

COMPARE

CENTRE OF MEMBRANE PROTEINS AND RECEPTORS

Newsletter

Edition 3, May 2017

Welcome

Daide Calebiro



Daide Calebiro is a newly appointed **Professor of Molecular Endocrinology** at the Institute of Metabolism and Systems Research (IMSR) of Birmingham University. Prof Calebiro studied Medicine in Milan and Stockholm and obtained a clinical Specialization in Endocrinology and Metabolic Diseases as well as a PhD in Molecular Medicine from the University of Milan. Since 2009, he has been leading a research group at the Institute of Pharmacology and Bio-Imaging Center of Würzburg University,

Germany. His group investigates the basic mechanisms of G protein-coupled receptor (GPCR) signalling and their alterations in human disease, which they elucidate using innovative biophysical techniques, such as FRET, single-molecule microscopy and various super resolution microscopy methods. His major contributions include the discovery that GPCRs are not only active at the plasma membrane but also at Intracellular sites and that these receptors interact among themselves and with other membrane proteins to form dynamic nanodomains at the plasma membrane.

Contact: d.calebiro@bham.ac.uk

Yi Sun



Yi Sun is a **British Heart Foundation Funded Research Fellow in the Institute of Cardiovascular Sciences**. Yi undertook his undergraduate studies at the University of Leicester obtaining a BSc in 'Biological Sciences-Biochemistry' and obtained his PhD in Pharmacology at the University of Cambridge. Yi is interested in the molecular basis of the cellular recognition process. He has a strong research background in studying transient, low-affinity extracellular receptor-ligand interactions. His current

research project is investigating platelet-monocyte interactions using a novel large-scale extracellular protein interaction screen to identify new cell surface protein interactions that are critical in mediating thrombo inflammatory diseases.

Contact: y.sun.3@bham.ac.uk

Key Dates

COMPARE Launch

Keynote: Brian Kobilka
Nobel Prize Laureate
18th or 19th April 2018

COMPARE

Annual Research Symposium (abstracts and posters will be requested)
29th September 2017
EMCC, Nottingham

International Advisory Board (IAB)

28th September 2017
Orchard Hotel

Open Day

COMPARE
29th June 2017 13:00
IBR Seminar Room
Birmingham

COMPARE Seminar Steve Watson

22nd June 2017 13:00
School of Biosciences NG08,
Birmingham

Image Analysis Course

14th June 2017 12:30
Learning Centre LG12 Bham

Strategic Oversight Group (SOG)

7th June 2017

PostDoc/PhD Away Day

26th May 2017
EMCC Nottingham

Management Board

19th May 2017
Birmingham

International Visits LNBio—CNPEM, Brazil.

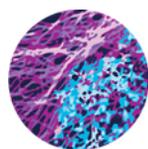
9th June, Steve Watson, Steve Hill, Peter Fischer

Indian Institute of Technology

April, Steve Watson,
Mark Wheatley

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Welcome (continued)

Dee Kavanagh



In March 2017, **Dr Deirdre (Dee) Kavanagh** joined COMPARE as the **Microscope Officer** at University of Birmingham.

Dee received her PhD in microfluidics in 2012 from Heriot-Watt University. She carried out her post-doctoral research within the Edinburgh Super-Resolution Imaging Centre (ESRIC), where she applied advanced imaging techniques to study regulated secretion at the level of single proteins. Here, she gained expertise in single molecule microscopies as well as single photon counting techniques. These techniques are extremely powerful tools to probe the interactions, conformations, dynamics and the nano-scale positions of proteins in cells.

In her role at COMPARE, Dee will work closely to support users to optimize and develop their research ideas using advanced imaging techniques. She will provide specialist training for the microscopy technologies available at COMPARE, including single molecule microscopies, structured illumination, single plane illumination, TIRF microscopy and confocal microscopy.

Contact: d.m.kavanagh@bham.ac.uk, Tel: 0121 415 8679

Joëlle Goulding



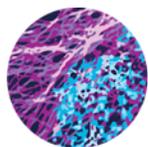
Dr Joëlle Goulding is the newly appointed **Research Fellow in Advanced Microscopy** for COMPARE at the University of Nottingham. Joëlle completed her PhD in Nottingham in Genetics and following a postdoc studying adult stem cells in the cerebellum, and joined the Cell Signalling Research Group headed by Prof Steve Hill. Within the group she has employed a number of imaging techniques and analysis strategies to study the pharmacology of Class A GPCRs. Most recently Joëlle has worked on a collaborative BHF funded grant developing imaging techniques to study how polymorphic variants of the β 2-adrenergic receptor can affect receptor function within stem cells and differentiated cell types.

Joëlle has a particular interest in imaging stem cells and methods of investigating endogenous levels of receptor expression and will be continuing to develop research within fluorescence correlation spectroscopy.

Contact: joelle.goulding@nottingham.ac.uk, Tel: 0115 8230080

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Jeremy Pike



Dr Jeremy Pike was appointed in April **Research Fellow in Image Analysis** for COMPARE at the University of Birmingham. Jeremy completed his PhD in Birmingham, where he developed automated image analysis workflows to quantify receptor trafficking using confocal microscopy. Subsequently he worked as an image analyst and microscopy specialist at the Cancer Research UK Cambridge Institute. Here, he developed expertise in a range of analysis techniques and applied these methods to applications in cancer research, including the development of automated feedback microscopy protocols.

In his role at COMPARE Jeremy will collaborate with users to enable the use of advanced analysis techniques and to facilitate interdisciplinary projects with image processing and computer vision researchers. He will develop custom scripts and plugins and provide assistance with leading software applications such as ImageJ/Fiji, Icy, Ilastik, KNIME and CellProfiler. He will also run a regular series of introductory and advanced image analysis courses.

Contact: j.a.pike@bham.ac.uk

Collaboration with Nottingham Research Chemicals & Key Organics

Dr Sarah Mistry is a Research and Business Development Fellow funded by COMPARE pump-priming support. Part of her role is to explore the potential to commercialise fluorescent ligands produced within the COMPARE initiative.

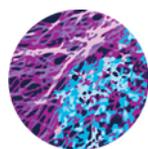
Nottingham Research Chemicals (NRC), a business unit within the School of Chemistry (UoN), has an established collaboration with Key Organics Ltd distributing compounds developed by research groups in the School. In partnership with both NRC and Key Organics some of the fluorescent ligands developed during the Hill, Briddon, Kellam MRC programme grant will soon be available through Key Organics' BIONET Biochemicals Collection. The initial release will be an adenosine receptor antagonist based on xanthine amine congener and a β_2 adrenoceptor antagonist based on propranolol.

Our fluorescent ligands have mainly targeted GPCRs but we aim to grow this library, by also including fluorescent ligands targeting other membrane proteins. Ligands generated within the COMPARE programme will then be made available for researchers outside the initiative to purchase.

For further information to discuss how the generation of new fluorescent ligands may help your projects, please contact me at <mailto:sarah.mistry@nottingham.ac.uk>.

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Recruitment

The position of **Professor of Molecular and Cellular Pharmacology** at the University of Nottingham has been advertised in Nature and on the University of Nottingham website. Applications are currently being shortlisted and interviews will take place during the first week in June. Further details will follow on the successful candidate.

Seminars

Wednesday 14th June, 12:30 – 17:00, Learning Centre, LG12

Image Analysis with Fiji Course

Fiji/ImageJ is a leading open-source image analysis application. This course will briefly cover introductory aspects of image processing and analysis theory, but will focus on practical sessions where participants will gain hands on experience. It is highly recommended for all researchers who regularly use microscopy. After attending the course you should be able to manipulate and visualise microscopy datasets, and have the confidence to design routine analysis workflows.

The first course will run on **Wednesday 14th June, 12:30 – 17:00** at the University of Birmingham. Subsequent courses will run monthly. Further information is available on the course website, and a sign up link will be posted added in the near future. The course will cost £25 for all staff members, post-docs and students from the Universities of Birmingham and Nottingham. Please contact Jeremy Pike (j.a.pike@bham.ac.uk) for further information.

<https://jeremypike.github.io/image-analysis-with-fiji/>

Royal Society Fellowships

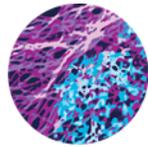
Congratulations to both Patrick Vallance (GSK) and Anne Ridley (Kings College London), both COMPARE International Advisory Board members on being elected as Fellows of the Royal Society for their outstanding contributions to science.

University of Nottingham Parking Vouchers

We now have a supply of parking vouchers for visitors to the University of Nottingham. Please contact either Sally (sally.utton@nottingham.ac.uk) or Chris (christine.mcgrath@nottingham.ac.uk) prior to travel to arrange collection. Please provide the following information; date of visit, car registration and name of person/dept you are visiting.

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Examples of recently published papers

[An updated view of hypothalamic–vascular–pituitary unit function and plasticity](#)

Nature <http://www.nature.com/nrendo/journal/vaop/ncurrent/full/nrendo.2016.193.html>

[Mechanisms regulating angiogenesis underlie seasonal control of pituitary function.](#)

PNAS <http://www.pnas.org/content/early/2017/03/06/1618917114.long>

[Showcasing the breadth of endocrinology](#)

Nature <http://www.nature.com/nrendo/journal/v13/n1/full/nrendo.2016.197.html>

[Multiple-scale neuroendocrine signals connect brain and pituitary hormone rhythms](#)

PNAS <http://www.pnas.org/content/114/9/2379.abstract>

[Genetic loci associated with chronic obstructive pulmonary disease overlap with loci for lung function and pulmonary fibrosis.](#)

NCBI <https://www.ncbi.nlm.nih.gov/pubmed/28166215>

[Genome-wide association analyses for lung function and chronic obstructive pulmonary disease identify new loci and potential druggable targets.](#)

Nature <http://www.nature.com/ng/journal/v49/n3/full/ng.3787.html#affil-auth>

[Targeted Sequencing of Lung Function Loci in Chronic Obstructive Pulmonary Disease Cases and Controls](#)

Plos One <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170222>

[Lung function associated gene Integrator Complex subunit 12 regulates protein synthesis pathways,](#)

BMC Genomics <https://bmcbgenomics.biomedcentral.com/articles/10.1186/s12864-017-3628-3>

[Novel selective \$\beta\$ 1-adrenoceptor antagonists for concomitant cardiovascular and respiratory disease.](#)

FASEB J <http://www.fasebj.org/content/early/2017/04/11/fj.201601305R.abstract>

[Real-time analysis of the binding of fluorescent VEGF165a to VEGFR2 in living cells: Effect of receptor tyrosine kinase inhibitors and fate of internalized agonist-receptor complexes.](#)

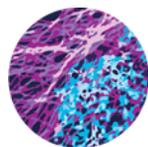
Biochem Pharmacol <https://www.ncbi.nlm.nih.gov/pubmed/28392095>

[Effects of 4 multitargeted receptor tyrosine kinase inhibitors on regional hemodynamics in conscious, freely moving rats.](#)

FASEB J <https://www.ncbi.nlm.nih.gov/pubmed/27986807>

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External Grant Awards

Details of all external grants awarded to COMPARE can be found on the [COMPARE website](#). Please notify [Sally Utton](#) or [Christine McGrath](#) of any new grants/awards providing the following details; Project title, PI, amount of award, start and end dates and sponsors.

Match Funding

If you are looking at purchasing any instrumentation and require match funding, please contact Sally Utton. Email: sally.utton@nottingham.ac.uk

Post Doc and PhD Away Day

The Post Doc and PhD Away day will take place on **Friday 26th May 2017** at the East Midlands Conference Centre, Nottingham. If you are a COMPARE Post Doc or PhD student and haven't received an invitation email with a draft agenda, please contact christine.mcgrath@nottingham.ac.uk, with your name, role and name of your PI, so that you can be added to the circulation list. A bus will be provided on the day from Birmingham to Nottingham. Directions to EMCC can be found at the following www.nottinghamconferences.co.uk/how-to-find-us/

Any suggestions or ideas for the content, please contact [Jeanette Woolard](#) (Jeanette.woolard@nottingham.ac.uk) or [Natalie Poulter](#) (n.poulter@bham.ac.uk)

International Advisory Board and COMPARE Annual Research Symposium

The first IAB will be held at the Orchard Hotel, EMCC, Nottingham on 28 September. This will provide the opportunity for the Strategic Oversight Group to meet with the IAB for the first time. A formal Board Meeting will take place on the afternoon of 28 September. The IAB will be invited to stay for the Annual Research Symposium on the 29 September and two members will be invited to make presentations.

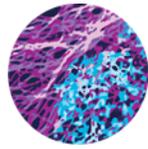
Friday 29th September 2017

The Research Symposium open to all COMPARE members will be held at the EMCC in the Atrium and main Lecture Theatre. Abstracts and posters will be invited, plus speakers. Formal call for abstracts will be made before the end of July. The posters will be displayed in the Atrium and also form part of the presentations in the main LT. The event will run from 09:30 to 17:00.

A coach will be provided from Birmingham to Nottingham return.

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Branding and Communications

Branding and Communications Policy

The University of Nottingham (UoN) and University of Birmingham (UoB) have agreed a COMPARE logo.

The COMPARE logo should be used in the header centrally. The "in partnership" words should be used at the left hand side of the footer.

Any COMPARE letters should use the standard University letter head, with the addition of the COMPARE logo and In Partnership wording.

This document has the correct placing of logos and can be used as a template.

There is a master set of COMPARE slides, which should be used for Powerpoint presentations.

COMPARE reports to the Strategic Oversight Group quarterly. A template has been agreed and this can be used to update other relevant Committees and groups, where appropriate.

The COMPARE Management Board agree that every paper that originates from COMPARE support should acknowledge the funding source and include the logo.

The Directors or Deputy Directors will determine whether a publication can utilise the COMPARE brand or not. In the event of uncertainty or disagreement, the matter shall be referred to the COMPARE Management Board whose decision shall be final.

Academic publications will conform to each paper's standard requirements but must acknowledge the funding source and equipment. Documents may need to be adjusted according to the nature of the document and individual organisations standard formatting. All publications must be uploaded to PURE in Birmingham.

The agreed form of words to be included into publications is:

"COMPARE University of Birmingham and University of Nottingham Midlands" **in addition** to home University affiliation.

The COMPARE Management Board are responsible for the review of the Branding and Communications Policy. Any significant exceptions to the policy will be submitted to the Strategic Oversight Group. COMPARE has a website at the URL below:

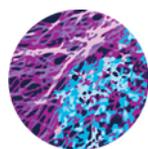
<http://www.birmingham-nottingham.ac.uk/compare/index.aspx>

The maintenance and update of the website is the responsibility of the COMPARE Programme Operations Manager.

Please contact Sally Utton for further information. Sally.utton@nottingham.ac.uk (full contact details on the back page of this newsletter)

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Refurbishment

Birmingham - On June 29th, COMPARE Birmingham will host their first Open Day. The event provides a fantastic opportunity to come along and meet the COMPARE imaging team. There will be informal talks followed by a tour of the Birmingham Imaging Suite. The tour will showcase our microscopes including our Lattice Light Sheet (the only one of its kind in the UK) invented by Nobel prize winner Prof Eric Betzig, the image analysis facilities, and the expert support for both imaging and analysis. We will finish the tour with tea/coffee and cakes in the COMPARE imaging office. The COMPARE Open day is open to everyone from PhD up to Professor across the three scientific colleges at the University of Birmingham.

Location: IBR Seminar Room, University of Birmingham.

Date: Thursday, June 29th, 2017

Time: 1pm to 4pm



Nottingham - The Space Management Committee have now approved plans for the COMPARE labs to go into space currently occupied by the Graduate School (GS) on C Floor in Queen's Medical Centre. The GS will move to converted space within the School of Life Sciences. The initial project meeting has taken place and work has gone out to tender. Target completion is September 2017.

Contact

Sally Utton

Programme Operations Manager

Nottingham (Mon/Tue/Fri)

Room D61A QMC

sally.utton@nottingham.ac.uk

Tel: 0115 823 0105

Birmingham (Wed/Thur)

Room 135, IBR, Medical School

s.utton@bham.ac.uk

Tel: 0121 414 4511

Chris McGrath

Room D61A QMC (Mon-Wed)

COMPARE Administrator, Nottingham

christine.mcgrath@nottingham.ac.uk, Tel: 0115 82 30398

<http://www.birmingham-nottingham.ac.uk/compare/index.aspx>

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