International Bielefeld-CeBiTec Research Conferences

Advances in Industrial Biotechnology:

Synthetic Pathways and Reaction Cascades

Center for Interdisciplinary Research (ZiF), Bielefeld University
September 22 – 25, 2013

http://www.cebitec.uni-bielefeld.de/synthetic-pathways-2013

Program

SUNDAY 22 September

12.00–13.30: *Registration*

13.30–14.00: *Conference Opening*
Volker F. Wendisch (Conference Chair, Bielefeld University)

Welcome address
Martin Egelhaaf (Vice-rector of Bielefeld University)

Introduction to the CeBiTec
Thomas Noll (Scientific director of CeBiTec, Bielefeld University)

Pathway discovery and pathway flux

14.00–14.45: **Georg Fuchs** (Freiburg University, DE)
Unfamiliar metabolic links in the central carbon metabolism

14.45–15.30: **Martin Warren** (University of Kent, UK)
Applying synthetic biology to pathway elucidation and use of bacterial microcompartments

15.30–16.00: **Meike Baumgart** (Forschungszentrum Jülich, DE) - Selected Talk
Nano-bioreactors in Corynebacterium glutamicum*: Engineering of synthetic microcompartments based on bacterial carboxysomes*

16.00–16.30: *Coffee*

16.30–17.15: **Brian McNeil** (University of Strathclyde, Glasgow, UK)
Real Time Flux Monitoring in Biopharmaceutical Manufacturing

17.15–18.00: **Olaf Kruse** (CeBiTec Bielefeld University, DE)
Cellulose degradation and assimilation by a phototrophic microalga

18.00–20.00: *Poster session with Beer & Pretzel*

MONDAY 23 September

Pathway discovery and pathway flux *(cont.)*

09.00–09.45: **Michael Bott** (Forschungszentrum Jülich, DE)
Single-cell metabolite sensors and recombineering as novel tools for strain and enzyme development

09.45–10.15: **Felix Stehle** (TU Dortmund, DE)
Heterologous pathway assembling: Scientific Lego to produce medicinal tetrahydrocannabinol (THC)

Synthetic pathways

10.15–11.00: **Patrik R. Jones** (University of Turku, FI)
Biosynthesis of fatty alcohols and alkanes

11.00–11.30: *Coffee*

11.30–12.15: **Jean-Loup Faulon** (University of Evry, FR)
A Rational Metabolic Engineering Pipeline: from computer-aided design to product identification

12.15–12.45: **Johann Heider** (Philipps-Universtität Marburg) - Selected Talk
Synthetic pathway for production of (R)-benzylsuccinate

12.45–13.15: **Leo de Graaff** (Wageningen University, NL) - Selected Talk
Funbricks- versatile vector design for the construction and expression of synthetic pathways in Aspergillus niger

13.15–14.30: *Lunch*

Reaction cascades

14.30–15.15: **Thomas R. Ward** (University of Basel, CH)
Engineering Reaction Cascades with Artificial Metalloenzymes

15.15–16.00: **Martin Schürmann** (DSM, NL)
Biocatalytic Cascades and Synthetic Pathways – an Industrial Perspective

16.00–16.30: **Marcel Heidlindemann** (Bielefeld University, DE) - Selected Talk
Combination of Metal- and Organocatalytic Reactions with Biotransformations towards One-Pot Syntheses in Aqueous Reaction Media

16.30–17.00: *Coffee*

17.00–17.30: **Andre Jakoblinnert** (Forschungszentrum Jülich, DE) - Selected Talk
A two-step cascade reaction using lyophilized E. coli *cells to produce an enantiopure vicinal diol with high space-time yield*

17.30–18.00: **Florian Rudroff** (TU Vienna, AT) - Selected Talk
An Enzymatic Toolbox for Cascade Reactions: A Showcase for an In Vivo Redox Sequence in Asymmetric Synthesis

18.00–18.45: **Camille Delebecque** (Harvard Medical School & Synbio Consulting, US)
In vivo nucleic acid assemblies for spatial organization of enzymatic cascades in Synthetic Biology

TUESDAY 24 September

Terpenoids

09.00–9.45: **Chris Paddon** (Amyris, US)
Semi-Synthetic Artemisinin as a model for the use of synthetic biology in industrial biotechnology

9.45–10.15: **Bodo Philipp** (University of Münster, DE) - Selected Talk
Synthetic bacterial communities for the production of novel steroid compounds

10.15–10.30: *Coffee*

10.30–11.15: **Jules Beekwilder** (Wageningen University, NL)
Biotechnology for fruit flavor

11.15–11.45: **Sabine Heider** (Bielefeld University, DE) - Selected Talk
Production of various lycopene-derived carotenoids by metabolically engineered Corynebacterium glutamicum

11.45–12.15: **Jung-Won Youn** (University of Stuttgart, DE) - Selected Talk
Metabolic engineering of Escherichia coli *for the biosynthesis of mandelic acid*

12.15–13.00: *Lunch*

13.00–14.00: *Poster session 2*

14.00–18.00: *Excursion*

Guided tours to the Old town, Exhibition hall and/or Theater of Bielefeld
Coffee and cake at the “Bauernhaus Museum”

19.00–23.00: *Conference Dinner at Restaurant* Glück&Seligkeit

WEDNESDAY 25 September

Amino acids and antibiotics:

08.30–09.15: **Ian Archer** (Ingenza, UK)
Bringing new abilities to Industrial Biotechnology...predictability, scalability, reliability

09.15–09.45: **Bastian Blombach** (University of Stuttgart, DE) - Selected Talk
Engineering the pyruvate-dehydrogenase-complex of Corynebacterium glutamicum *for improved pyruvate-derived production processes*

09.45–10.15: **Marcel Frese** (Bielefeld University, DE) - Selected Talk
Regioselective enzymatic halogenation of tryptophan derivatives using the FAD dependent halogenase RebH

10.15–10.45: *Coffee*

10.45–11.30: **Shuang-Jiang Liu** (Chinese Academy of Science Beijing, CN)
Metabolism of aromatic compounds by Corynebacterium glutamicum*: New potentials for industrial applications?*

11.30–12.15: **Eriko Takano** (University of Manchester, UK)
Towards Biotechnology 2.0: Synthetic Biology of Bioactive Molecules

12.15–12.45: **Jin-Ho Seo** (Seoul National University, KR) - Selected Talk
Production of 2,3-butanediol by engineered Saccharomyces cerevisiae

12.45–13.30: **Helmut Schwab** (Technische Universität Graz, AT)
Biotechnology based on CO_2 – not a Renewable but a Recyclable Carbon Source

13.30: *Conference Closing*
Alf Pühler (Conference Co-Chair, CeBiTec, Bielefeld University)

A packed lunch will be available at departure