ESF RESEARCH CONFERENCES

Rapporteur Report

Partnership:	ESF-BU-CeBiTec
Conference Title:	Microbes and Industrial Biotechnology
Dates:	21-24 November 2010
Chair:	Prof. dr. Volker Wendisch
Rapporteur:	Prof. dr. A.J.M. Driessen

General Comments

Any general comments you might have concerning the conference, your role, the scientific area covered by this conference, etc.

Industrial biotechnology for sustainable production methods is a fast moving research area that fully exploits the possibilities offered by the various – omics methodologies, systems biology and scientific biology. This was a timely and well-organized meeting in a pleasant atmosphere that provided information on advanced developments in this area of research discussing microbial industrial biotechnology in a broader sense.

Quality of Scientific Programme, Presentations and Discussion

Comments on the balance and scope of the scientific programme, the scientific quality of the presentations and discussions.

Biotechnological processes are of high significance for industrial production. Because of the need for more sustainable methods for production and the exhaustion of fossil fuels and feedstock, there is an increasing need for efficient 'green' biotechnological processes for the production of bulk chemicals, fuels and pharmaceuticals. Evidently, microbial Biotechnology already plays a key role in the development of schemes towards the sustainable use and production of renewable bio-resources. For this reason biotechnology is a fast moving area of research at the global scale. This meeting was therefore very timely. It brought together academia and industry because of the need for cooperation and discussed the recent advances in microbial research for production processes in industrial biotechnology. This concerned in particular the development of microbial strains for the production of e.g. fine chemicals, biofuels, secondary metabolites and proteins. This meeting scope included the development of rational design strategies that include the various omics technologies, systems biology or synthetic biology approaches.

The meeting was highly structured focusing on specific subdisciplines or compound categories during the four days in several sessions. These were

- Systems biology
- Chemicals
- Synthetic biology
- Biofuels
- Secondary metabolites
- Protein production and metagenomics

The meeting was truly interdisciplinary in nature, with experts in various fields indicated above. Each session did not focus on a particular group of organisms but rather on the technology or the product group. The quality of the presentations was excellent with speakers willing to share some of their most recent data. After each presentation there was sufficient time for discussion, which was often extended into the coffee breaks, poster sessions and evening hours. To name a few, exciting new developments were the improved and highly integrated algorithms to describe the transcriptional control of metabolic pathways and the implementation of advanced metabolomics, new pathways for the production of 1,2- and 1,3-propanediol, application of solute export systems for improved production, advanced protein engineering to integrate cellulosic biomass conversion with biofuel and chemical production, exploitation of furfural catabolism for chemical production, combinatorial and advanced metabolic pathway engineering for the production of (novel) pharmaceutical, marine organisms as sources for novel enzymes and metabolites etc. Although these subjects cover biotechnology in a wide definition, often they face the same

problems and share approaches, and these were discussed at great length.

Informal Networking and Exchange; Atmosphere

Was the schedule and the atmosphere conducive to an easy exchange of information? Was there time and space for an informal discussion? Were younger researchers integrated?

The atmosphere was very stimulatory for discussion and informal exchange. The group of scientist was relatively small which was excellent for informal contacts but also allowed for a good integration of the younger researchers that contributed both in the oral sessions as well as the poster sessions. As an extra bonus, many of the younger students attended a three days workshop on –omics methods organized by the CeBiTec center following the meeting. This provided students with theoretical and experimental experiences in the various platforms bioinformatics, transcriptomics, proteomics and high throughput DNA sequencing with a focus on the complementary benefits of these methods in industrial microbiology. This combination of scientific meeting followed by a satellite workshop was an excellent choice of the organizers which ensured that students could make the most out of their visit.

Balance of Participants

Was there an appropriate balance between young and senior participants? Was a balance of national groups and researchers from different (sub)fields achieved?

This research conference brought together a group of 96 scientists from academia and industrial from across Europe but also from elsewhere in the world, among others USA, Mexico, Korea, Japan and China. There was a good balance between more established and junior scientists, with various speaker slots for the young scientists. Among the 25 speakers there were 5 female speakers.

Outlook and Future Developments

Will new collaborations emerge from this conference? (How) could the conference outcomes be utilized further? Are there suitable (ESF) programmes or instruments to further the work of the conference?

This conference will likely result in new collaborations, often this will be at the bilateral level or new contacts with industry. The outcome of the conference will in particular be used to redefine aims but also to adjust strategies and profit from the latest information provided. It was not immediately the goal to use the conference as a platform to propose a common project for instance in the EU 7th framework. However, many of the participants already participate in such European or national programmes or plan to submit proposal to one of the granting agencies. There was not a specific forward look plenary discussion organized. However many of the speakers provided a forward look in their talks.

Follow-up

What immediate and long term follow-up would benefit collaborations and dialogues that may have begun at the conference?

This conference is the first in a series of three. At the short term there will not be a follow-up on this particular topic but on related topics in biotechnology moving away from microbes into plants for solar application in bioenergy as well as tissue cultures for advanced biomed applications. The series thus discusses industrial biotechnology in a broad sense, but each of the conferences will have a more focussed subject area. The short term benefit is that scientist can adjust their research plans based on the new information gained and the stimulatory effect of such high quality meeting that will boost new research. The long-term follow up at the moment is the meeting series aspect as well as new scientific collaborations as well as contacts with industry.

Organisation and Infrastructure

Were venue, catering and accommodation appropriate for this conference? Were participants satisfied with the on-site administration and support?

The venue was well chosen, somewhat remote on a hill site overlooking the city of Bielefeld. It was therefore ideal to foster interactions and keeping the group together. The on-site administration and support was excellent. The

accommodation was excellent as well as the catering, which provide food in abundance.

Summary & Overall Assessment

Was the conference successful; were its aims achieved?

This meeting was well organized and was a scientifically excellent conference that allowed for discussions on contemporary problems in industrial microbiology. It presented the state of the art on research across Europe including some world's expertise as well. It prepared for future activities in terms of community building across Europe and also at a more global scale.