

# Life Sciences Newsletter

Imperial College London

Aug & Sept 2016

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## MESSAGE FROM THE DUGS & DPS

The DUGS and DPS extend a very warm welcome to all undergraduate and postgraduate students who are arriving for the 2016/17 academic year. We are delighted that so many outstanding students have chosen DoLS for their studies. Undergraduate numbers are approximately 150 for each of the Biochemistry/Biotechnology and Biological Sciences streams. Postgraduate numbers are equally buoyant: 280 new Masters students and 48 new PhD students joined our department this week.

## WELCOME TO ALL NEW STAFF

**Senior Lecturer:** **Morena Mills** (Colin Prentice) **Research Assistants:** **Georgios Sioutas** (Gloria Rudenko); **Ritrobrata Ghose & Sophie Gilbert** (Michalis Barkoulas) and **Justinas Slikas** (James Murray). **Research Associates:** **Andre Norbrega Pitaluga** (George Christophides); **Patricia Bernal** (Alain Filloux); **Natacha Larburu** (Maruf Ali); **Silvia Hasse** (Jake Baum); **Maria Romano** (Kostas Beis) and **Savvas Saouros** (Bernadette Byrne). **Sir Henry Dale Fellow:** **Matthew Child** (Jake Baum). **Research Technicians:** **Iago Molist Perez** (Bernadette Byrne) and **Olivia Swann** (Jake Baum). **Administrator:** **Maria Dickinson** (Robert Ewers).

### USEFUL INFORMATION:

- ▶ [College's EU referendum webpage](#)
- ▶ [Working at Imperial](#)
- ▶ [Funding Opportunities for Women](#)
- ▶ [Organisational and Staff Development](#)
- ▶ [Equality, Diversity and Inclusion Centre](#)
- ▶ [Occupational Health Service](#)
- ▶ [Postdoc Development Centre](#)

## GRANTS

**Niki Windbichler** received a 3-year BBSRC grant (£609K) to develop a new strategy for genetic control for agricultural pests.

**James Murray** has been awarded a 6-month synthetic biology grant from [DSTL](#) to look at "New Light-weight Ceramic Composites", 100K.

## TALKS

**Rich Gill** gave a talk on his group's work at the International Pollinator Conference held at Penn State University and is was invited speaker at the SCI event (22nd Sept) to discuss the scientific evidence concerning the question "Are neonicotinoids killing bees?" amid claims of the adverse effects on pollinators and other wildlife.

**Thomas Meier** was an invited plenary speaker at the European Bioenergetics Conference (EBEC) 2016 in Riva del Garda, North Italy.

**Morgan Beeby**, **Steve Matthews** and **Doryen Bubeck** were invited speakers at the Biochemical Society meeting, Structural Aspects of Infectious Disease, held in Cambridge, UK.

## PUBLICATIONS

James T. MacDonald, **Burak V. Kabasakal**, **David Godding**, **Sebastian Kraatz**, **Louie Henderson**, **James Barber**, Paul S. Freemont and **James W. Murray** [Synthetic beta-solenoid proteins with the fragment-free computational design of a beta-hairpin extension](#), Proceedings of the National Academy of Sciences, August 2016.

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**Liang X**, **Liu B**, **Zhu F**, Scannapieco FA, Haase EM, **Matthews S**, Wu H, 2016, [A distinct sortase SrtB anchors and processes a streptococcal adhesin AbpA with a novel structural property](#), *Scientific Reports*, Vol: 6, ISSN: 2045-232.

**Rasheed M**, Garnett J, **Pérez-Dorado I**, **Muhl D**, **Filloux A**, **Matthews S**, 2016, [Crystal structure of the CupB6 adhesive tip from the chaperone-usher family of pili from \*Pseudomonas aeruginosa\*](#), *Biochim Biophys Acta*, Vol: 1864, Pages: 1500-1505, ISSN: 0006-3002.

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**Lee WC**, **Matthews S**, Garnett JA, 2016, [Crystal structure and analysis of HdaB: The enteroaggregative \*Escherichia coli\* AAF/IV pilus tip protein](#), *Protein Sci*.

**Brown DR**, **Sheppard CM**, **Burchell L**, **Matthews S**, **Wigneshweraraj S**, 2016, [The Xp10 Bacteriophage Protein P7 Inhibits Transcription by the Major and Major Variant Forms of the Host RNA Polymerase via a Common Mechanism](#), *J Mol Biol*.

**Barkoulas M**, Vargas Velazquez AM, Peluffo AE, Félix MA (2016) [Evolution of New cis-Regulatory Motifs Required for Cell-Specific Gene Expression in \*Caenorhabditis\*](#), *PLoS Genet* 12(9): e1006278. doi: 10.1371/journal.pgen.1006278.

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Hahn, Parey, Bublitz, Mills, Zickermann, Vonck, Kühlbrandt & **Meier**. [Structure of a complete ATP synthase dimer reveals the molecular basis of inner mitochondrial membrane morphology](#). *Molecular Cell*, August 2016, 63(3):445-56.

**Delves MJ**, **Straschil U**, **Ruecker A**, **Miguel-Blanco C**, **Marques S**, **Baum J**, **Sinden RE**. [Routine in vitro culture of \*P. falciparum\* gametocytes to evaluate novel transmission-blocking interventions](#). *Nature Protocols* 2016 Sep;11(9):1668-8.

Van Voorhis WC *et al* (**Delves M.**, **Ruecker A.**, and **Sinden, R**) [Open Source Drug Discovery with the Malaria Box Compound Collection for Neglected Diseases and Beyond](#), *PLoS Pathogens*. 2016 Jul 28;12(7):e1005763.

Alice E. Williamson *et al* (**Michael Delves**), [Open Source Drug Discovery - Highly Potent Antimalarial Compounds Derived from the Tres Cantos Arylpyrroles](#) *ACS Central Science* (*in press*).

Amélie Le Bihan *et al* (**Michael Delves, Andrea Ruecker and Robert Sinden**), ACT-451840: a novel partner for antimalarial combination therapy”, PLoS Medicine (accepted).

Questa JI, **Song J**, Geraldo N, An HL, Dean C (2016) [Arabidopsis transcriptional repressor VAL1 triggers Polycomb silencing at FLC during vernalization](#), Science, 29 Jul 2016, Vol. 353, Issue 6298, pp. 485-488.

Mehmood S, Corradi V, Choudhury H, Husain R., Becker P., Axford D, Zirah S, Rebuffat S, Tieleman DP, Robinson CV, **Beis K** (2016) Structural and functional basis for lipid synergy on the activity of the antibacterial peptide ABC transporter McjD. J Biol Chem doi: 10.1074/jbc.M116.732107.

**Agustín-Pavón C, Mielcarek M, Garriga-Canut M & Isalan M.** Deimmunization for gene therapy: host matching of synthetic zinc finger constructs enables long-term mutant Huntingtin repression in mice. Mol Neurodegener 11(1):64 (2016). \*highlighted in the European Commission's Research\*eu Magazine Vol. 55 Aug-Sept 2016.

James T. MacDonald, **Burak V. Kabasakal, David Godding, Sebastian Kraatz, Louie Henderson, James Barber**, Paul S. Freemont, and **James W. Murray.** [Synthetic beta-solenoid proteins with the fragment-free computational design of a beta-hairpin extension](#). Proceedings of the National Academy of Sciences, pages 201525308+, August 2016.

Accepted article in **Gill group**: Arce et al. (in press) Impact of controlled neonicotinoid exposure on bumblebees in a realistic field setting. *Journal of Applied Ecology*. Our findings and methods used are of interest to policy and for the European Food Standards Agency review of the risks associated with pesticide exposure to bees.

Abbas Maqbool, X Richard K. Hughes, X Yasin F. Dagdas, Nicholas Tregidgo, Erin Zess, Khaoula Belhaj, Adam Round, **Tolga O. Bozkurt**, Sophien Kamoun, and Mark J. Banfield "Structural Basis of Host Autophagy-related Protein 8 (ATG8) Binding by the Irish Potato Famine Pathogen Effector Protein PexRD54", THE JOURNAL OF BIOLOGICAL CHEMISTRY VOL. 291, NO. 38, pp. 20270–20282, September 16, 2016.

**Panico M, Bouché L**, Binet D, O'Connor MJ, **Rahman D, Pang PC, Canis K, North SJ**, Desrosiers RC, Chertova E, Keele BF, Bess JW Jr, Lifson JD, **Haslam SM, Dell A**, Morris HR [Mapping the complete glycoproteome of virion-derived HIV-1 gp120 provides insights into broadly neutralizing antibody binding](#), Sci Rep. 2016 Sep 8;6:32956. doi: 10.1038/srep32956.

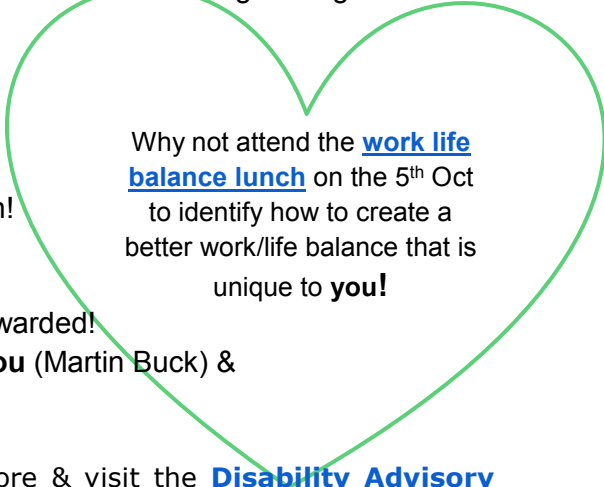
**Katharina Brinkert , Sven De Causmaecker , Anja Krieger-Liszkay , Andrea Fantuzzi and A. William Rutherford**, "Role of bound bicarbonate in Photosystem II: redox tuning for regulation and protection", Proc. Natl. Acad. Sci. USA, in press.

## ATHENA SWAN

The Department together with the Postdoc Committee arranged an African Drumming Lesson for all staff that turned out to be great fun!  
[Check out the video!](#)

**DoLS Travel Awards** (autumn 2016) – 67% of the application were awarded!  
Congratulations to **Thomas Scheuerl** (Thomas Bell), **Ioly Kotta-Loizou** (Martin Buck) & **Katie Farrant** (Huw Williams)!

This week is **National Dyslexia Awareness Week!** Find out more & visit the [Disability Advisory Service](#) at the library entrance/Sherfield 566. You may also like to read this useful article:  
[Here's what you need to know about starting university with dyslexia](#)



Why not attend the [work life balance lunch](#) on the 5<sup>th</sup> Oct to identify how to create a better work/life balance that is unique to **you!**

## PRIZES AND AWARDS

**Benjamin Halpern** has been awarded the [A.G. Huntsman award](#) for excellence in marine science from the Royal Society of Canada.

**Laura Preiss** (a Postdoc in **Thomas Meier's** group) won the FEBS Journal Poster prize ("Crystallography in Biochemistry") at the European Crystallographic Association (ECM-30) conference in Basel for her poster: Structural characterization of the mycobacterial ATP synthase c-ring and its interaction with the novel anti-tuberculosis drug Bedaquiline.

**Andrea Fantuzzi** won the poster prize at the [17<sup>th</sup> International Congress in Photosynthesis Research](#), in Maastricht (NL) and received travel funds to participate at the aforementioned congress from the [Biochemical Society](#) and the [Solar Fuels Network](#).

**Matthew Child** was awarded the Wellcome Trust Sir Henry Dale Fellowship.

Congratulations to **our staff at Silwood Park** on their success in being awarded a NERC-CDT for Modelling and Quantitative Skills in Ecology and Evolution (24 PhD studentships over 3 years).

## POSTDOC NEWS

Postdoc Pizza & Beer Sessions take place normally on the last Thursday of every month! Next event will take place on **27<sup>th</sup> Oct (4.30 – 5.30 pm)** in the 7<sup>th</sup> floor common room, SEC Building. The speaker will be **Sara Plamente** on "TssA forms a gp6-like ring attached to the type VI secretion sheath"



**Mock Interviews:** The PDC will arrange mock interviews for postdocs who have been shortlisted for fellowships. They will organise rooms, coordinate availability of panel members, sit on the panel themselves, choose appropriate questions and provide you with feedback. In addition to a mock interview with the PDC, it is recommended that you arrange a mock interview within your department if you would like to focus on technical aspects of your application.

Having a mock interview was mentioned as being a highly valuable experience by many who have undertaken them through the PDC. **To book a mock interview please complete a [Mock Interview Request Form](#), and email it to [the PDC-Support team](#).**

## **MEDIA/OUTREACH ACTIVITIES/EVENTS BEING HOSTED**

**Dylan Smith** (a PhD student in the **Richard Gill's group**) has been part of a Google documentary talking about his research using CT scanning technologies to explore bee brains.

**Niki Windbichler** was speaking at a meeting in Vienna hosted by the UNESCO chair in bioethics called "Fighting Malaria with CRISPR/Cas9: Ethical Implications", 7<sup>th</sup> Sept 2016.

**Stephen Curry's** commentary on Brexit published in [EMBO Reports](#), 4 Aug 2016.

Hahn et al., Mol Cell 2016 (**Thomas Meier**) has been recommended in F1000Prime as being of special significance in its field.

**Planamente S**, Salih O, Manoli E, Albesa-Jové D, Freemont PS, **Filloux A**. paper [TssA forms a gp6-like ring attached to the type VI secretion sheath](#), EMBO J. 2016 Aug 1 made the [cover of the journal](#).

**Fusco, Pape**, Stephens, Mahou, Costa, Kaminski, Kaminski-Schierle, Vendruscolo, Veglia, Dobson, **De Simone**. "Structural basis of synaptic vesicle assembly promoted by alpha-synuclein". Nature communications 7, 12563 (2016).

**Alekos Simoni** was invited to give a TV interview on Aug 17<sup>th</sup> from the Turkish TV channel TRT World for the program Insight which was about the Zika outbreak and mosquito control.

James T. MacDonald, **Burak V. Kabasakal**, **David Godding**, **Sebastian Kraatz**, **Louie Henderson**, **James Barber**, Paul S. Freemont, and **James W. Murray**. [Synthetic beta-solenoid proteins with the fragment-free computational design of a beta-hairpin extension](#) article [A new way to create synthetic proteins could lead to more flexible designs](#) was published on Imperial College website.

**Crisanti Lab** and **Baum Lab** are organising and exhibiting the Malaria Zone at the next [Science Museum Lates](#) event this month with some pretty fantastic activities planned:

### **Man Versus Malaria**

Follow the deadly parasite's journey from mosquito to man. How would you stop malaria dead in its tracks? Become an expert in diagnosing malaria, dissect mosquitoes and learn all about eradication.

### **Driving out malaria with gene drive mosquitoes**

Can the solution to malaria be found in the animal that spreads it? Explore live mosquito cages and find out how modified mosquitoes could hold the key to malaria eradication.

### **How tasty is your blood?**

Who is tastier – you or your date? Why not let the female mosquitoes decide as they hunt for their next meal. The definitive way to decide who is the most attractive...

### **Talk: Malaria - past problems and future prospects**

We eradicated malaria in Europe, so why aren't these methods working in developing countries? Imperial College will explain all and discuss the new genetic technologies that could help end malaria.

There are also some more activities organised by Malaria No More such as @mozzyman and a mosquito swatting challenge.

## TECH NEWS

**Technical Professional Registration** – a professional registration event for all DoLS technical staff (HEFCE funded, contract research and teaching techs) was held on the 13th July with an invited speaker Philippa Nobbs from the Institute of Science and Technology. This was followed by a technicians' meeting and social.



### [WHAT OTHER HE INSTITUTIONS ARE DOING FOR TECHNICAL STAFF DEVELOPMENT](#)

### [SCIENCE COUNCIL SUPPORT FOR ACCREDITATION AND REGISTRATION](#)

### [HEATED ROUTE MAP FOR PROFESSIONAL DEVELOPMENT](#)

**Imperial College Hackspace** - if you need to 3D print something for your research project there are central College facilities for this: <https://icah.org.uk/>. Also provided are digital manufacturing, electronics and robotics, a wood plastic and resin workshop and a big thinking whiteboard room, synthetic biology and heart research lab.

#### **Equipment Infrastructure Update**

- 15 new water purifications systems across SAF, SECB and Silwood installed in July
- 2 new glass washing machines for SAFB installed in July
- 15 new replacement centrifuge rotors in SAFB and SECB arrived in July All -80 degree C freezers have been serviced and filters changed in June

Feasibility study for replacement autoclaves in SAFB and SECB due early September 2016.

## PERSONAL NEWS

**Christopher Bamikole** from Andrea Crisanti's lab ran the Tough Mudder race on the 24<sup>th</sup> September to raise funds for the Barts Cancer Institute. If you are willing to donate for a good cause – please [do so here!](#)

## USEFUL INFORMATION

Did you know that Imperial offers Evening Classes for all staff students?

[Check out the autumn programme](#)

A useful read...

[Your toughest experiment: taking the lead in the lab](#)