to registration. Delegates also looked into how *in silico* modelling can be used to enhance medicinal chemistry, minimise animal usage and foster academic drug discovery.

Speakers from the pharmaceutical industry and academia shaped the educational programme, with Professor Graeme Milligan (University of Glasgow, UK) presenting the JR Vane lecture entitled 'From *in vitro* to *in vivo*: challenges in studying free fatty acid receptor 2 (GPR43)'. The best poster prize was awarded to Mr Simon Brooke (MRC Toxicology Unit, Leicester, UK) for his presentation on 'Pharmacological evaluation of clozapine n-oxide for its use in the *in vivo* chemical genetic investigation of M1 muscarinic acetylcholine receptor function'. The meeting was sponsored by Integra and received fantastic feedback on its scientific programme.

About the authors

Niall is Lecturer in Pharmacology in the School of Medicine at University College Cork, Republic of Ireland. 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.

Update on upcoming meetings

8th European Workshop on Cannabinoid Research

31 August–2 September 2017 | London, UK

This three-day meeting focused on the latest developments in cannabinoid research will feature the EPHAR lecture presented by Professor Javier Fernandez Ruiz (Universidad Complutense, Spain) on 'The current biomedical challenge of neurodegenerative disorders: an opportunity for cannabinoid-based therapies'. We invite academics, researchers, clinicians, early career investigators, postgraduate students as well as those working in the pharmaceutical industry, policy makers, government agencies and members of the media to book their place at the early-bird rate and join us at this Focused Meeting in London.

Deadlines to note:

Early-bird registration deadline: Monday 31 July 2017 (11:59pm BST)

Final registration deadline: Thursday 24 August 2017 (11:59 BST)

For further information and to register, please visit: www.bps.ac.uk/ewcr2017



Pharmacology 2017

11–13 December 2017 | London, UK

Preparations for the Society's annual flagship meeting are well underway, with registration, abstract and bursary submissions now open. To register visit: www.bps.ac.uk/pharmacology2017

The Society has published the "Programme at a Glance", which includes details of the meeting's five symposia tracks:

- Cardiovascular and Respiratory Pharmacology
- Neuropharmacology
- Integrated Systems Pharmacology
- Molecular and Cellular Pharmacology
- Toxicology & Drug Discovery, Development and Evaluation

There will also be workshops on the following topics:

- Engaging with ethical review: strengthening relationships between ethical review bodies and researchers
- Mind the gap: clinical pharmacology in the NHS and pharmaceutical industry
- Innovations in Pharmacology Education
- Creating & fostering a diverse professional network

The Meetings Committee would like to encourage Society members to get involved with chairing sessions and judging posters at *Pharmacology 2017*. If you are interested, please email meetings@bps.ac.uk.

For further information please visit: www.bps.ac.uk/pharmacology2017.

Deadlines to note:

Abstract submission deadline: Friday 8 September (11:59pm BST)

Bursary submission deadline: Friday 8 September (11:59pm BST)

Affinity Groups update

Niall Hyland, Vice President – Meetings, with Liz Rosthorne and Dave Kendall, co-chairs of the Drug Discovery, Development and Evaluation Affinity Group



The Drug Discovery, Development & Evaluation (DDDE) Affinity Group aims to support members of the Society with interests in all aspects of pharmacology from drug discovery to prescribed use including target identification, drug development, safety pharmacology, conduct of medical research and clinical trials, approval and licensing. DDDE also serves members with interests in natural products and nutraceuticals. Key to this is integrating the interests of members across academic, clinical and industrial settings.

An important function of the group is, of course, to champion drug discovery, development and evaluation and to ensure that it is well represented at Society meetings. A number of the symposia at *Pharmacology 2016* were DDDE-related. These included:

- Organ-on-a-chip technology - the future of physiological profiling?
- Clinical application of systems pharmacology models
- Clinical pharmacology, pharmacokinetics and pharmacogenetics in pregnancy (C4P)

These well attended sessions generated considerable interest. Members of the DDDE group were also fully involved in evaluation of posters, oral communications and the new and very well received flash poster sessions. DDDE involvement will be even more evident at *Pharmacology 2017* in December, with planned symposia including:

- Drug repurposing: opportunities and challenges
- Protein-protein interactions: from biochemistry to drug discovery and pharmacology
- Inflammation and immunity: new drug discovery opportunities

In addition to taking part in the annual flagship meetings, it is important that the Affinity Groups organize more member-focused events and to this end the DDDE Affinity Group recently ran a small but insightful focused meeting entitled “*In silico* and *in vitro* methods in modern drug discovery” at the University of Nottingham, UK (24–25 April 2017) (see page 8). Invited speakers included colleagues from the pharmaceutical industry

(Darren Green and Steve Hood from GSK) and smaller industrial concerns (Urban Fagerholm from Prosilico in Sweden, Patrick Barton from Evotec in Germany and Piet van de Graaf from Certara in the Netherlands). Academic pharmacology was represented by contributions from Judith Madden (Liverpool John Moores University, UK) and the University of Nottingham’s Steve Charlton, Steve Bridden and Jillian Baker. Topics ranged from *in silico*-based presentations on computational medicinal chemistry to the ways in which *in vitro* pharmacology can inform clinical practice. A further highlight was the delivery of the JR Vane Lecture by Graeme Milligan (University of Glasgow). A theme running through the meeting was the advantages that *in silico* and *in vitro* methods can bring to the efficiency of the drug discovery process and the reduction in the need to use animals in pharmacology research.

At *Pharmacology 2017*, attendees will hear from the winner of the Drug Discovery of the Year award on day 1 as well as three symposia aligned with or related to the DDDE track throughout the conference:

- Pharmacological modulation of gene expression – the therapeutic potential of epigenetic medicines
- Therapeutics research in vulnerable populations: expanding our frontiers
- Advances in drug development and regulation



Dr Julian Cole, Gilead Sciences Ltd, shares his experiences of developing sofosbuvir in the treatment of hepatitis C – the Society’s Drug Discovery of the Year 2016.



Professor Sir Munir Pirmohamed & Dr Anne Heatherington co-chaired the Drug Discovery, Development & Evaluation symposium at Pharmacology 2016 on 'Clinical application of systems pharmacology models', which was organised by guest society ASCPT.

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 or contact the Society directly at affinitygroups@bps.ac.uk.

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 email affinitygroups@bps.ac.uk.

About the authors

Professor David Kendall

David was an academic pharmacologist at the University of Nottingham Medical School where he held the posts of Professor of Cellular Pharmacology and sometime Head of Biomedical Sciences. He left in 2015 to help run a start-up drug discovery company developing novel compounds for chronic pain therapy. He is also presently collaborating with colleagues in the School of Pharmacy at Liverpool John Moores University, UK on an anti-migraine discovery project. He has been a member of the British Pharmacological Society for more than 30 years and an editor of the *British Journal of Pharmacology* for many of them.

Dr Elizabeth Rosethorne

Liz is a Senior Research Fellow at the University of Nottingham working in the area of Molecular Pharmacology & Drug Discovery. Her research focuses on understanding the molecular mechanisms driving airway remodelling in chronic respiratory diseases, and exploring novel therapies to treat them. She specializes in the use of phenotypic assays in pharmacology and drug discovery, and has particular interest in the differentiation between ligand, system and observational bias on a cell and molecular level. Liz has been a member of the British Pharmacological Society since 2001.

Dr Niall Hyland

See page 20.



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11–13 December 2017

The Queen Elizabeth II Conference Centre, London



For information about attending or presenting,
please contact meetings@bps.ac.uk or visit
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