***DRAFT - Preliminary Program - DRAFT***

***October 22, 2021***

***(subject to change!)***

**Microbial Engineering II**

**April 3-7, 2022**

**Grand Hotel Santa Eulalia**

**Albufeira-Portugal**

**Conference Chairs**

**Eli Keshavarz-Moore**

 University College London, United Kingdom

**Barry Buckland**

BiologicB LLC, USA

**Sunday, April 3, 2022**

16:00 – 18:00 Conference Check-in

18.00 – 18:15 ***Welcoming Remarks***

 Barry Buckland and Eli Keshavarz-Moore, Conference Chairs

18:15 – 19.00 Introduction to Plenary Lectures

**Plenary Lectures**

**Refactoring yeast central metabolism to reverse growth phenotypes and product formation**

Diethard Mattanovich, BOKU, Austria

19.00 – 19.15 Concluding remarks

19:15 - 20.00 Reception

20:00 – 22:00 Dinner

**Monday, April 4, 2022**

07:30 – 08:30 Breakfast Buffet

08:30 – 11.00 **SESSION I: METABOLITES**

 Session Chairs: Tiffany Rau (USA)

 Arindam Bose (AbiologicsB LLC, USA)

 Brigitte Gasser (BOKU, Austria)

**Valorization of renewables into bio-based chemicals using metabolically**

 **engineered microbes**

 Christoph Wittmann (Saarland University, Germany)

 **Using microbial metabolic engineering to make human milk**

 **oligosaccharides (HMO) available to the world**

 Niels Banke (Glycom, USA)

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

 Michael Koepke (Lanzatech Engineering, USA)

**Microbial engineering of new Streptomyces sp. from extreme environments for novel antibiotics, anticancer and antifungal Drugs**

Juan Asenjo (University of Chile)

11.00 - 11.30 Break

11.30 - Introduction to Plenary Lectures

**Integrated biomanufacturing with micro-modular systems for biopharmaceuticals and vaccines**

Chris Love (MIT, USA)

**Continuous culture reborn or revived?**

Charles Cooney (MIT, USA)

13.00 – 15.30 Lunch plus Networking

15.30 – 18.00 **SESSION II: THERAPEUTIC PROTEINS AND PEPTIDES**

 Session Chairs: Karen Polizzi (Imperial College London, UK)

Neil Dixon (University of Manchester, UK)

 Session Introduction

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

 Nico Callewaert (University of Gent, Belgium)

**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, USA)

Break

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

 TBA (AbSci, USA)

 **Development of new tools for enhanced IgG secretion in**

 **glycoengineered *Pichia pastoris* strains**

 Chiara Lonigro (Gent University, Belgium)

G**rowth-decoupled recombinant protein production in *Escherichia coli***

 Patrick Stargardt (Biotech NGmbH, Austria)

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

Danielle Tullman-Ereck (Northwestern University, USA)

19.00 – 20.30 Dinner

20:30 – 23:00 **POSTER SESSION I** (with social hour and dessert)

 Session Chairs: Brenda Parker (University College London, UK)

 Laura Stoffels (Syngenta, UK)

**Tuesday, April 5, 2022**

07:30 – 08:30 Breakfast Buffet

08.30 - 11.00 **SESSION III: SUSTAINABILITY**

 Session Chairs: Behnam Taidi (CentraleSupélec, France)

 David Stuckey (Imperial College, UK)

 Session Introduction

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

Behnam Taidi (CentraleSupélec, France)

**Controlling the size and linkage type of biopolymers derived from sucrose**

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

 **Biosensors and biocatalysis for biorefinery and bioremediation**

 Neil Dixon (University of Manchester, UK)

 **A biotechnological strategy for the valorization of cellulose through**

 **Levoglucosenone**

 Louis Mouterde (Agro Paris Tech, France)

 **Building a stable bacterial chassis for sustainable, economical**

 **chemicals production**

 James Allen (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 (UNISO, UNICAMP)

12.00 – 13.00 Lunch

13.00 – 14.30 Networking

14.30 - 16.45 **SESSION IV: 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)

**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)

 **Treating microbial systems engineering as an inverse**

 **function problem to enhance production of biomolecules**

 Ranjan Srivastava (University of Connecticut)

16.45 - 17.15 Break

17.15 - 18.00 **Synthetic biology for synthetic chemistry**

 Jay Keasling (University of California, Berkeley, USA)

18.00 – 18.45 **Microbial biosynthesis of complex plant-derived alkaloids**

Christina Smolke (Antheia, USA)

19.00 - 20.30 Dinner

20:30 – 23:00 **POSTER SESSION II**

Session Chairs: Brenda Parker (UCL, United Kingdom)

 Laura Stoffels (Syngenta, United Kingdom)

**Wednesday, April 6, 2022**

07:30 – 08:30 Breakfast Buffet

08.30 - 11.00 **SESSION V: CELL FREE MICROBIAL SYNTHESIS**

 Session chairs: Daniel Bracewell (University College London, UK)

 Jim Swartz (Stanford University, USA)

Session Introduction

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

Bob Kiss (Sutro Biopharma, USA)

ADDITIONAL SPEAKERS

Beatrice Melinek (University College London, UK)

Jim Swartz (Stanford University, USA)

11.15 – 12.00 Introduction of Plenary Lecture

**Plenary Lecture**

**Dynamic metabolic engineering**

 Kristala Prather (MIT, USA)

12.00 -12.45 Introduction of Plenary Lecture

 **Plenary Lecture**

**Vaccines:  Unprecedented opportunities for impact**

Rahul Singhvi (RESILIENCE, USA)

13.00 – 15.30 Lunch plus Networking

15.30 - 17.30 **WORKSHOP**

Chair: Eli Keshavarz-Moore

Session Introduction

What is the vision of the future of biomanufacturing?

 Contributors:

 Aaron Pilling (KBI Biopharm. USA)

 Vaughan Thomas (Tillingbourneconsulting, UK)

 Pall (TBC)

19:45 – 23:00 Reception, Conference Banquet and Poster Prizes

**Thursday, April 7, 2022**

07:30 – 08:30 Breakfast Buffet

08:30 **Session VI: Vaccines**

Session Chairs: Stefanie Frank (University College London, UK)

Barry Buckland (BiologicB, USA)

Session Introduction

**Developing modular, well-characterized VLP vaccines**

Jim Swartz (Stanford University, USA)

 **Development of affordable recombinant glycoconjugate vaccines in**

 **bacterial cells**

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

**Development of mRNA vaccine candidates**

Murali Muralidhara (GSK, USA)

**Towards quality control of RNA therapeutics by simultaneous detection of 5’ capping and integrity**

Karen Polizzi (Imperial College London, UK)

 **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 and drug delivery**

 **systems**

 Stefanie Frank, University College London, UK

 Introduction to Closing Plenary Lecture

 Engineering *Pichia pastoris* to make the impossible hamburger possible

 Smita Shankar (Impossible Foods, USA)

13.00- 14:00 Lunch Buffet and Departures