



Editor: Steve Busby

Editorial Advisors: Dan Gibbs, C.M. Santosh Kumar, Mary Blanchard, Caroline Durbin, Julia Myatt, Georgina Lloyd & Mike Tomlinson



Spring issue

focus on Plant Science



Editorial by Professor Rob Jackson, Head of the UoB School of Biosciences

Hello everyone, we are eight weeks into our Spring semester, and I'm so glad finally to see the signs of Spring and the longer day lengths – and, hopefully, we won't get another major snowfall now, given all the flowers and blossom in bloom! This issue of *The Mole* is focussed towards Plant Sciences, and features several exciting projects that are ongoing in the School. Plant science remains a high priority for UK research given the breadth of agriculture and forestry activities in our country. Our plant scientists cover both fundamental and applied science, covering the complexity of how plants 'work', and also how they interact with their environment and other organisms, in particular how they respond to abiotic and biotic stress. Plant science education in the UK has been less popular with students in the last 20 years. However, the early stage teaching about changing planetary climate and links to sustainable ecosystems and lifestyle, with plants being a very central theme, is hopefully going to change perceptions and



help to attract students towards plant science. I did my first ever presentation to primary school children last week, zooming into a class in Bridgwater, Somerset. The 4-5 year old children were very engaged at having a 'tree doctor' talk to them about problems with trees and how to help – their solutions were to walk through and look after the trees, and to water them. They asked a lot of questions, though I was somewhat stumped by the opening question asking "Why didn't I have any hair?" – so funny! We are now seeing the impact of Sam Dobbie's work in the BIFoR education team, developing school tours and sending out BIFoR-in-a-Box 'toolkits' to schools to help children learn how trees grow. Thus, I am hoping these concerted efforts by us all can help to bring through the next generation of plant scientists.

The editor adds: As well as being our Head of School, Rob is a Director of BIFoR, the Birmingham Institute of Forest Research (he is on the left of the photo here, taken at the BIFoR Norbury woodland site; and you can see him wearing a kilt on page 11). In addition, he is currently President of the British Society for Plant Pathology, which serves around 700 members all round the globe. Like all good learned societies, it helps to ensure that research, education and outreach is supported, in this case, focusing on plants, pests and diseases. This is achieved by funding schemes, and through an annual conference, to be held, this year, here at our leafy University Edgbaston campus. See:

<https://www.bspp.org.uk/conferences/plant-pathology-2023/>

Christine Foyer writes more about Learned Societies on page 5 of this issue.



We are sad and sorry to record that Dr Dennis Briggs passed away on 15th February 2023. Dennis was an academic member of staff in the Department, then School, of Biochemistry from 1964-2000. He worked in the sub-department of Malting and Brewing, and was a world-renowned expert on malting, as well as a distinguished polymath. Former colleague, Dr Tom Young commented “I first met Dennis in 1970 when I joined the Brewing School in the department of Biochemistry. Dennis was responsible for teaching the science of malting on the MSc Brewing Science course. I remember the dedication and thoroughness with which he did this. He was proud that several of his students achieved senior roles in the Malting and Brewing industries. Dennis undertook his research in the same determined spirit. He spent a sabbatical in the Carlsberg Lab in Copenhagen and really enjoyed it. His focus was barley and its role in the malting process which he pursued single-mindedly with vigour and rigour and on occasion, if disturbed, a little irascibility”.

Feature: Eugenio Sanchez-Moran writes about Meiosis research in Birmingham



It feels like yesterday, October 1999, landing at Birmingham Airport, and being picked up by my mentor Dr Gareth H Jones. Gareth had started at UoB in 1965, just after he got his PhD in Wales. Once, he told me that, when he started his PhD, his supervisor gave him a little bag of seeds and just told him “This is your Thesis” without any further clues. He soon realised that it was to study meiosis in a special plant material, and thought that meiosis was “a nice little thing to figure out how it works”. Gareth formed a great international reputation among researchers in cytogenetic analysis of meiosis. Prof Chris Franklin joined him later to crack further meiotic recombination in plants, bringing his expertise on molecular biology. This partnership worked brilliantly for many years, and I was fortunate to learn so much from them. Gareth retired in 2008,

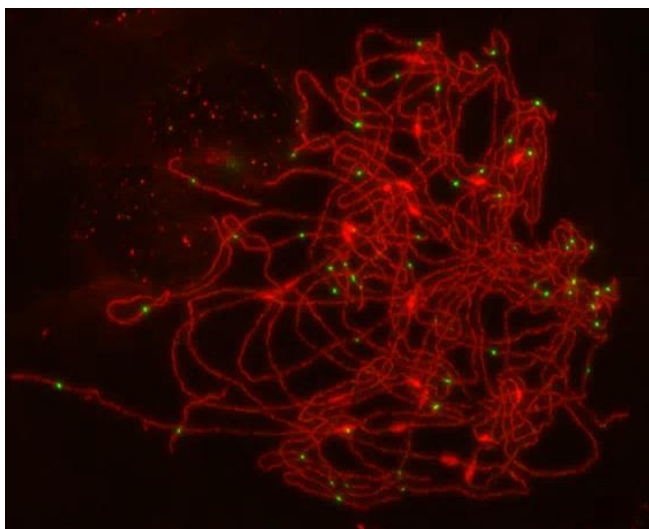
and Chris is now an emeritus professor, but both agree that, despite many advances in knowledge about meiosis, we still face many more questions.

Meiosis is an odd process. It probably originated in unicellular organisms that, when the environment was not favorable, evolved by producing haploid cells called spores. These spores could survive hostile environmental conditions and wait until the moment was right to combine two of them and produce a new diploid individual, thereby, ensuring the survival of the species (even if it means the end of the parental cell). Well, I am not aware of a better analogy for the meaning of parenthood in higher eukaryotes. Thus, sporulation evolved into meiosis and the production of haploid gametes for sexual reproduction in multicellular organisms from fungi, plants and animals.

Dr Kenneth Mather, Chair of Genetics at UoB (1948), together with C.D. Darlington (the father of cytogenetics), made the first attempt to understand the origin of meiotic recombination. Gareth once said

that “in meiotic research he always found himself in the shoulder of giants” pointing that lots of great scientists already tried to get answers, and we already started working on meiosis from a privileged position. These days, to study meiosis, we try to analyse it from different perspectives, involving a range of disciplines and expertise, but always acknowledging where we are coming from.

I would like to finish with a great sentence from J. Herbert Taylor (1974), known for his research in DNA replication, he also was intrigued by meiosis. He said: “I will only remind you that meiosis is still a potential battleground where dead hypotheses litter the field, or rest uneasily in shallow graves, ready to emerge and haunt any conscientious scientist who tries to consolidate a victory for any particular thesis”. A nice little thing to work on!

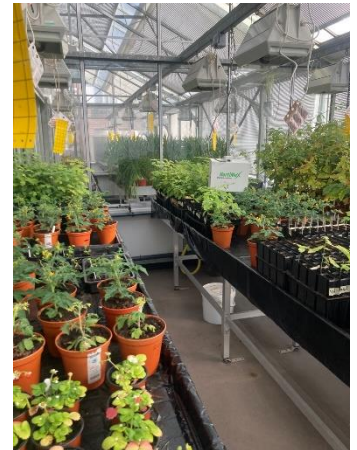


Above: Meiotic chromosomes in bread wheat. Zyp1 immunolocalization between the homologous chromosomes (red) and Hei10 foci marking recombination events (green). Image taken by PhD student Uthman Balgith Algopishi (UoB), one of the next generation!

Feature: three of our plant science doctoral researchers write about their research



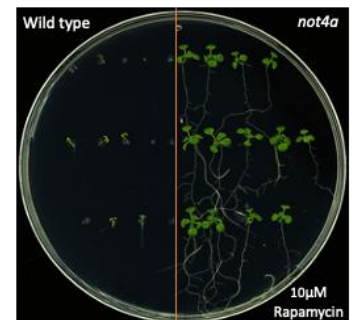
Katie Stevens writes: I'm a final year MIBTP-funded PhD student working in the Luna-Diez group. My project is investigating the epigenetics behind long-lasting defence priming, for use in post-harvest settings. I work primarily in tomato with the fungal pathogen *Botrytis cinerea*, the causal agent of grey mould. My PhD is supported by iCASE partner Saturn Bioionics with whom I am working on exploring elicitor treatments for commercial use in hydroponic strawberries. I work mostly with the immune priming agent β -aminobutyric acid that is effective against a range of pathogens and abiotic stresses. My project is largely genomics-based, exploring how immune memory is formed and maintained, through studying both DNA methylation and gene expression. My research has shown that young plants display greater imprinting capacity which contributes to long-lasting resistance, furthermore this enhanced resistance is passed to the progeny. Through the use of grafting, we have demonstrated that this immunological memory is transmissible to naïve scion tissue. This work therefore has interesting potential for use in industry settings for inducing long-lasting resistance without the risks associated with chemical treatments.



Maximillian Shwarze writes: my project concerns ubiquitin ligases that regulate protein quality control in *Arabidopsis*. Proteins are vital building blocks of cells, and their proper regulation is essential for maintaining cellular integrity. The complete collection of proteins in a cell is known as the proteome, and it must be closely managed to ensure that cells function effectively. However, mistakes do happen during protein synthesis and maturation, and these can lead to the appearance of abnormal proteins that negatively impact on cellular functions. Therefore, it is crucial to recognise and eliminate both defective mRNAs and defective proteins and specialised machineries exist to facilitate this.

Despite their crucial role in ensuring proteostasis, the mechanisms that are involved in controlling co-translational mRNA and protein

quality in the plant kingdom are poorly understood. To address this gap in knowledge, my PhD project investigates a mechanism that connects protein synthesis and degradation processes at the ribosome level. The recent identification of a family of E3 ubiquitin ligases in *Arabidopsis* that operate at the interface of mRNA translation and protein degradation forms the basis of the investigation. As these are still uncharacterised in plants, I want to investigate whether they are part of an expanded plant-specific toolkit that provides dynamic and stress-responsive functions in translational quality control. Ultimately, this will pave the way for new research areas with the potential to revolutionise the regulation of translational precision in plants. By doing so, my work will advance our understanding of co-translational mRNA and protein quality control.



Katie Jeynes-Cupper describes how plant grafting produces favourable traits: To most of us, the idea of cutting two plants up and sticking them together to produce a single plant with improved traits, such as disease resistance or vigour, seems somewhat ridiculous. Maybe it even reminds you of Frankenstein's monster? This is known as grafting, an ancient horticultural technique used to introduce agronomically favourable traits into crops. It is becoming increasingly important to improve plant productivity to maintain food security, particularly in a time of environmental change, and growing human population. Recent technological developments, such as Next-Generation Sequencing, have been used to show the movement of RNA molecules across graft junctions, and their ability to instigate physiological changes by inducing epigenetic pathways that regulate gene expression. To be relevant to the global market, these results need to be translated from model species into crops. This will drive the development of new techniques for introducing favourable agronomic traits, as an alternative to traditional breeding or transgenic approaches. As part Marco Catoni's



research team, my work aims to translate these findings into *Solanaceous* crops, such as tomatoes and aubergine. I am also developing an R package to identify and visualize mobile small RNA molecules traveling across graft junctions, using small RNA sequencing data. Hopefully, this will make up for the current lack of tools and standardised pipelines in this growing research area.

The story behind the paper: Juliet Coates explains

DELLA proteins regulate spore germination and reproductive development in *Physcomitrium patens*.

Alexandros Phokas, Rabea Meyberg, Asier Briones-Moreno, Jorge Hernandez-Garcia, Panida T. Wadsworth, Eleanor F. Vesty, Miguel A. Blazquez, Stefan A. Rensing, & Juliet C. Coates.

New Phytologist (2023) <https://doi.org/10.1111/nph.18756>



Above & below: mosses love to grow in challenging places, including on tress and rocks. credit: Juliet Coates.

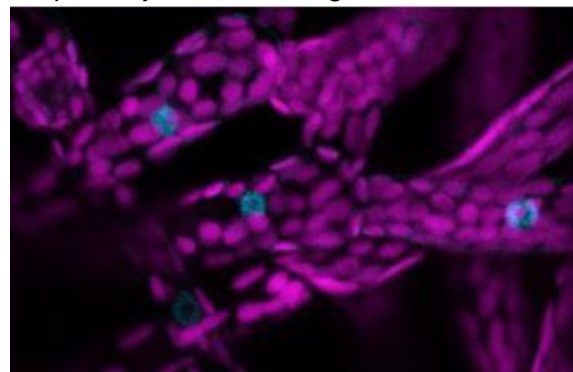


DELLA proteins sound obscure, but they are key players in ‘Green Revolution’ high-yielding dwarf crop varieties. DELLA proteins in flowering plants restrain stem growth and germination: their degradation, induced by the plant hormone gibberellin, enables growth to occur. DELLAs are part of multiple signalling pathways linking to environmental stresses. Plants in the sister groups to seed plants, particularly the bryophytes (small green resilient plants that you see everywhere, such as mosses and liverworts), have no conventional gibberellin signalling but do have DELLA proteins.

The story is quite a long one, starting over a decade ago! Two doctoral researchers, Elly and then Alex, set out to discover what DELLA proteins do in the model moss *Physcomitrium* (formerly *Physcomitrella*), where no functions had been assigned, despite some previous studies. The research has initiated new and fruitful collaborations with both the Rensing (Germany) and Blazquez (Spain) labs, and also included a Birmingham MSci student, Panida. Together, we have shown that DELLA proteins restrain spore germination and are required for male reproductive development. These are related functions to those carried out by flowering plant DELLAs, but the mechanisms by which moss DELLAs work are quite different. Moss DELLA proteins interact with light receptors that do not have exact flowering plant counterparts. They also regulate the expression of genes involved in light- and hormone- responses, metabolism, photosynthesis and growth, via a network of transcription factors that are ripe for further investigation. So,

DELLA signalling, as with many other processes affecting plant growth and development, has been extensively re-wired throughout plant evolution. Our research also suggests the presence of as-yet undiscovered flowering plant DELLA functions and interactions.

Right: transgenic moss (*Physcomitrium patens*) expressing a PpDELLA-GFP fusion (cyan) in filamentous chloronemal tissue that contains chloroplasts (magenta). Credit: Alex Phokas.

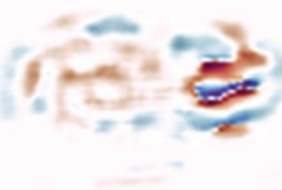


ESSAYS IN BIOCHEMISTRY

VOLUME 67 • ISSUE 2 • MARCH 2023 portlandpress.com/essaysbiochem

Structural Mass Spectrometry

Guest editors: Hannah Britt, Rebecca Beveridge, Antonio Calabrese



Journal Club: we all know that it was the cyanobacteria that kick-started life as we know it today (and plant science!), by working out how to exploit sunlight to liberate oxygen from water, but, amazingly, for a variety of reasons, we know little about the molecular biology of these remarkable microbes. In the latest issue of *Essays in Biochemistry*, Jaspreet Sound, Jeddiah Bellamy-Carter and Aneika Leney show how proteome-scale applications of mass spectrometry are pushing the frontiers and complementing data from other -omics approaches. See *Essays in Biochemistry* (2023) **67**:269–282 <https://doi.org/10.1042/EBC20220095>

Looking for Fern Seed- the Goals of a Plant Theme Research Fellow

Andy Plackett writes: Spring is here, and the trees have begun to blossom (as pictured). Pretty, aren't they? Actually, when you look at a flower, you are looking at one of the biggest mysteries in evolutionary biology. Plants did not originally make seeds and flowers- the only reason we think this is 'normal' is because the *plants that invented this mechanism became so successful that they (almost) completely took over*. But how did it happen? Charles Darwin called the origin of flowering plants 'an abominable mystery', and 200 years on we still haven't solved it- study of the fossil record (by colleagues such as Jason Hilton in GEES) has led to competing theories, but no consensus. I am trying to answer this question differently, by studying the evolution of the genes that make flowers and seeds. Ironically, to do this, I use a plant that makes neither: a surviving member of those older, seedless plants, the ferns. We now know that many of the genes critical to seed and flower development were already there in ferns. My research asks 'what did those genes do before plants could make seeds?'. By understanding how those genes changed (or stayed the same), I hope to re-trace how seeds and flowers first evolved. What I find is that many of those genes had pre-existing roles in fern reproduction, so maybe flowers aren't as original as we thought. Want to know more? Stay tuned for the paper later this year!



Learned Societies- Christine Foyer makes the case for participating: I have to admit that I belong to a large number of Learned Societies: the American Society of Plant Biology (ASPB), the Association of Applied Biologists (AAB), the Biochemical Society, the Federation of European Societies of Plant Biologists (FESPB), the Linnean Society, the International Society of Photosynthesis Research, the Royal Society of Biology, the Society of Free Radical Research (SFRR), and the Society of Experimental Biology (SEB). I joined my first Society, the Institute of Biology (now the Royal Society of Biology) as a PhD student, after my University arranged a day trip to visit its premises and talk to members of the organisation. I doubt that such visits would happen these days, but the value of belonging to a Learned Society has increased in value, not least because of the opportunities for networking and participating in the dissemination of science. As a PhD student at Kings College London, I was able to go to open lectures on Thursday afternoons at the Royal Society. These events provided small but important insights into what it meant to belong to a wider scientific community. Joining learned societies allows individuals to make additional contributions to science over and above basic research and publications. Most Societies organise scientific meetings and offer grants for participation to early stage researchers, as well as opportunities to be involved in Conference organisation and the selection of session topics. Many organisations offer other benefits such as the mentoring programmes and small research grants (SFRR) or short-term mobility grants (FESPB), as well reduced fees for publication in society journals. Joining a Learned Society allows a wide range of important opportunities for science engagement that always boost one's CV. This includes joining one of the many committees that undertake the work of the societies. Over the years, I have chaired membership and fellowship panels, served as an Elected Member of the ASPB Executive Committee and Council, and even been the Secretary General of FESPB and President of the AAB. Each of these activities offered a wide range of engagement and scientific interactions with local politicians, parliamentarians and industries, as well as scientists that would not have been possible had I not joined the Societies. I now represent the Biochemical Society in the Plant Sciences Group of the Royal Society of Biology, which brings together all the learned Societies with interests in plant science, to discuss the key issues facing science and its applications in the UK. Overall, I can honestly say that my career has been richer and more varied due to the opportunities and enduring sense of community offered by learned societies, that provide the visible face and voice for public engagement and interaction, as well as scientific achievement.



Get involved with the Biochemical Society: founded in 1911, the Biochemical Society has been advancing molecular bioscience for over 100 years, running a diverse programme of scientific meetings and training events, grants and awards, publications, educational resources, policy work and public engagement.

Join as a member: offering a range of [tailored membership categories](#) to support bioscientists across all career stages, stay connected and receive discounted registration fees for Society events and courses, as well as exclusive access to a wide range of grants and bursaries.

Attend scientific meetings: with a [vibrant programme of meetings](#) and a wide-ranging [webinar series](#), register for an upcoming event or submit an abstract for the opportunity to present your work.

Enhance your skills: offering a broad variety of [training events](#) and [careers resources](#), gain knowledge and skills from across key areas of the molecular biosciences.

Apply for a grant or bursary: awarding over £250,000 of [grants and bursaries](#) each year to support individuals and student societies, apply for funding towards event attendance, travel, undergraduate placements, extracurricular projects and more.

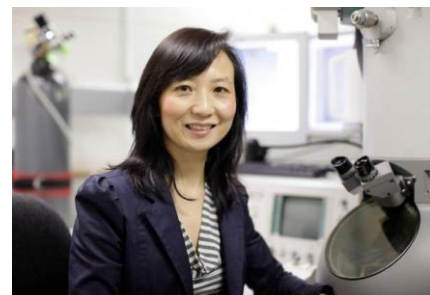
Read & Publish: submit your work to a [Society-owned journal](#) and take advantage of unlimited, fee-free OA publishing for corresponding authors via the University of Birmingham's Read & Publish agreement.

Find out more about these opportunities at biochemistry.org



Special Research Lecture, 1-2 pm LT301 on Tuesday 2nd May, sponsored by the Biochemical Society

Xiaodong Zhang (right) who is Professor of Macromolecular Structure at Imperial College, London, and a PI at the Francis Crick Institute, will be talking about bacterial sigma factors, that are responsible for specifying transcript start-points, and orchestrating the initiation of transcription. The focus will be on an unusual family of sigmas that work in a way that is very different from the vast majority of sigma factors. Members of this family all rely on the ATP-driven activities of special transcription factors known as enhancer-binding proteins. Xiaodong will be explaining how it all works, and why it's important.



Introducing newly-appointed Dr Maria (Masha) Makarova

Masha writes: I am a biochemist and cell biologist who specializes in studying the interplay of genetics, metabolism, and environmental adaptation. I previously studied how cells undergo closed or open mitosis and how lipid metabolic machinery evolves to support various modes of mitosis. I developed an interest in lipid biology and biochemistry after discovering unusual asymmetric lipids in *Schizosaccharomyces japonicus* and, since then, I have been exploring their role in defining physiological processes. My current research focuses on exploring the ways in which plasticity in lipid metabolic pathways allows cells to adapt to new environmental niches, particularly in the context of hypoxia. To do this, I use a comparative biology approach, studying closely related fission yeast species that have divergent metabolic pathways, and varying abilities to survive in hypoxic environments. I really like taking interdisciplinary approaches, such as lipidomics

by mass-spectrometry, advanced fluorescence microscopy, and genetics, to investigate the underlying mechanisms.

The editor adds: Masha's work has applications in how human cells adapt to hypoxic niches, such as tumour microenvironments, and also in industrial microbiology, where metabolic pathways can be engineered to produce commercially valuable biomolecules. She is currently an Assistant Professor in Biosciences, but she also holds an associate position at the Institute of Metabolism and Systems Research at the Medical School and she is a member of COMPARE (the Centre of Membrane Proteins and Receptors). Her office is N113 on the first floor of the biology quad.

Introducing newly-appointed Dr Hansong Ma

Hansong writes: the School of Biosciences at the University of Birmingham is where I started my journey in Biology, and research. I joined as an undergraduate student after moving to the UK from China. I struggled with learning English and Biology simultaneously, but thanks to the support from many lecturers, and my tutor, Julia Lodge, I developed a strong interest in genetics, and decided to pursue a career in basic research. I then joined Robin May's lab as a PhD student, where I probed how the pathogenic fungus *Cryptococcus* evades immune responses to achieve latency. My work linked the fungal virulence to mitochondrial regulation, and led to the discovery of "vomocytosis", a novel non-lytic mechanism whereby live intracellular pathogens escape from infected immune cells, without causing cell lysis. It was so much fun to do research in Robin's lab. I was well-supported by Robin and a great group of Biosciences colleagues, who helped me to grow as a scientist.

Towards the end of my PhD, I started to appreciate the power of model organisms, and decided to take advantage of the genetic tools developed in *Drosophila* to further probe immune systems. To this end, I wrote a postdoc fellowship on *Drosophila* innate immunity and joined Pat O'Farrell's lab at the University of California San Francisco. While performing an enhancer trap screen to identify molecules/signals that mediate inter-tissue communications upon bacterial infection, I became fascinated with mitochondrial DNA (mtDNA) and switched my focus entirely to work on mtDNA transmission. In the following five years, I developed a series of genetic tools that make mitochondrial genetics accessible in *Drosophila*, and showed that deleterious mtDNA mutations are selectively eliminated by purifying selection during oogenesis, but certain sequence polymorphisms can grant pathogenic mitochondrial genomes a selfish advantage, so that they outcompete the functional genomes to impair health. I also demonstrated that homologous recombination occurs in animal mitochondria, and capitalised on this to develop the first system to isolate recombinant mtDNA.

In 2017, I started my own group, with a Wellcome fellowship in the Gurdon Institute at the University of Cambridge, where I continue to explore mechanisms governing mtDNA inheritance and maintenance. My team also developed new projects that probe mitochondria and mtDNA dynamics during spermatogenesis. Last year, I accepted an offer from the UoB, and will relocate my group to rejoin the School of Biosciences next month. It is great to come back after 13 years. I believe the existing research strengths and facilities of the School of Biosciences, and LES, will not only allow me to excel in my current work, but also expand into exciting new directions. I look forward to making more interesting discoveries, and contributing, with my skills and experience, to support the strong scientific community at UoB



Welcome to Chris Moore, newly-appointed Biosciences Education Support Manager

Having first moved to the Midlands in 2008, to study Media with the Music Industries at Birmingham City University, I decided post-graduation that staying in England wasn't quite right for me. So, starting in October 2012, I spent eighteen months travelling South America, Australia, and South Korea, before returning to the north-east of England. A return to working in retail, whilst I figured out what I wanted to do, left me with very little satisfaction, and another move was soon on the cards, this time back to Birmingham in July 2015, where I'd secured a job working at Guide Dogs. I've been in Birmingham ever since, and had continued to work in the charity sector. However, due to being made redundant last year, I finally decided to leave the charity sector, which led me to my current role at UoB as Education Support Team Manager in the Biosciences team.

The Editor adds; Chris took over this role from Arlene Lespeare towards the end of February. He is based in the LES Student Hub at the Old Gym. Note that Mollie O'Connor, who had previously held this role, is now the Senior Education Support Manager for the College of Life and Environmental Sciences.

FEATURE: Where are they now?

Scores of staff and hundreds of students have passed through the School and gone on to do great things. Here, Sarah Aldred (pictured below) tells her story:

I came to Birmingham in 1994 as a fresh faced graduate of Analytical Chemistry and Toxicology. I had become interested in toxicology during my degree at Hull and wanted to know more, so the MSc Toxicology in the then School of Biochemistry seemed perfect! It was (and probably still is) fascinating, and ignited my interest in disease and mechanisms of disease in humans. I didn't much fancy a job in pharmaceuticals or brewing, so I jumped at the chance to stay on the 4th floor in the Biochemistry tower and do a PhD with Rosemary Waring and Kevin Chipman. During my PhD, I was lucky to have the chance to work at Astra Zeneca, I was introduced "up close and personal" to the brain, and I learned very many methods that I've continued to use since! I think by this point I started calling myself a biochemist! After a postdoc at Aston University, gaining some experience of a different lab, and developing some more methods, I came back to UoB, as an academic in the then School of Sport and Exercise Sciences. Often, when you bring a set of well-established skills into a new discipline, they take on a new life – and that's what happened to me! I was able to bring my standard biochemical understanding of metabolic processes in cells, and work with a big physiological stressor (exercise!) to bring a novel slant into exercise science. Since then, I've enjoyed working to understand how exercise can be used to prevent or perturb diseases of the brain. In 2021 I became Head of the School of Sport, Exercise and Rehabilitation Sciences – which is a whole new challenge!



The EDI section: a very green focus on our community

Mary Blanchard, School lead for People & Culture, writes: I am going keep my EDI musings brief this time, as we have three brilliant staff ready to tell you all about themselves (and as before, please contact me if you want to share your own background with the School). However, I cannot resist a few words on EDI and the general theme of plants. I was lucky enough to be on the recent undergraduate field course in Pembrokeshire, and being outside felt like balm for the spirit. I have spent most of my life living near the coast, and being battered by a coastal 'breeze' always seems to take the worst of negative energy away with it. Since moving to the Midlands, I rarely make it to the sea, but have found the power of being around trees. Sitting in a woodland, or just beneath a single tree, brings my heart rate

and stress levels down. Most of us spend far too long indoors, so as the weather warms up, don't forget to take breaks, get outside, stop working and concentrate on the beauty of the natural world around us.

Emma Monaghan – Technical Manager: I started my scientific career with a degree in Biological Sciences with Microbiology from the University of Warwick. My degree experience of research motivated me to focus on this as a career, and so I went on to complete a research Masters and PhD also at Warwick. After I finished my PhD, I worked for 3 years as a senior technician on a large interdisciplinary research grant, funded by the BBSRC: I enjoyed working in a large team and building up my wet lab skills. In 2018, I moved to UoB, and continued to work on various research projects, but when these started to wind down, I looked for other opportunities, and became the School H&S Coordinator. This became a much bigger role with the COVID-19 pandemic, but on the positive side it was a lovely opportunity to get to know and work with so many people in Biosciences, and highlighted to myself my passion for supporting and facilitating research. With that in mind, I took on some temporary roles within the School, before becoming manager of the Wolfson Advanced Glasshouses. In my current role, I still look after the Wolfson facility, but have also taken on management of the Biosciences CL3 Facility. The friendliness of colleagues, and the opportunities I have been given since coming to UoB, really have made it, and continue to make it, enjoyable!





Karen Staples – Chief Horticultural Technician: my UoB journey started in January 1994, when I joined the University Grounds Department at the Vale Student Residences. My working life to this point had been in the horticultural industry, where I gained a wealth of training and experience in roles ranging from local authority grounds maintenance, mowing cricket wickets and bowling greens through to wholesale plant nurseries and interior landscaping. Just 3 months into my new role at UoB, a 9-month junior horticultural technician post became available in the then School of Biological Sciences. The job involved working in a team of people located in the glasshouse unit on campus, growing plants for teaching and research, including field work, and driving tractors. I saw this as an opportunity to develop my skills and took a chance with the short-term contract. I continued to learn and progress and was introduced to

many plant species like Arabidopsis, Rice and Tobacco. Along the way, I spent many hot summer days in the field located where the CTL and Learning Centre are now, growing poppies for Chris & Noni Franklin, sunflowers for Mike Kearsley, and brassica for Harpal Pooni.

In 2000, new glasshouse facilities were built at Elms Road, along with a specialised containment facility on the 3rd floor of the Biology Quad. I applied for the job of managing this, and was delighted to be appointed. It proved to be a steep learning curve, coping with Defra/HSE containment regulations, understanding new computerised glasshouse controls, and engaging more with researchers and students. During my 29 years at UOB, the research has changed and developed, and I've learned so many new aspects of plant research, as well as growing differing plant species, and the recent opening of the new Wolfson Facility has led to even more, as we are now growing differing tree species.

I try to get involved in the wider UoB community, and, to this end, I became a campus ambassador for the 2022 Commonwealth Games, where I welcomed visitors to the campus. Visitors were so friendly and upbeat, and were amazed at how stunning the campus is. It was a joy to work on the games, welcoming people to our campus, and it gave a tremendous vibe to Birmingham, which often gets a bad press. Just travelling around on public transport then, in a games ambassador T-shirt, sparked up many conversations, which otherwise would not have happened.

During my UoB journey, I've met some very talented people, who have helped me develop in my role, and have supported and encouraged me. I can honestly say that I love my job, even now, I still learn something new every day, and I am proud to work at the UoB. I see the technician role as problem solving, working behind the scenes, often unnoticed, making things work seamlessly. There is a saying that I totally agree with...“never stop doing your best because someone doesn't give you credit”.

Stephen Hill – Wolfson Advanced Glasshouses Technician: I first came to UoB in September 2019 to do the MSc Microbiology & Infection as a part-time student. Through Worklink, I found part-time employment as a teaching support technician in the Collaborative Teaching Laboratory, but, after 6 months of this, the world shut down. Remember, in March 2020, all teaching and assessment transitioned to online, and so my part-time work ended. I had relocated from the North-West in the summer of 2019, and so it was a challenge being in a new city in lockdown. Gardening, studying, 'Football Manager', and an endless supply of biscuits got me through lockdown, and we partially returned to face-to-face teaching in late 2020 (that period is a biscuit-induced blur). For my MSc project, I was torn between antimicrobial resistance and plant pathology, but my passion for gardening pushed me towards plant science. My project topic was oak tree diseases, and I completed this work under the supervision of Thomas Welch and Graeme Kettles. I was working on PhD applications, when I saw what is now my current job advertised, I applied, interviewed and started the role in April 2021. My primary responsibilities are to ensure the safe and smooth operation/use of the building and to support research activities. I have also had some opportunities to work on more varied tasks. I helped to organise a conference hosted by UoB in 2022, I'm currently working towards an RHS horticultural qualification at Winterbourne, I'm working directly with the RHS to set up a summer studentship for this year hosted by UoB, and hopefully establish future collaborations. I'm also working on some outreach and public engagement activities for plant sciences at UoB. I enjoy working here, the work is varied and rewarding, and my colleagues across the college, and beyond, are extremely supportive.





Early Career matters: transformation of PERCAT into ECDN

For many years, the PERCAT programme, within the Colleges of Engineering & Physical Sciences and Life & Environmental Sciences, has provided a gateway to resources and support for career development and training for postdoctoral and early career researchers. This has now been replaced and updated by the new Early Career Development Network (ECDN), which will be more inclusive, so that late-stage PhD students, early career postdoctoral researchers, academics, and teaching fellows, will have access to, and information about, a bigger range of training courses, career advice, funding opportunities, workshops, seminars and

other development events. ECDN will work in partnership and collaborate with other departments and external organisations to maximise the opportunities available, hoping to provide you with a steppingstone to your personal career development.

Richard Jones, Interim Early Career Development Network Officer, writes: ECDN endorses the Vitae Concordat to Support the Career Development of Researchers. It has been agreed within the LES and EPS colleges that all Postdocs and early career researchers can take an average of **2 hrs per week** of work time for activities that will enhance their careers. This equivalent to about **12 days per year**.

ECDN aims to have bi-monthly committee meetings, including reps from each School to raise points and concerns. The two School of Biosciences reps are Santosh Kumar (s.k.cm@bham.ac.uk) and Sam Lara Reyna (S.J.LaraReyna@bham.ac.uk), and they can tell you more, and answer any questions you may have, about ECDN. We want to welcome new members, so they can get involved in shaping the new programme, and the direction it takes. So, please get in touch with me, Richard Jones, Interim Early Career Development Network Officer r.jones.12@bham.ac.uk for more information and to share ideas.

Please be aware that, while we are changing everything over to ECDN, there will be various mentions of the previous PERCAT programme on the webpages. The ECDN pages will still link to the relevant information. So please bear with us while the changes take place.



Undergraduate admissions update

Mike Tomlinson, Head of Admissions for Biosciences, writes: managing admissions is a key part of the School's strategy. If we can prove to the University that we can comfortably meet the admissions target that they set us (230, this year), then we can push to enact our plan of growing staff numbers by 50%. Think of all the synergy and resilience that this will bring us! After struggling to meet our targets in recent years, things are really looking promising this year. Check out the current numbers below:

Total applications: 1757 (up 15% compared to last year)

UK applications: 1272 (up 12%) / overseas applications, 485 (up 24%)

Offers made: 1404 (compared to 1183 at this point last year)

Total firm acceptances: 88 (83 UK, 5 overseas, compared to 64 at this point last year)



We are currently in the midst of our four Offer Holder Visit Days (OVDs), where offer holders visit the School to help decide whether they will make us their firm choice. We give the visitors a taste of their whole degree in just three hours. It all starts with a light-hearted Brum Quiz with wannabe quiz show host, yours truly. Then a taster lecture from the likes of an Estrella Luna Diez, John Colbourne or Nick Loman. Then a campus tour, with a student ambassador and lecturer, which includes hands-on practical work on an enzyme assay and/or Daphnia heartbeat. Then, finally, a programme-specific talk from Mary Blanchard, Leanne Taylor-Smith, Graeme Kettles, Scott White or Klaus Futterer.

A big thank you to everyone who has helped on Open Days and Offer Holder Visit Days, and for all the many other inputs that have improved the student experience and the sense of community in our School.



Biology Society President Kati Hume writes: our society is about community building within the School of Biosciences. We put on a range of social events throughout the year, such as bake sales, pub quizzes, karaoke and bar crawls. We are all about inclusion, with a range of events, so that everyone can get involved. The BioCup is a large part of this, with Dr Mike Tomlinson playing a huge role in setting up and running events. Biochemistry and Biology go head-to-head at quizzes, netball, and a sportsday finale, with a celebratory BBQ to end the year. No prior experience is needed, just turn up and take part!



We started off the second semester with our annual Royal Society Guest Lecture, where Steve Busby was presenting this year. He put together a brilliant talk about 'How bacteria regulate their genes and why it's important'. The entire lecture theatre was filled with undergraduates, postgraduates, lecturers, and researchers eager to hear what Steve had to say.



The rest of the semester was quiet for BioSoc, as we had one very big event to prepare for and look forward to.....the much awaited BioSoc Easter ball that was held on the 17th March at the Botanic Gardens! The theme was enchanted forest, with everyone dressing to impress. On arrival, a welcome drink was provided, while solo artist Hazel Drury performed, before everyone sat down for a 3-course meal. Once the meal was over, the band, Overcliff, performed a brilliant set, performing their own songs and covers, finishing off their set with the well-loved 'Angels', but the lights didn't turn on then: the night continued with drinks, much dancing, and relaxing!!



Our vice-president, Rachel Green, worked incredibly hard to get the ball together, so we want to give a huge thankyou to her for putting on such a brilliant night.

Right now, we are planning our AGM for committee applications for next year. We highly recommend applying for a position on the committee. It is so rewarding, and looks great on your CV!

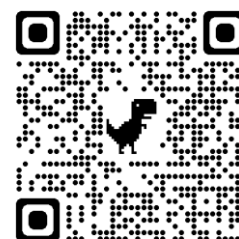
We also are planning some end-of-year events, so keep an eye out on our social media pages for more information!

We are always open to ideas for what folk want to do, so please do not hesitate to approach us! We can't wait to see you all at our events !!



- General enquiries biosoc@guild.bham.ac.uk
Contact president Kati koh046@student.bham.ac.uk
- Instagram [@biosocuob](https://www.instagram.com/biosocuob)
- Facebook [@University of Birmingham BioSoc](https://www.facebook.com/UniversityofBirminghamBioSoc)

Become a member today



A CALL FOR HELP WITH ATHENA SWAN!



The Athena Swan Charter is a framework that is used, across the globe, to support and transform gender equality within higher education and research. The School of Biosciences is applying for Athena Swan Bronze status, and are recruiting Committee members to drive this forward.

We are looking for a diverse group of individuals who are passionate about promoting gender equality and diversity in the School, and can commit to monthly meetings, get involved with creating surveys and analysing them, contribute some written content towards the application, and, very importantly, develop and implement initiatives to take our ideas forward to create a more inclusive, diverse school. We would like a range of Academic and Professional Services staff, and PG and UG students to join us, and, when we say diverse, the greater the diversity of the Committee, the better! We want representation from as many groups as possible to ensure that our goals reflect the opinions of all members of the Biosciences Community.

Academic staff will receive 50 WAM points for participation on the Committee.

We aim to submit the application on 31st May 2024, hence this will give us a reasonable timespan to assess and start actioning our ideas. If you're interested, or have questions, and would like to discuss this in greater detail, please email Eleanor Cull e.cull@bham.ac.uk or Claire Cooper c.e.cooper@bham.ac.uk.

We look forward to hearing from you!



Welcome to Ellie Roper (left) who joins the Biosciences Admin Team (right) as a Business Administration Apprentice

School manager, Claire Cooper writes: Ellie will be with us for 15 months, and will be carrying out administrative tasks such as minute taking for various committees, dealing with the non-staff expenses, assisting with various finance and HR tasks, assisting with our social media campaigns, organising meetings and carrying out any other administrative tasks that fit the criteria of her college course, so she is going to be very busy!



Keep in touch at regular Biosciences events:

Morning coffee & cake in the Undercroft: monthly from 10:30-11:30 am. Next sessions: Thur 4th May, Thur 1st June & Tue 4th July

Biosciences Research Club: held on the last Friday of each month at 2 pm. The next session is on Friday 28th April, and the speakers will be Carolina Rezaval and Matthias Soller, talking about the science behind their latest grant awards

IMI Lunchtime seminars: Tuesdays at 1 pm

Biosciences Lunchtime seminars: many Thursdays at 1 pm

More from Rob Jackson: please join me in congratulating Ruth Roberts, for being awarded the Mildred S. Christian Career Achievement Award by the Academy of Toxicological Sciences, and Carolina Rezaval on her recent Leverhulme grant award.

Plus a special **'well done'** to Mojgan Rabiey (pictured, left) for securing an Assistant Professor post in plant-microbe interactions at the University of Warwick. Mojgan is a fantastic early career colleague, and I wish her good luck as she embarks on the next stage of her career – a very exciting time for her as she becomes an independent PI.



The Mini-Safe Mole



Andy Lovering writes: Dear readership – thank you everyone for your efforts as we build toward the HSE inspection at the end of April. This is a good place to raise and reinforce the idea of safety as a community-led aspect. Those of you that observe less-than-standard practice (e.g. not wearing a labcoat, continuously cluttered workspaces, unsafe practices, use of personal music devices) – please feel free to remind those responsible of their obligations towards making Biosciences safe for all. In the same manner, you should all be aware of what risks are present in the laboratories that adjoin/are shared

with your own. Please make use of the expertise and assistance provided by your area Lab Managers in maintaining a good working environment.

It has been good to see engagement with Chemwatch – if you have submitted data and the upload of this seems slow, don't worry – Aneika and Maria Thompson are working on resolving this.

Hope you had a great Easter break, and remember to include contact details on any equipment/resources that require it!

Thanks again, from Andy & the Team (biosci.hs@contacts.bham.ac.uk)



The first annual Biosciences Conference was held on Thursday, 9th February 2023 in the Great Hall. Speakers provided great insights into frontier research, education, and impact activities that are ongoing.

This year's Biosciences Graduate Research School (BGRS) Symposium will take place on Friday the 19th of May. All are invited to attend and hear about the research being done by PhD students in the school. A schedule for the day will be circulated closer to the date.



Welcome to Professor Jelena Pantel (photo left) who is Professor of Ecological Modelling at the University of Duisburg-Essen in Germany. Funded by the University of Birmingham Institute of Advanced studies, Jelena is visiting Luisa Orsini's lab this month and will be working with Luisa and Albert Zhou. Somehow we think that the modelling won't be extended to Leah & Mike's latest big idea, shown here on the right.



Important date for your diary: the Summer 2023 Biosciences Graduation Ceremony will be held at 5:30 p.m. on Thursday 13th July. Watch out for details of School hospitality that day, and come along to support and celebrate our students' successes.

forthcoming issues of the Mole

Summer 2023: focus on EDI (equality, diversity & inclusion)

Autumn 2023: joint issue with the IMI newsletter

Got a story for us? News that you want to share? Event to announce?

contact Steve Busby: s.j.w.busby@bham.ac.uk