

EFB Bioengineering & Bioprocessing Section



EUROPEAN FEDERATION OF
BIOTECHNOLOGY

Newsletter 2016 – Issue 1

Dear EBBS Member,

2016 is flying by fast and it has been an eventful year! We had our biannual ASBE section meeting in February in Lisbon and of course the EFB flagship ECB congress in Krakow in July, for both of which you will find a meeting report in this issue.

During ASBE2016 we held our section board meeting (read more about it and our 7 new board members on the next page). I am also pleased to say that both Louise and Tim will remain our section chairs.

Save-the-date for the [EFB BioDesign'17](#) meeting next year from 7-9th July 2017 at the Schönbrunn Castle Vienna, Austria. [Jon-Marles Wright](#) is looking for members for the scientific programme committee, if you would like to get involved, please get in touch with him.

In this issue you will also find an interview with one of our newest board addition, Dr. Neil Dixon, from the University of Manchester, in the "Introducing EBBS Board Members" series.

Being a pan-European organisation, the recent referendum of the UK to leave the European Union has cast many of us into [a limbo of uncertainty](#) and only time will tell the real effects it might have on UK & European science. Below you can find an opinion piece by Nick Pantidos.

We would like to thank our members who are actively in contact with us through our various news channels ([Twitter](#), [LinkedIn](#) and [Facebook](#)). Please, connect with us using these media for news on funding opportunities and conferences and the latest developments in European Biotechnology; thereby aiding the visibility of the section to help expand our network.

If you would like to share news, job opportunities and stories in our next newsletter, please contact Louise, Tim or myself!

Beatrice V Vetter, August 2016

UK Brexit Vote Impact on Science:

The EU referendum result was announced on the 24th of June 2016, when the UK voted to leave the EU. Although the exit has not happened yet, worries about the negative implications of the result in science are taking hold.

Concerns that the UK will lose funding from EU sources such as H2020 have been growing deeper after stories of new grant applications are being rejected by co-investigators due to fears of rejection have come to light. EU citizens currently living in the UK are worried about their future and eligibility to stay and work post-Brexit. The referendum result goes against the international collaborative spirit of science and could limit the number of EU researchers coming into the UK. Science is strongly based on collaborative research, however there are concerns that this may be affected as free movement within the EU could be severely restricted

to UK nationals post-Brexit and will therefore negatively impact collaborations. As a consequence, Brexit may make British science more parochial and shunt it away from the international community. Some would argue that the positives outweigh the negatives when it comes to leaving the EU. Money that currently goes into the EU would go into funding UK based projects¹. Also, being independent of the EU would allow for flexibility in research policies as currently genetic modification² and clinical trials are limited³. As an EU national myself, I came to the UK due to the multi-national collaborative spirit that it had. I had the great opportunity to be a part of an international science consortium which performed world-class research. However, it was very disappointing when the news of the referendum vote came in for myself, as well as for many EU nationals I have come to know, as the once free and open minded international spirit that UK had, has been damaged.

The exact future of UK science post-Brexit is uncertain. However researchers can already feel the negative impacts of the Brexit vote, whether they are UK or EU nationals.

If you have been affected by Brexit, report your experience at "Scientists for EU"⁴. It is a campaign set up by UK scientists to keep UK in the EU and to monitor Brexit's impact on Science.

Nick Pantidos, UoE

1. Daniel Cressey (2016). Academics across Europe join 'Brexit' debate. *Nature News*. Available at: <http://www.nature.com/news/academics-across-europe-join-brexit-debate-1.19282>
2. Europe compromises on GM crops. *Nature Plants* 1. Article number 14022 (2015).
3. Daniel Cressey (2016). Overhaul complete for EU clinical trials. *Nature News*. Available at: <http://www.nature.com/news/overhaul-complete-for-eu-clinical-trials-1.15339>
4. "Scientists for EU. 2016. Scientists for EU. Available at: <http://scientistsforeu.uk/monitoring-brexit-impact/>



Section Co-chairs:



Dr. Louise Horsfall
[@lehorsfall](#)



Dr. Tim Overton
[@Overtonlab](#)

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Contributing Authors:



Dr. Virginia Echavarrri-Bravo
& Nick Pantidos
(Uni of Edinburgh, UK)



Miguel Cueva
(Uni of Edinburgh, UK)

Meeting Report: ASBE2016, Lisbon, Portugal, 22-24 February

 @ASBE2016 #ASBE2016

The third Applied Synthetic Biology in Europe (ASBE) Meeting was jointly organised by EBBS and the EFB Microbial Physiology section, and was a success. The meeting was held in Costa da Caparica, Portugal in February 2016, and was truly multi-disciplinary with delegates representing academia, research institutes, and industry from all across Europe. It provided the platform to showcase the scope of applied synthetic biology in Europe, and an ideal networking environment to form new collaborations across the continent, with sixty-three delegates, thirty-three oral presentations, two plenary presentations and thirteen academic posters were presented and displayed.

The meeting explored the wealth of applied synthetic biology research in six sessions. The first session was on technology and tools in synthetic biology. The session covered the use of BioParts, Cell Factories and Foundries in synthetic biology, and was opened with a plenary lecture by Anne Osbourn (John Innes Centre, UK) emphasizing the importance of the systemic design cycle for an iterative approach to understand, harness and optimise plant-derived small molecules for different applications through genetic research, design &

build and test learn-cycle. The second session was Bionanoscience in synthetic biology. This session covered the use bacterial microcompartments, microbioreactors for yeast culturing, the use of synthetic biomimetics as affinity reagents, the generation of biofilms and scaffolds, and the novel biosynthesis of heavy metal nanoparticles from waste. The third session was Biosynthetic Pathways & Enzyme Synthetic Biology. This session highlighted the different novel techniques to produce fine chemicals and other valuable compounds through the use of engineered microbes and biosynthetic pathways. The fourth session was the second Technology and Tools in synthetic biology session, which covered the use of synthetic promoters, genomes and micro-compartments. The session was opened by Jussi Jäntti (VTT Technical research Centre of Finland, Finland), illustrating the current bioeconomy scenario and the use of biomass for various biotechnological applications. The fifth session was on Metabolic Engineering and Chemical manufacturing in synthetic biology and it emphasized the different applications within metabolic engineering and chemical manufacturing and how synthetic biology has changed the way the

biotechnology industry is producing high-value products at a cost-effective price. In the final session Technology and Tools in synthetic biology session, Benjamin Blount (Imperial College, UK) described the promising international project, Sc2.0, a project with the sole purpose to construct the first ever synthetic eukaryotic genome, and also described the novel technique SCRAMBLE (Synthetic Chromosome Recombination And Modifications By LoXP-Mediated Evolution) for synthetic genome assembly in yeast.

This successful European meeting displayed a vast range of synthetic biology applications that can be exploited in many different ways, to try tackling society's current problems. Throughout the meeting an important and pressing topic resonated, the shortage of resources and the world's transition into a bioeconomy. It is therefore imperative to engage in new ways to ameliorate the global shortage of resources, and research synthetic biological technologies and applications.

The next ASBE meeting will be held in Toulouse, France in 2018.

Miguel Cueva, Phd Student, UoE

Minutes: EBBS Board Meeting at ASBE2016

During the ASBE2016 meeting in Lisbon, we held our open board meeting which was attended by both section chairs, Louise and Tim, EFB vice-president Jeff Cole, Ana Cecilia Roque as local organising chair of ASBE and myself, among other conference attendees. The full minutes can be found [here](#) on our website.

The agenda of the meeting included opening words by Louise Horsfall, a general section report by Tim Overton, a contribution from EFB Vice president Jeff Cole, general conversation on the future directions as a section, an appeal for new volunteers to join the board and finally a vote to confirm chairs & current board members.

In addition, Jon Marles-Wright was newly appointed as section treasurer to oversee the section finances and meeting expenditures. As a young section we still need to generate income, such that we can re-invest the surpluses of meetings into student & early stage researcher meeting attendance grants to aid their careers and broaden the spectrum of attendees at our future conferences.

Tim reflected on the last two years since our section was established at the ASBE2013 in Malaga. We had a number of successful meetings that we organised or were affiliated with including: ECB2014 in Edinburgh, UK; Focus on Frontiers in Industrial Biotechnology, November 2014,

London, UK; Bioflavour, Frankfurt, Germany, 09-11 September 2015 with DECHEMA and of course the ASBE2016 jointly organised with the EFB Microbial Physiology section. Upcoming meetings for the next two years 2017/2018 are: the [Designer Biology Symposium](#) jointly organised by EFB Polymer Biotechnology Section, EBBS (JMW & Barbara de Ventura) and the Austrian Centre of Industrial Biotechnology (ACIB) ; a meeting on process optimisation in late 2017 (organised by Heleen De Wever and Tim Overton); and ASBE2018 in Toulouse (Jean Marie Francois).

Section communications form a big part of the section to aid networking, latest news and event highlighting and are available via website (curated by EFB central office), quarterly Section Newsletters, and social media, mainly Twitter, curated by myself. However, there is still need for a larger online presence for network building and collaboration for section members.

Jeff Cole gave a brief summary of the EFB activities and successes of the past 5 years. The journal "New Biotechnology" is doing extremely well with an impact factor rising from 1.87 to 3.19 in 4 years. Further, Institutional membership is needed with companies and universities, as the federation cannot be run without staff. A 3rd member of staff has been employed by the central EFB office in Barcelona,

Franziska Poschinger as Marketing & Events Coordinator. However a 4th member is needed, but more intitutional members are needed as their fees pay for the office staff/maintenance.

The membership number of personal EFB members has increased to more than 30,000. The aim of our efforts should be to make the EFB the voice of biotechnology in Europe.

As for future direction of our section, it was discussed how to attract industry to the section and whether a "Gordon-style" conference would be of interest to our EFB members.

As our section grows, we need more support from individuals to run it, organise meetings, etc. We are therefore delighted to announce the following to be new section board members: Urartu Seker, Bilkent University, Turkey; Neil Dixon, University of Manchester, UK; Katrin Messerschmidt, Uni Potsdam, Germany; Marjan de Mey, Ghent University, Belgium; Jean Marie Francois, University Toulouse, France and Martin Warren, University of Kent, UK. For the full board list, please have a look on our [website](#).

To conclude, Tim Overton and Louise Horsfall were confirmed as Sections Chairs by attending board members.

The next board meeting will be held at ASBE2018, Toulouse, France.

BV Vetter, EBBS Comms Officer

New EBBS Board Members:



Jon Marles-Wright,
Newcastle Uni
New EBBS Treasurer
[@jmarlesw](#)



Katrin Messerschmidt,
Uni Potsdam, Germany



Neil Dixon, Uni
Manchester, UK

See our full
[EBBS Board
Member list](#)
here.



Urartu Seker,
Uni Bilkent, Turkey



Jean Marie Francois,
Uni Toulouse, France



Martin Warren,
Uni Kent, UK



Marjan de Mey,
Uni Ghent, Belgium



Introducing EBBS Board Members:

[Dr. Neil Dixon](#)

BBSRC David Phillips Research Fellow

[Manchester Institute of Biotechnology](#)



Can you tell us about your background? And where are you based now? I originally studied as a Medicinal Chemist and then went on study small molecule-membrane protein interactions during my PhD using a range of biochemical and biophysical techniques. I was and still am interested in applying molecular based approaches to both understand and harness the power of biological systems. This desire led me to choose a post-doc position at the MIB, UK, which offered the opportunity to acquire new skills in molecular biology in a highly interdisciplinary environment. Following my post-doc I was fortunate to secure further funding to support the exploitation and translation of gene expression control technology we had developed. This role got me out of the lab and led to interactions with many technology end-users e.g. R&D kits companies, Biopharmaceutical Companies, and Contract Manufacturing Organization.

On the back of these interactions and following encouragement from mentors, I applied for and was successful in being awarded the BBSRC David Phillips Fellowship, which I currently hold at the University of Manchester.

What is your area of expertise? I have experience and expertise in RNA biotechnology, gene expression control, production of recombinant proteins, protein secretion, design and application of biosensors, small molecule synthesis.

What is your current research? My research group is focused on a number of different microbial biotechnology projects and is seeking to optimise biotechnological production processes to create value to the economy. Bacterial cells commonly used in biotechnology evolved their cellular capacity and capabilities to a certain set of environmental needs and demands.

However, under a recombinant process, high levels of expression can push cells outside their comfort zone (capacity limit). We are interested in using design and screening approaches to optimise cellular biotechnological processes, including the optimization recombinant protein production rates to match expression to cellular synthetic capacity and secretion rates. We also creating new cellular capability by developing in vivo biosensors allowing cells to detect and respond to the presence of different substrates, cellular stresses, and metabolic states.

Why did you join EFB/EBBS? The activities of EFB and EBBS align with my research interests and so joining is a good opportunity to network with other research groups across Europe.

Where do you see your contribution as a board member for EBBS? A number of my groups' projects to date have involved working with industry; I

hope to be able to encourage further industrial involvement and participation in EBBS events.

Where do you see EBBS in the future? I hope the EBBS can play a key part in further integrating European researchers working in Industrial Biotechnology and aligned areas. With the uncertainty regarding the UK's involvement in future H2020 programmes it would seem important not to loose gains and links made across Europe to date. I believe this would be best facilitated through EBBS organising high-quality focused meetings.

Would you share an interesting fact about your persona? Apart from working and spending time with the family I would preferably be found at the top of a mountain or at the bottom of the ocean (skiing or scuba diving).

Meeting Report: ECB2016, Krakow, Poland, 3-6 July



[@ECB2016](#)
[#ECB2016](#)



The 17th European Congress on Biotechnology was held at the beginning of July in the Expo Kraków venue, a brand new exhibition and convention centre located within a few miles from the beautiful and historic city centre of Kraków (Poland). The atmosphere was very upbeat from the very beginning, everyone was looking forward to attending this congress as it was a fantastic opportunity to share and discuss cutting-edge science in Biotechnology. This enthusiasm was patent until the end of the conference. The opening ceremony took place on Sunday 3rd of July and started with two plenary lectures, the first one presented by Prof. Patrick Schnable on crop field high-throughput phenotype screening using robots (Predictive phenomics of plants), and the second was given by Prof. Emmanuelle Charpentier about genome engineering with CRISPR-Cas9.

Prof. Tai Hyun Park engaged the audience during the plenary lecture on Monday 4th of July with the work developed in their lab on the Bioelectronic nose (the integration of biotechnology and nanotechnology). Short talks grouped in symposia by theme followed the plenary lecture. Highlights of the parallel sessions in the areas of systems & synthetic

Biology for Biocatalysts, and Functional Nano/Biomaterials

included talks covering topics such as the production of nanoparticles by using synthetic biology tools, engineering *E. coli* for synthetic carbon fixation, and the functionalisation of polyester hydrolases with diverse industrial applications (e.g. detergents, textiles and plastic recycling).

On Tuesday 5th of July the day was opened by Prof. Luke Alpey with a plenary lecture on the genetic control of mosquitos. This lecture was followed by symposia on a second range of themes, for example the refactoring of the 4S-dibenzothiophene pathway for the removal of sulphur in aromatic compounds, held during the Bioprocessing session, the usefulness of the aquatic plant *Callitriche* for the removal of chromium species from contaminated water in the Bioremediation & Biodegradation session, and the immobilisation of laccase on magnetic nanoparticles to enable the recovery of the lignin degrading enzymes in Systems & Synthetic Biology for Biocatalysis session.

The conference dinner on Tuesday was a success (lots of dancing and excellent beer was served) and preceded the last day of the conference, the last but not least. On occasions it was not easy for the delegates to choose between the wide range of compelling talks running in parallel sessions. The

session on recombinant protein production, sponsored by Novozymes, was opened by Dr Jan Maarten. All of us gathered during the closing ceremony, when Prof. Jens Nielsen was responsible for the plenary lecture under the title "Novel metabolic pathways for biological synthesis". More than 40 different themes were covered by 30 key note speakers and 200 short talks, selected from more than 750 abstracts submitted. In addition, 500 scientific posters displayed, with Biofuels, Biochemical & Bioenergy, and Biocatalysis & Industrial Enzyme Engineering being the most numerous (52 posters from each topic), followed by Plant Biotechnology (42), Bioremediation & Biodegradation (36) and Environmental Biotechnology (34). Undoubtedly, the ECB2016 was a successful event that covered the latest research and innovation in Biotechnology, and gave people the opportunity to come together from all over the world. Everyone is looking forward to meeting again at the 18th European Congress on Biotechnology, which will be held in Geneva in July 2018 as announced officially at the closing ceremony.

Dr. Virginia Echavarri-Bravo, UoE



Funding Opportunities & Programmes

Prosperity Partnerships: EPSRC, Business and Universities

<https://www.epsrc.ac.uk/funding/calls/prosperitypartnerships1/>

EPSRC are seeking Expressions of Interest for Prosperity Partnerships. £10million is available to support existing, strategic, research-based partnerships between businesses and universities. A Prosperity Partnership should comprise co-creation of a large-scale, TRL 1-3 research programme which addresses EPSRC's Prosperity Outcomes Framework and the strategies of the universities and businesses involved. Proposals are expected to demonstrate impact, including clear benefits to the businesses involved, to drive forward shared research challenges and to contribute positively to the overall strategic partnership

framework that exists between the parties. As a co-investment opportunity, this call requires the business and university partners to commit substantial cash contributions to the programme (see the full call document for more detail).

For interested groups, the lead business contact must discuss their intention to submit with EPSRC, who will advise on the suitability of the application. These discussions must take place by 23 September 2016. Invited Eols will then be submitted by the lead business partner. The deadline for Eol submissions is 16:00 on 13 October 2016. Any business may lead on only one bid, but may be a contributor to other bids. A university may be involved in more than one bid.

Illumina Accelerator Grant Competition

<http://www.illumina.com/science/accelerator.html?scid=2015311VU2>

Illumina wants to unlock the power of the genome, but they can't do it alone. The Illumina Accelerator is a way of accelerating innovation in the entrepreneurial community. With extensive mentorship, financial support, and access to sequencing systems, reagents, and lab space, they have created a dynamic genomic ecosystem to help start-ups launch.

Jobs

Role	Employer	Deadline	Location	REF
Future Science Platform Leader - Synthetic Biology	CSIRO	24.08.16	ACT or Brisbane, Qld, Australia	https://jobs.csiro.au/job/Future-Science-Platform-Leader-Synthetic-Biology/357200200/
Postdoc: Algal Biotechnology and Synthetic Biology	Fu Lab, College of Life Science and Technology, Beijing University of Chemical Technology	Open	China	Contact: fupc@mail.buct.edu.cn pcf_u_2000@yahoo.com
Research Fellowship for a Master holder	Ana Cecília Roque Lab, NOVA.ID.FCT	18.09.2016	Caparica, Portugal	http://www.eracareers.pt/opportunities/index.aspx?task=global&jobId=79777



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Bioengineering & Bioprocessing Section

www.efb-ebbs.eu

Do you want to get involved?

If you would like to be part of the new section, if you have an idea for a new meeting in an area of bioengineering or bioprocessing, or if you

would like to assist in section activities, please contact the section co-chairs:

Louise Horsfall
[louise.horsfall\[at\]ed.ac.uk](mailto:louise.horsfall[at]ed.ac.uk)
Tim Overton
[t.w.overton\[at\]bham.ac.uk](mailto:t.w.overton[at]bham.ac.uk)

About this Newsletter:

You receive a newsletter as part of your membership with EBBS. If you do not wish to receive this Newsletter, send an email to Louise Horsfall [louise.horsfall\[at\]ed.ac.uk](mailto:louise.horsfall[at]ed.ac.uk) to unsubscribe.

Upcoming Meetings:

EFB BioDesign'17 meeting next year from 7-9th July 2017 at the Schönbrunn Castle Vienna, Austria. Call for scientific committee members, please contact [Jon-Marles Wright](mailto:Jon-Marles.Wright@ed.ac.uk)!

Late 2017 - Process optimisation meeting, details to be announced.

2018 - Applied Synthetic Biology in Europe, Toulouse, France, dates to be announced.

1st-4th July 2018 - 18th European Congress of Biotechnology, Geneva, Switzerland

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Beatrice V Vetter
University of Edinburgh
EBBS Communications Officer
Beatrice.Vetter@ed.ac.uk
Twitter: [@Bea_Viv](https://twitter.com/Bea_Viv)