

Preliminary Program
March 26 , 2020

Microbial Engineering II

September 13-18, 2020

Grand Hotel Santa Eulalia
Albufeira-Portugal

Conference Chairs

Eli Keshavarz-Moore
University College London, United Kingdom

Barry Buckland
BiologicB, USA

Sunday, September 13, 2020

16:00 – 18:00	Conference Check-in
17:45 – 18:00	Welcoming Remarks Barry Buckland and Eli Keshavarz-Moore, Conference Chairs
18:00 – 18:50	Introduction to Plenary Lectures Plenary Lectures Refactoring yeast central metabolism to reverse growth phenotypes and product formation Diethard Mattanovich, BOKU, Austria
18:50 – 19:40	Synthetic biology for synthetic chemistry Jay Keasling, University of California, Berkeley, USA
19:40 – 19:45	Concluding Remarks
19:45 – 20:30	Reception
20:30 – 22:30	Dinner

Monday, September 14, 2020

07:30 – 08:30

Breakfast Buffet

08:30 –

Session I: Natural Products and Secondary Metabolites

Session Chairs: Tiffany Rau (USA)

Joel Cherry (Digestiva, USA)

Session Introduction

Clean manufacturing: Powered by biology

Sunil Chandran (Amyris, USA)

Production of novel carotenoids using *Deinococcus* as the production organism

Emmanuel Petiot (Deinove, France)

Digestiva: Solving Protein Digestion

Joel Cherry (Digestiva, USA)

Microbial Engineering of new *Streptomyces* sp. From Extreme Environments for Novel Antibiotics, Anticancer and Antifungal Drugs

Juan Asenjo (University of Chile)

Using microbial metabolic engineering to make Human Milk Oligosaccharides (HMO) available to the world

Niels Banke Glycom, USA

Introduction to Plenary Lecture

Plenary Lecture

Microbial biosynthesis of complex plant-derived alkaloids

Christina Smolke, (Antheia, USA)

Lunch Buffet

14:00–

Session II: Primary Metabolites

Session Chairs: Arindam Bose (AbiologicsB, LLC, USA)

Brigitte Gasser (BOKU, Austria)

Session Introduction

How the central metabolism of *Clostridium acetobutylicum* can be engineered by manipulating electron fluxes

Philippe Soucaille, (INSA (France) & University of Nottingham, (United Kingdom); Metabolic Explorer (France))

Engineering *Corynebacterium glutamicum* for conversion of simple sugar into adipic acid by condensation of TCA cycle intermediates

Jaeho Shin, Chalmers University, Sweden

Valorization of renewables into bio-based chemicals using metabolically engineered microbes

Christoph Wittmann (Saarland University, Germany)

Pollution to products: Recycling of “above ground” carbon by gas fermentation

Michael Koepke Lanzatech Engineering

Introduction to Plenary Lecture

Plenary Lecture

Continuous culture reborn or revived?

Charles Cooney, MIT, USA

Dinner

20:30 – 23:00

Poster Session I (with social hour and dessert)

Session Chairs: Brenda Parker (University College London, United Kingdom)
Laura Stoffels (Syngenta, United Kingdom)

Tuesday, September 15, 2020

07:30 – 08:30

Breakfast Buffet

08:30 –

Session III: Therapeutic Proteins and Peptides

Session Chairs: Karen Polizzi (Imperial College London, United Kingdom))
Neil Dixon (University of Manchester, United Kingdom)

Session Introduction

Figuring out what yeast can secrete, and have your fill of it

Nico Callewaert (University of Gent, Belgium)

Robust protein production and secretion in bacteria using type III secretion system

Danielle Tullman-Ereck (Northwestern University, USA)

Characterization of homologous industrial strains using continuous cultivation techniques to understand process performance variation in a platform fed-batch production process

Anthony Grippe (Merck, USA)

Development of the filamentous fungus *Myceliophthora thermophila* C1 into a next-generation therapeutic protein production system

Ronen Tchelet (Dyadic International, Hungary)

Host engineering for product quality without sacrificing volumetric productivity

Neil Dalvie, MIT

Optimization of *E. coli* SoluPro® using synthetic biology to generate high-performance microbes for scalable production of protein therapeutics

Johan Kers AbSci

Development of new tools for enhanced IgG secretion in glycoengineered *Pichia pastoris* strains

Chiara Lonigro, Gent University

Beyond CHO: the microorganisms awaken

Jeremy Peyrol, Merck

Growth-decoupled recombinant protein production in Escherichia coli

Patrick Stargardt, Biotech NGmbH Vienna

Lunch Buffet

14:00 –

Session IV: Biopolymers and Biofuels

Session Chairs: Behnam Taidi (CentraleSupélec, France)

David Stuckey (Imperial College, United Kingdom)

Session Introduction

In-situ capture of CO₂ from heterotrophic processes using mixed cultures

Behnam Taidi (CentraleSupélec, France)

Design-build-test and learn for *in-vivo* and cell-free production of biomaterials

Jean-Loup Faulon (University of Paris Saclay, France; University of Manchester, United Kingdom)

Controlling the size and linkage type of biopolymers derived from sucrose

Magali Remaud-Siméon (Université de Toulouse, CNRS, INRA, INSA, Toulouse, France)

Biosensors & biocatalysis for biorefinery & bioremediation

Neil Dixon (short), University of Manchester, UK

A biotechnological strategy for the valorization of cellulose through Levoglucosenone

Louis Mouterde Agro Paris Tech

Integrated synthesis of high-value aromatic alcohols from Lignocellulosic Biomass

Robson Tramontina (short) University of Campinas

Building a stable bacterial chassis for sustainable, economical chemicals production

James Allen (short) UNIVERSITY COLLEGE LONDON, UK

Feruloyl-coa synthetase and feruloyl-coa hydratase/lyase as biocatalysts for conversion of lignin into flavor and high-value molecules

Thiago Goncalves (short) UNISO, UNICAMP

Introduction of Plenary Lecture

Plenary Lecture

Integrated biomanufacturing with micro-modular systems for biopharmaceuticals and vaccines

Chris Love, MIT, USA

Dinner

20:30 – 23:00

Poster Session II

Session Chairs: Brenda Parker (UCL, United Kingdom)
Laura Stoffels (Syngenta, United Kingdom)

Wednesday, September 16, 2020

07:30 – 08:30

Breakfast Buffet

08:30 –

Session V: Microbiome

Session Chairs: John Aunins (Seres Therapeutics, USA)
Kristala Prather (MIT, USA)

Session Introduction

Metabolic modeling for the microbiome

Costas Maranas (Penn State University, USA)

Synthetic biology and processing for engineering the microbiome

Scott Plevy (Synlogic Therapeutics, USA)

Novel technologies are key for the development of live bacterial therapeutics

Christophe Lacroix (ETH Zurich, Switzerland)

Engineering microbes and biology for communicating with electronics

William Bentley (University of Maryland, USA)

(Invited speaker from Indigo ; pending) Number 125

Treating microbial systems engineering as an inverse function problem to enhance production of biomolecules

Ranjan Srivastava University of Connecticut

Lunch Buffet

Afternoon – free for networking, discussion, leisure

16:30 –

Session VI: Cell free protein synthesis

Session chairs: Daniel Bracewell (University College London, United Kingdom)
Jim Swartz (Stanford University, USA)

Session Introduction

Cell-free systems for portable, on-demand biomanufacturing, molecular sensing and education

Mike Jewett (Northwestern University, USA)

Rapid iterative design of tandem-core virus-like particles using Escherichia coli- based cell-free protein synthesis

Noelle Colant, University College London, UK

New kid on the block: Industrialization of cell-free synthesis for biotherapeutics development

Bob Kiss (Sutro Biopharma, USA)

Introduction of Plenary Lecture
Plenary Lecture

Dynamic metabolic engineering
Kristala Prather (MIT, USA)

Dinner

Thursday, September 17, 2020

07:30 – 08:30 Breakfast Buffet

08:30 – Concurrent Workshops

Workshop1

Chair: Eli Keshavarz-Moore

Session Introduction
What is the vision of the future of biomanufacturing?

Contributors:
Jonathan Brown (Pall Europe)
Martin Smyth (Sartorius Stedim)
Parrish Galliher (GE)
Aaron Pilling KBI Biopharm (USA)

08:30 – **Workshop 2**
Chair: Gary Lye (University College London, United Kingdom)

Session Introduction
Biorefinery

Introduction of Plenary Lecture – EKM or BB
Plenary Lecture

Vaccines: Unprecedented opportunities for impact
Rahul Singvi (Flagship Pioneering, USA)

12:30- 14:00 Lunch Buffet

14:00- **Session VII: Vaccines**
Session Chairs: Stefanie Frank (University College London, United Kingdom)
Barry Buckland (BiologicB, USA)

Session Introduction

Developing modular, well-characterized VLP vaccines
Jim Swartz (Stanford University, USA)

Integrated product design and development for manufacturable protein subunit vaccines
Kerry Love (MIT, USA)

De-risking technology transfers for vaccine candidates in highly complex lab/pilot/manufacturing landscapes

Tracie Spangler (Merck, USA)

Development of affordable recombinant glycoconjugate vaccines in bacterial cells

Brendan Wren (London School of Hygiene & Tropical Medicine, United Kingdom)

Effect of over expressing protective antigen on global gene transcription in *Bacillus anthracis* BH500

Joseph Shiloah, National Institutes of Health, USA

Microbial platform for dengue vaccine production for low and medium income countries (LMICs)

Salome De Magalhaes University College London, UK

Re-purposing protein compartments as vaccines, drug delivery systems and nanobioreactors

Stefanie Frank, University College London, UK

Introduction of Concluding Plenary Lecture

Plenary Lecture

Engineering *Pichia pastoris* to make the impossible burger possible

Smita Shankar (Impossible Foods, USA)

19:45 – 23:00

Reception, Conference Banquet and Poster Prizes

Friday, September 18, 2020

07:30 – 10:00

Breakfast Buffet followed by departures