Dear EBBS Member,

We would like to wish all the members of the EFB Bioengineering and Bioprocessing Section a Happy New Year and take this opportunity to reflect on our successes in 2014 and let you know of our plans for the coming months.

Last year we organized a meeting entitled Focus on Frontiers in Industrial Biotechnology at the SCI Meeting Rooms in London in November (see page 2), with the support of the BBSRC. Highlights included plenaries from Professor Carl Borrebaek and Abraham Esteve-Núñez, a talk from the award winning Imperial College iGEM team and a guest appearance by Michael Palin at the conference dinner, well sort of.

Participants described the meeting as “a gem of a conference”, “well worth the trip” and told us to “please count on us for future events”. The quality of all the speakers was truly excellent and we hope that by extending our membership we will be able to provide more exciting events in this area in the future.

In the coming year we will be supporting the conference Bioflavour 2015 (see page 3), with topics ranging from the functional characterisation and metabolic engineering of flavour and fragrance biosynthesis to microbial cell factories and bioprocessing for flavour and fragrance production to olfaction and receptors.

Following a massive investment from the UK government in Synthetic Biology and the establishment of three new SynBio Centres there are many exciting job opportunities (see page 4).

We also plan to be more vocal as a section, adding our voices to those of other EFB sections and the Executive Board on the challenges and issues faced by European scientists. To begin, we have asked our section board members to add to an EFB response to the European Commission’s public consultation on the preliminary opinion on synthetic biology II risk assessment methodologies and safety aspects (see below).

Synthetic Biology Risk Assessment by the EC

Last December, the European Commission (EC) Scientific Committees issued a preliminary opinion on Synthetic Biology II [1] on whether existing risk assessment methods are adequate for synthetic biology.

Written by a working group consisting of 20 SynBio experts from Europe and the USA [2], this risk assessment could have a considerable impact on European and global Synthetic Biology policy making in the future.

We have therefore asked the EBBS board members to contribute to the EFB response, as comments, suggestions, explanations or contributions on the scientific basis of the preliminary opinion by the public are invited to aid the Scientific Committees to focus on issues that need further investigation.

Submission of written comments on the preliminary opinion are due by 03 February 2015 [3].

More information:

- Science Magazine Editorial by Breitling, Takano & Gardner (2015)
- Prelim. Opinion scenihr_o_048.pdf
- For more info visit us on www.efb-ebbs.eu
Meeting Report:
Focus on Frontiers in Industrial Biotechnology,

Our first official meeting “Focus on Frontiers in Industrial Biotechnology” was held last November in London (UK).

The three-day conference especially addressed the need of enhanced collaboration between academia and industry with a great representation of industrial and academic research (see our final programme here).

The opening plenary lecture was given Prof Carl Borrebaek (Lund University) on “Personalized Medicine – Deciphering cancer”.

We specifically invited lectures by the EBBS NIBB project directors including Prof Nigel Robinson (Metals in Biology), Prof Dave Kelly (CBMNet), Prof Bob Rastall (FoodWasteNet), Prof Simon McQueen Mason (LBNet), Prof David Leak (P2P), Dr Saul Purton (PHYCONET), as these multidisciplinary networks aim to foster collaborations between academia, industry and policy makers in industrial biotechnology and bioenergy.

From industry we had talks Stuart Stocks (Novozymes) on how to “better understand large scale recombinant protein production”, Andrew Ellis (Bionanoworks Ltd.) on “Rapid And Cost Effective Enzyme Development” and Carsten Carstens from Agilent who was presenting “new research tools for the age of Synthetic Biology”.

Another highlight was the invited lecture by Peter Neubauer (TU Berlin) on “Integrating strategies for industrial scale bioprocess characterisation, scaledown and consistent bioprocess development”.

At the end of the systems and synthetic biology session we addressed the question “What does industry need from academia and vice versa?” in a panel workshop (see outcomes below).

Aleskandra Malyksa (Polish Academy of Sciences) presented a talk on “consumer disinformation and market of biotech products” emphasising the importance of an active dialogue with the public and policy makers.

Also the award winning Imperial College IGEM team Aqualoise presented their impressive research on bacterial cellulose.

The meeting ended with the closing plenary lecture “Microbial Wonderfuel Cells: changing the biotech paradigm in wastewater treatment plants” by Prof Abraham Esteve-Núñez (Uni. Alcalá).

We would like to thank all our speakers and attendees at the EBBS Frontiers in IB meeting - the quality of the science presented was truly excellent and we hope you enjoyed it.

Our next meeting Bioflavour 2015 will be held September 9-11 2015 in Frankfurt (Germany) (see page 3 for more details).

Focus on Frontiers in Industrial Biotechnology

EBBS Workshop Outcomes: What does industry need from academia and vice versa?

As part of the EBBS meeting Focus on Frontiers in Industrial Biotechnology, a workshop was held asking the question “What does industry need from academia” in the area of IB. The discussion was lively and varied, and industrialists, academics, postdocs and PhD students all contributed their views. The discussion centred around three main areas:

Firstly, training is needed to ensure that graduates/postgraduates are able to work in industry. Key areas included the need for individuals to be objective-focused, flexible and have the potential to develop onto independent scientists within industrial settings, while retaining an understanding of business impact and the needs of the company. The benefits of 4-year PhD programmes with a collaborative aspect with industry were discussed, along with the need for specific training alongside research as part of PhD programmes. Flexibility was also a key theme when the academic background of industrial recruits was discussed. Specific degree subjects were not considered as important as problem-focused skills built on a sound fundamental understanding of biological systems and experimental design, maths and statistics. Communication across disciplines was also a key theme, allowing effective work in multidisciplinary teams commonly found in industrial settings. The ‘wish list’ for recruitment included flexibility, problem solving, hunger to learn and a lack of fear of crossing discipline boundaries; these should be stated early on in applicants’ CVs! Finally, barriers to progress were discussed.

The funding situation in the UK, with generally high costs for overheads at British universities, was identified, and it was noted that UK partners in EU projects are higher-cost than partners from other EU nations. Industry frequently cannot afford research in UK universities. Intellectual property was discussed, and while there was a feeling that IP was better understood now at universities than previously, focus was shifted to the use of university-generated IP and the need for academics to be more entrepreneurial (for example, through setting up spin-out companies). Freedom to operate was also identified as a key area that needed addressing earlier in academic-industrial collaborative projects, to prevent problems when patent protection was applied for.
Introducing EBBS Board Members:
Prof. Dr. Jens Schrader
DECHHEMA Research Institute
Frankfurt am Main (Germany)
http://kwi.dechema.de/en/bce.html

Can you tell us about your background? And where are you based now?
After studying biotechnology at Technical University of Braunschweig I received my Ph.D. from Technical University Dortmund. At that time I already worked in the laboratories of DECHHEMA, Frankfurt. Later in my career I got very much inspired as a visiting scholar at UC Berkeley, USA. Today, I am member of the Executive Board of DECHHEMA Research Institute, a private foundation dedicated to interdisciplinary research for sustainable technologies. I am also associate professor at Goethe University Frankfurt where I am teaching in the master course molecular biotechnology.

What is your area of expertise?
My main research interest is in the biotechnological synthesis of natural products, especially flavour and fragrance compounds and terpenoids. In my group we are also looking at non-sugar carbon sources such as methanol for the development of new microbial production processes. In close collaboration with our colleagues from the electrochemistry group we also investigate novel bio-electrochemical systems as a basis for eco-efficient “next generation” bioprocesses.

What is your current research?
Currently, we are interested in engineering the solvent-tolerant bacterium Pseudomonas putida towards its usability as a platform microbe. We use it for bioconversion and de novo biosynthesis of monoterpenoids, a natural products class with interesting flavour, fragrance and antimicrobial compounds. These molecules are usually too toxic to be efficiently produced by recombinant conventional microbes such as E. coli and S. cerevisiae. Another area of our current research is dedicated to Methylbacterium extorquens. This bacterium grows on methanol as the carbon source, a very attractive alternative raw material for industrial biotechnology. We engineer the microbe, which can be grown to high cell densities, towards the production of interesting chemicals, for instance dicarboxylic acids, which are unique to this type of methiotrophic bacteria.

Why did you join EBBS/EBBS?
The EBBS is devoted to both pillars of biotechnology, the biological part “bioengineering” and the technical part “bioprocessing”. In my opinion it is very important to foster the dialogue between these disciplines at an early stage in research for industrial biotechnology. We engineer the microbe, which can be grown to high cell densities, towards the production of interesting chemicals, for instance dicarboxylic acids, which are unique to this type of methiotrophic bacteria.

Where do you see EBBS in the future?
EBBS should become a well-recognized platform where biologists and engineers devoted to industrial biotechnology meet for intense exchange of ideas and concepts across the borders of their disciplines. This should be done by organizing high-quality symposia on specific research topics within the scope of the section. The same way, combining efforts as often as possible with other European and national biotech working parties and outside the EBBS network would be of equal importance to bundle our forces for the benefit of the European biotech community.

Would you share an interesting fact about your persona?
I have always been inspired by two quite different areas of life: nature and music! Therefore, I feel privileged to have a job as a biotechnologist where I can try to understand and use some of nature’s principles to the welfare of our industrialized society. But I feel similarly privileged that I got some musical talent which I routinely use to play the piano and saxophone and other instruments at home and to compose. To me, this is the best way to recharge the battery.
**Funding Opportunities & Programmes**

**BBSRC 2015**
http://www.bbsrc.ac.uk/funding/opportunities/opportunities-index.aspx

**Horizon2020**

**IB Catalyst**
Registration deadline: 25 February 2015
http://www.bbsrc.ac.uk/business/collaborative-research/tsb-competitions/ib-catalyst.aspx

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**EMBO Practical Course:**
**Synthetic Biology in Action**
EMBL Heidelberg, Germany
8th – 20th June 2015
Application Deadline 12th March 2015
http://www.embl.de/training/events/2015/SYN15-01/

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**Job Opportunities**

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<td>Manchester Institute of Biotechnology</td>
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</tbody>
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**Do you want to get involved?**
If you would like to be part of the new section, or if you have an idea for a new meeting in an area of bioengineering or bioprocessing, or would like to assist in section activities, please contact the section co-chairs:

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**New Biotechnology**

*New Biotechnology* is the official journal of the **EBF** and is published bimonthly. It covers both the science of biotechnology and its surrounding political, business...