

COMPARE

CENTRE OF MEMBRANE PROTEINS AND RECEPTORS

Newsletter

Edition 13 January 2019

Mid-term review - December 2018

The mid-term review was held in December 2018 with invited representatives from across COMPARE. The aim of the review was to discuss the current status of COMPARE, and the steps that need to be taken to move COMPARE forward in the future and beyond the five years of funding.

The SOG wanted to acknowledge that COMPARE has achieved much in its first two and a half years, including the establishment of the Centre, attraction of leading academics, securing of grant funding, and the success of Team Science; the latter of which was particularly praised by the International Advisory Board.

The SOG felt that the vision of COMPARE is developing well, and would like to see further refinement in terms of alignment with industry and with a greater focus on clinical/translational aspects and highlighted five areas for consideration by the Management Board for future development.

COMPARE Lightsheet Surgery

Dr Dee Kavanagh, Microscope Officer within COMPARE based at the University of Birmingham will be giving a Lightsheet Surgery on the **13th February**. This is a chance to find out about the Lightsheet capabilities within COMPARE and to understand what type of scientific questions you could answer by employing these methodologies and techniques.

The session will comprise of an overview of instruments and technologies (C1052, Medical School, University of Nottingham, 11:00-11:30) and will be followed by discussion sessions (various times in the afternoon) which you can book ahead of time to discuss your project in more depth.

The microscopes that will be introduced are the Lattice Lightsheet, the Marianas Lightsheet and the Ultramicroscope II.

Please contact Joelle Goulding (joelle.goulding@nottingham.ac.uk) to book a discussion session. These will be on a first come first served basis.

Congratulations

Congratulations to **Chloe Peach** who won the oral communication prize at the Pharmacology 2018 conference in December. Chloe also received 1st prize for the poster presentation prize at the University of Nottingham PPN Science Day with the School of Life Sciences in January.



Key Dates

Seminar—David Malfacini, University of Bonn
"Label free assays in pharmacology and cellular physiology"
7th February 2019 15:00
C1070 University of Nottingham

Workshop, An Introduction to High Content Imaging
12th February 2019 09:00-17:00
Jubilee Conference Centre
University of Nottingham

Lightsheet Surgery
13th February 2019 11:00 C1052
University of Nottingham followed by discussion sessions

Seminar—Robert Insall, Beatson Institute. *"Where biological gradients come from - self-generated gradients & how cells steer themselves"*
13th February 2019 15:00
C1052 University of Nottingham

COMPARE Management Board
1st March 2019
D12, University of Nottingham

Workshop, Single-Molecule Imaging and Spectroscopy of Membrane Proteins
12th & 13th March 2019
CPD, University of Birmingham Medical School

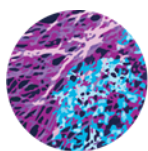
Seminar—David Gloriam, University of Copenhagen
28th March 2019 15:30
C1052 University of Nottingham

Sandpit Event, "What can we learn from Structural Biology?"
17th April 2019 14:00-18:00
IBR Seminar Room, Birmingham

Annual Research Symposium
26th September 2019
Jubilee Conference Centre, Nottingham

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Sandpit—23rd January 2019

Thank you to everyone who attended the COMPARE Sandpit on *Gene editing and stem cell approaches in the study of membrane proteins*. The event was attended by over 40 delegates, we were very encouraged to hear about other PIs writing applications as a result of COMPARE. We are happy to support any of these ventures going forward, so please do liaise with us on these. A technology spotlight slide set will be circulated later this week, which outlines the range of technologies used and the main areas of research for all COMPARE PIs which will help raise awareness of the breadth of expertise we have within the group.

The next sandpit on the **17th April** will focus on “*what we can learn from structural biology*”, registration will open shortly.

COMPARE Workshop on Single-Molecule imaging and spectroscopy of membrane proteins, UoB

For full details and registration <http://www.birmingham-nottingham.ac.uk/compare/forthcoming-events/workshop-single-molecule-imaging.aspx>

Day 1 - Tuesday 12th March 2019

Talks covering both recent exciting biological findings and new methodological developments

Day 2—Wednesday 13th March 2019

Microscopy based workshops

Workshop 1: Using N-STORM for Single Molecule Location Microscopy.

Workshop 2: Spinning TIRF for Simultaneous Multi-Channel Single Molecule Imaging.

Workshop 3: Evaluating Scientific Cameras for Single Molecule.

Workshop 4: The Nanoimager: A demonstration of single-molecule localization microscopy carried out on a desktop compatible super-resolution microscope.

Workshop 5: Application of FCS and FCS to investigate receptor dynamics.

Software based workshops

Software workshop 1: Coordinate-based quantification of 1- and 2-colors single-molecule localization microscopy data.

Software workshop 2: Image Quality Assessment with NanoJ-SQUIRREL: Data Preparation, Running the Software and Interpreting the Results

Software workshop 3: HAWK analysis of localisation microscopy data

Software workshop 4: The TRamWAY Python library: inferring maps of local diffusivity and force from single molecule trajectories

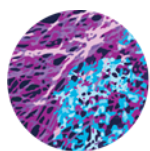
Software workshop 5: RSMLM: An R-package for pointillist based analysis of single molecule localization microscopy data

COMPARE Support

From the New Year, Sally will be based primarily in the Nottingham office. This means that the COMPARE office in Nottingham will now be covered 5 days a week (Chris, Monday to Wednesday and Sally, Monday to Friday). Sharmaine is working Tuesday to Thursday in Birmingham COMPARE office.

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Team Science—Collaboration Grants

Team Science Collaboration Grants have been awarded to;

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.”

Post collaborative reports will be published in the Team Science Newsletter in the year.

COMPARE Journal Club

The first COMPARE journal club was held on Thursday 24th January in Birmingham. The topic for discussion was “A cell-topography based mechanism for ligand discrimination by the T-cell receptor” Fernandes et al, Nov 2018, bioRxiv preprint.

Future journal club dates, held in the IBR seminar room at 4pm are;

21st February : Raluca Neagoe, presenting work on DNA-PAINT

28th March : Dylan Owen

If you would like to find out more about these events or suggest topics for discussion, please contact Jak Grimes JXG937@student.bham.ac.uk

COMPARE Publications

Rayes J, Watson SP, Nueswandt B, (2019). Functional significance of the platelet immune receptors GPVI and CLEC-2. J Clin Invest. doi: 10.1172/JCI122955. (Epub ahead of print)

Kardeby C, Falker K, Haining E, Criel M, Lindkvist M, Barroso R, Pahlsson P, Ljungberg L, Rainger GE, Watson S, Eble J, Hoylaerts M, Emsley, J, Koradsson P, Watson SP, Sun Y and Grenegard M (2019). Synthetic glycopolymers and natural fucoidans cause human platelet aggregation via PEAR1 and GPIIb. Blood Advances in press.

Bathon K, Weigand I, Vanselow JT, Ronchi CL, Sbiera S, Schlosser A, Fassnacht M, Calebiro D, (2019). Alterations in Protein Kinase A Substrate Specificity as a Potential Cause of Cushing's Syndrome. Endocrinology. doi: 10.1210/en.2018-00775. [Epub ahead of print]

Walker AK, Martelli D, Ziegler AI, Lambert GW, Phillips SE, Hill SJ, McAllen RM, Sloan EK, (2019). Circulating epinephrine is not required for chronic stress to enhance metastasis. Psychoneuroendocrinology. 99: 191-195.

We would like to celebrate our successful publications via the newsletter and the COMPARE website. Please email compare@birmingham-nottingham.ac.uk with the references of published papers.

birmingham-nottingham.ac.uk/compare



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