

Hello from the 2018-19 Team Science ECR committee! I'm thrilled to be the Chair for the committee this year, excited to be building upon on the fantastic work the committee achieved last year. We are also fortunate to have Dr. Julie Rayes join as part of the team, assisting whilst Dr. Natalie Poulter is on parental leave. One major highlight of the last year, and again this year in the "*Team Science 2 years on...*", is being selected as a Case Study by The Academy of Medical Sciences in their Team Science report and also being featured as a case. It's fantastic to have the recognition of all the hard work put in by all Team Science members, both senior and junior. Please read the [report in full](#), it's great to see how our efforts are making a difference. Let's continue to be a leading example for Team Science in the UK! #TeamScience <https://acmedsci.ac.uk/policy/policy-projects/team-science> .

Last summer may feel like a long time ago, but it was the launch of the first Team Science Summer Vacation Studentships. Four ECR members were awarded funding to support a six week project carried out by an undergraduate student. The Studentships provided the ECR members with supervisory experience, as well as introducing four young scientists to the research performed within COMPARE. The projects were timely and well thought-out, and the students all worked hard to achieve their project's goal. The students had to present their work in the form of a poster at the Annual COMPARE Research Symposium and they performed very well, even answering questions from top professors! The strength of the Studentship programme was highlighted when three of the students (David Tippett, Zarah Tabrizi and Julija Sirina) had abstracts accepted for poster presentations at the Winter 2018 BPS Pharmacology meeting. Hanh Nguyen, the other undergraduate student, has continued in science and is studying for a Masters in Bioscience at the UoB.

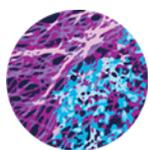
Looking to the year ahead, it's vital we continue to champion Team Science in all that we do. We have compiled a slide deck of the skills and biological questions each PI and their group aims to answer. Thank you to all of the PIs for the information, it should prove invaluable for the future. The slide deck has been circulated to all within COMPARE and it's hoped that this will increase awareness of the research undertaken by each group in COMPARE and ultimately facilitate collaboration between different groups. You will find further details about the next phase which will encompass ECRs and technicians on page 2 of this newsletter.

We are also promoting our Team Science discussion site, using Slack as a discussion forum for COMPARE-related questions. For those who haven't used it before, Slack is a secure cloud-based platform for group discussions and interactions, available via a browser and through a smartphone app. The aim is for this to be used in a similar style to Research Gate, where you can ask questions or discuss papers in a secure space. The Slack group is accessible via invite only, so if you wish to join up please email me or any of the other members of the Team Science committee and we will add you to the group. The group is split into different 'channels', you can add your own channel and invite other members to join the discussion. You can also contact members directly if you'd prefer to talk privately. Please remember this will be mainly used for work.

We are also pleased to be continuing the very successful Team Science Seminar series. This was started with a really interesting presentation by Prof. David Hodson. His engaging talk included highlights of his work so far, including cutting edge microscopy, and his decision to swap the large veterinary gloves for the sleeker laboratory gloves! We're looking forward to the other seminars this year, showcasing the breadth and depth of the research within COMPARE.

Finally a plug for the 2nd **Team Science Away Day** in Nottingham on **Thursday 13th June**. Following a democratic vote by COMPARE members, it was decided that the day will focus on leadership and management skills. More details will follow soon via email, so please keep an eye out for further information.

Mark Soave
Chair, Team Science Committee 2018-2019



COMPARE

CENTRE OF MEMBRANE PROTEINS AND RECEPTORS

Team Science Committee 2018—2019

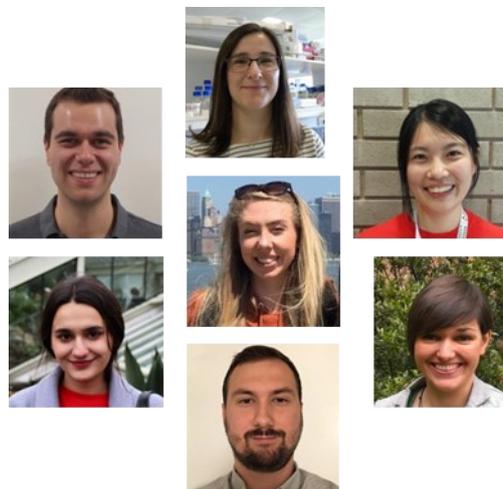
The new Team Science Committee from October 2018 will be as follows;

Chair

Mark Soave mark.soave@nottingham.ac.uk

Committee

Connie Koo cxx543@student.bham.ac.uk
Amanda Dalby a.l.dalby@bham.ac.uk
Desislava Nesheva desislava.nesheva@nottingham.ac.uk
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Leigh Stoddart leigh.stoddart@nottingham.ac.uk
Jack Yule jxy432@alumni.bham.ac.uk
Vacancy University of Birmingham



ECR Technology Spotlight

Following on from the recent publishing of our PI slide deck, the Team Science committee thought it would be a good initiative for there to also be a deck for the ECRs and technicians within COMPARE.

PI Slides: <http://www.birmingham-nottingham.ac.uk/compare/staff.aspx>

The idea, as before, is for a single powerpoint deck of slides which can be accessed by all COMPARE members. These slides would be helpful for identifying group members, to see who is working on which topics, and with which group. It will hopefully facilitate discussions for the sandpit sessions and the technology spotlight sessions we are hoping to have. Each member would have a couple of slides: one focussed on the technologies used, and the other for the biological question that these techniques are used to investigate. If you're doing a PhD or Masters project, you can put in your main theme for your project in the biological question. Templates have been circulated via email and uploaded onto Slack under #general. Please email compare@birmingham-nottingham.ac.uk if you need help accessing the template.

Please send your slides to email address below by **Friday 17th May 2019**.

Congratulations

Best Flash Poster Presentation at Pharmacology '18— Rachael Grime.

The flash-presentations are two minute insights into your research, giving people a 'taster' to come and see your poster during the sessions and find out more. Rachael's work is studying G-Protein-Coupled receptors (GPCRs). Solubilise them without detergents using styrene maleic acid (SMA) and purify them for study (Wheatley lab expertise). She then takes these purified samples to Steve Briddon's lab in Nottingham to perform fluorescence correlation spectroscopy (fcs) to quantify ligand binding. (Title of poster: The use of fluorescence correlation spectroscopy to quantify ligand binding to GPCR-SMALPs). The work is part-funded by a Team Science grant which supports visits between UoN and UoB.



birmingham-nottingham.ac.uk/compare

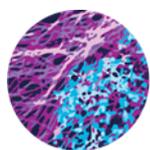


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Team Science—Collaboration Grants

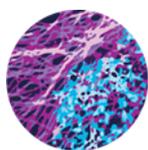
2019 Team Science Collaboration Grants have been awarded to;

ECR's	Project Title
Andy Benest, Julie Rayes	Controlling microthrombi formation by endothelial Zeb1.
Clare Harwood, Calebiro lab	Using smTIRF to study the kinetic of G protein activation by GPCRs
Abdullah Khan, Kellie Machlus (Harvard)	Study of the role of microtubule severing proteins in proplatelet-forming megakaryocytes.
Leigh Stoddart, Calebiro lab	Single molecule tracking microscopy to investigate the effect of agonist treatment on diffusion of the adenosine A3 receptor

Team Science—Summer Students

2019 Summer student placements have been awarded to the following COMPARE ECRs

Supervisor	Student	Project Title
Andrew Benest	Stephanie Caixeiro	Regulation of Lymphatic phenotype by Zeb1
Jeremy Pike Dee Kavanagh	tbc	Developing standardized data processing pipelines for lattice light sheet microscopy.
Julie Sanchez	Wai Fung	Novel modulators of MOP signalling and regulation
Laura Kilpatrick	Georgia James	Allosteric modulation of ligand binding kinetics at the β 2 adrenergic receptor
Leigh Stoddart	Omolade Otun	Ligand-directed covalent labelling of the adenosine A2A receptor with a fluorescent tag
Brad Hoare	tbc	Development and application of a BRET-based GPCR thermostability assay.



Post Funding Reports—Rachael Grime

Over the last few months I have been visiting Steve Briddon's lab in University of Nottingham and performing fluorescence correlation spectroscopy (FCS). This is being done in solution, with purified A2AR-SMALPs, which are generated at University of Birmingham. This is combining cutting-edge techniques to explore new ways to probe GPCR-binding kinetics.

During my lab visits I have met a lot of the COMPARE group in Nottingham, getting to know fellow PhD students, post-docs and being introduced to PIs from various groups. It's been a great networking opportunity and I have been able to join in some social events with the UoN team.

This lab collaboration is very aligned with COMPARE and Team Science values as we are directly sharing expertise to combine two different techniques (SMALPs and FCS) in

order to explore new ways of working. The work has so far been successful and I am looking forward to taking the project further.

The grant from Team Science has enabled me to experience working in a different laboratory environment and learn a new, technical skill. At Pharmacology 2018 I presented some of the data from this project and was awarded one of the poster prizes.

This project has given me valuable experience in another laboratory, working with techniques that are different, yet complementary to my PhD focus. This has boosted my confidence and will help enhance my CV when looking for future jobs.

I recommend anyone eligible to apply for Team Science funding to help facilitate work in another laboratory.

ECR Publications

Adlere I, Sun S, Zarca A, Roumen L, Gozelle M, Viciano Perpiñá C, Caspar B, Arimont M, Bebelman JP, Briddon SJ, Hoffmann C, Hill SJ, Smit MJ, Vischer HF, Wijtmans M, de Graaf C, de Esch IJP, Leurs R, (2019). Structure-based exploration and pharmacological evaluation of N-substituted piperidin-4-yl-methanamine CXCR4 chemokine receptor antagonists. *Euro J Med Chem.* 162: 631-649.

Beristain-Covarrubias N, Perez-Toledo M, Flores-Langarica A, Zuidschewoude M, Hitchcock JR, Channell WM, King LDW, Thomas MR, Henderson IR, Rayes J, Watson SP, Cunningham AF, (2018). Salmonella-induced thrombi in mice develop asynchronously in the spleen and liver and are not effective bacterial traps. *Blood.* 133 : 600-604

Bouzo-Lorenzo M, Stoddart LA, Xia L, IJerman AP, Heitman LH, Briddon SJ, Hill SJ, (2019). A live cell NanoBRET binding assay allows the study of ligand-binding kinetics to the adenosine A3 receptor. *Purinergic Signal.* 2019 Mar 27. doi: 10.1007/s11302-019-09650-9. [Epub ahead of print]

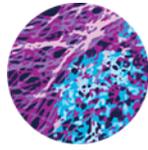
Sykes DA, Stoddart LA, Kilpatrick LE, Hill SJ, (2019). Binding kinetics of ligands acting at GPCRs. *Mol Cell Endocrinol.* 485 : 9-19

Cooper SL, Soave M, Jörg M, Scammells PJ, Woolard J, Hill SJ, (2019). Probe dependence of allosteric enhancers on the binding affinity of adenosine A1 -receptor agonists at rat and human A1 -receptors measured using NanoBRET. *Br J Pharmacol.* 2019 doi: 10.1111/bph.14575. [Epub ahead of print]

Onselaer MB, Nagy M, Pallini C, Pike JA, Perrella G, Quintanilla LG, Eble JA, Poulter NS, Heemskerk JWM, Watson SP, (2019). Comparison of the GPVI inhibitors losartan and honokiol. *Platelets.* doi: 10.1080/09537104.2019.1585526. [Epub ahead of print]

Saleeb RS, Kavanagh DM, Dun AR, Dalgarno PA, Duncan RR, (2019). A VPS33A-binding motif on syntaxin17 controls autophagy completion in mammalian cells. *J Biol Chem.* 294 : 4188-4201

Clark JC, Kavanagh DM, Watson S, Pike JA, Andrews RK, Gardiner EE, Poulter NS, Hill SJ and Watson SP, (2019). Adenosine and forskolin inhibit platelet aggregation by collagen but not the proximal signalling events. *Thromb. Haemost.* In press



Event review by Sam Cooper and Laura Kilpatrick

On 11th March 2019 we attended the 'Future skills for the Life Sciences' conference at the Royal Society. The first day was a workshop aimed at early career researchers invited from academia and industry to discuss the opportunities and concerns associated with a career in either. It was striking how similar the viewpoints of attendees were regardless of whether they had come from academia, small biotech and larger companies. This was particularly true when discussing concerns for the future, such as job security, the perception of science by the public and the potential effects of the unspoken 'B' word on the future of UK science. However, it wasn't all doom and gloom as we also discussed our shared excitement for the future of UK science and the myriad of opportunities available to ECRs, how collaboration between academia and industry could play a role in shaping the innovation needed to answer some of the big scientific questions ahead of us.

The conference dinner was a great opportunity to meet a variety of other ECRs from all over the country and different scientific disciplines as well as the chance to interact with present members of the Royal Society and eminent figures in UK science. Many of the issues we raised in the workshop were discussed the next day at the main conference, for instance, re-training for switching between careers in academia and industry, entrepreneurship and business skills and the need for a Team Science approach, the highlight of which was a great talk by Jeanette Woolard.

Sir John Bell and Sir Patrick Vallance, two chief scientific advisors to the government, also spoke of the government's strategy for maintaining and further developing the UK's status as a global leader in STEM based research. There was an interesting talk from Simon McQueen-Mason detailing his unusual journey from fisherman, with no formal qualifications, to Professor of Plant Sciences at the University of York! Additionally Johnny Ohlson, CEO of the biotech Touchlight and a self confessed 'scientific novice' and entrepreneur championed science as the 'next new creative industry'. It was encouraging to hear someone from a non scientific background be so enthusiastic about the future of UK science and the entrepreneurial opportunities available to ECRs.

We thank the Royal Society for inviting us to be a part of such a prestigious event at such a reputable institution.



Photo caption: An artist joined us for the workshop and shared her interpretation of the thoughts of early career researchers