

13th International CeBiTec Research Conference ICRC2024

September 16th – 18th

Advances in industrial biotechnology: Prospects and challenges for the development of algal biotechnology

Center for Cognitive Interaction Technology CITEC, Inspiration 1, 33615 Bielefeld



Monday, 16.09.2024

10:00 Registration opens

13:00 – 13:15 Welcome & Opening

Olaf Kruse, Scientific Director of the Center for Biotechnology (CeBiTec, Bielefeld University, DE)

EonSeon Jin & Kyle Lauersen, Conference Chairs

Session 1

Chair: Kyle Lauersen

13:15 -13:50

Ilka Maria Axmann (Heinrich-Heine-Universität Düsseldorf, DE), *Balancing terpenoid production and pigment biosynthesis in Cyanobacteria*

13:50 – 14:15

Julie Zedler (Friedrich Schiller University Jena, DE), *50 shades of yellow: establishing betaxanthin pigment biosynthesis in cyanobacteria*

14:15 – 14:40

Stephen Rader (University of Northern British Columbia, Prince George, CA), *sisRNAs: an explanation for intron retention in the extremophilic alga Cyanidioschyzon merolae*

14:40 – 15:05

Steve Skill (Horizon Bioreactors Ltd.), *The Horizon Photo-Bioreactor - a new technology for industrial-scale extractive photo-fermentation*

Coffee Break, 15:05 – 15:30

Session 2

Chair: Julie Zedler

15:30 – 16:05

John McGowen (Arizona State University, Gilbert, US), *Outdoor, open pond cultivation of algae for biofuels and bioproducts: Perspectives from an academic algae testbed*

16:05 – 16:30

Christophe Brunet (Stazione zoologica Anton Dohrn, Naples, IT), *The diatom Odontella aurita as a new biotechnological resource*

16:30 – 16:55

Eliana Gasparotto (University of Verona, IT), *Engineering of the recently-discovered Synechococcus PCC 11901, a fast-growing cyanobacteria, for the synthesis of high added-value carotenoids*

16:55 – 17:30

Kyle Lauersen (King Abdullah University of Science and Technology, Thuwal, SA), *Algal Biotechnology in green and extreme red hosts*

17:30 – 18:50 Poster Session with beer and pretzel

19:00 Bus transfer from the CITEC to the Mercure Hotel.

Tuesday, 17.09.2024

A bus transfer from the Mercure Hotel to the CITEC will be offered at 08:15 am

9:00 – 9:15

Announcements & Introduction

Session 3

Chair: EonSeon Jin

9:15 – 9:50

Angela Falciatore (Institute de Biologie Physico-Chimique, Paris, FR), *New diatom model species and new tools for studying marine phytoplankton biology and monitoring the oceans' health*

9:50 – 10:15

Tomas Morosinotto (University of Padova, IT), *Navigating the edge between photoprotection and damage to improve photosynthetic productivity in microalgae*

10:15 – 10:40

Théo Veaudor (Photanol B.V.), *Cyanobacterial cell factory development for CO₂-based chemicals*

Coffee Break, 10:40 – 11:10

Session 4

Chair: EonSeon Jin

11:10 – 11:45

Tsuyoshi Tanaka (Tokyo University of Agriculture and Technology, JP), *Metabolic engineering of marine oleaginous microalgae for biofuel and chemical production*

11:45 – 12:10

Nicola Trevisan (Wageningen University, NL), *Exploring different intracellular pathways for monoterpene production in *Phaeodactylum tricornutum**

12:10 – 12:35

Kolos Makay (Anhalt University of Applied Sciences, Köthen, DE), *Microalgal biorefinery platform using centrifugal partition chromatography hyphenated high performance thin layer chromatography*

Lunch, 12:35 – 13:30

Session 5

Chair: Olaf Kruse

13:30 – 14:05

Adrien Burlacot (Carnegie Institution for Science, Stanford, US), *How is photosynthetic microalgal biomass production powered?*

14:05 – 14:30

Giorgio Perin (University of Padova, IT), *Functional dependence between cell types is essential to maintain metabolic homeostasis in *Anabaena* sp. PCC 7120*

14:30 – 15:05

Sarah D'Adamo (Wageningen University, NL), *From cell factory design to bio-based chemicals: The potential of *Nannochloropsis oceanica* in modern biotechnology*

Coffee Break & Poster Session, 15:05 – 16:00

Session 6

Chair: Angela Falciatore

16:00 – 16:35

Yonghua Li-Beisson (CEA Cadarache, Aix-en-Provence, FR), *Explore algal lipid metabolism for a sustainable bioeconomy and environmental remediation*

16:35 – 17:00

Carla Blot (Aix Marseille Univ., CEA, CNRS, Saint Paul-Lez-Durance, FR), *Identification and characterization of a novel lipase LIP* involved in lipid droplet turnover in Chlamydomonas*

17:00 – 17:35

Alexander Einhaus (Bielefeld University, DE), *Molecular design of C. reinhardtii as a sustainable cell factory*

17:35 – 18:00

Stéphanie Gérin (University of Liege, BE), *Efficient secretion of a true laccase by the acidophilic green microalga Chlamydomonas pitschmannii switched to alkaline pH*

A bus transfer from the CITEC to the Mercure Hotel will be offered at 18:15.

Conference Dinner, 19:30

Brauhaus "Joh. Albrecht", Hagenbruchstraße 8, 33602 Bielefeld

The walk from Mercure Hotel to the conference dinner venue takes ~18min.

Wednesday, 18.09.2024

A bus transfer from the Mercure Hotel to the CITEC will be offered at 08:15

9:00 – 9:15 Announcements & Introduction

Session 7

Chair: Attila Molnar

9:15 – 9:50

EonSeon Jin (Hanyang University, Seoul, KR), *Metabolic engineering in microalgae for pigment and bio-oil production*

9:50 – 10:15

Valentina Hurtado McCormick (CSIRO, Perth, AU), *Bioprospecting microalgae and cyanobacteria from wastewaters to produce sustainable plastics*

10:15 – 10:40

Ben Hankamer (The University of Queensland, Brisbane, AU), *Design and development of next generation light driven biotechnologies: From atomic to industrial scale*

10:40 – 11:15

Vitor Verdelho Vieira (Católica Porto Business School, Porto, PT), *Science and Technology Opportunities in algae biomass for large companies*

Coffee Break with sandwiches, 11:15 - 11:45

Session 8

Chair: Sarah D'Adamo

11:45 – 12:20

Saul Purton (University College London, GB), *Codon compression and reassignment in the *Chlamydomonas chloroplast**

12:20 – 12:45

Matteo Ballottari (University of Verona, IT), *Light and abiotic stress-induced chloroplast and cytosolic Ca²⁺ dynamics in the green alga *Chlamydomonas reinhardtii**

12:45 – 13:10

Attila Molnar (The University of Edinburgh, GB-SCT), *Enhancing single-strand templated DNA repair: Insights from *Chlamydomonas reinhardtii* for precision genome engineering*

13:10 – 13:35

Magdalena Miklaszewska (University of Vienna, AT), *Characterisation of wax synthases from *Chlamydomonas reinhardtii**

13:35 – 14:00

Federico Perozeni (University of Verona, IT), *Tuning the Calvin cycle by heterologous expression of the cyanobacterial fructose-1,6-/sedoheptulose-1,7-bisphosphatase in *C. reinhardtii**

14:00 – 14:25

Boris Zorin (Ben-Gurion University of the Negev, IL), *Enhanced cyanophycin accumulation in the diazotrophic cyanobacterium *Nostoc sp. PCC 7120* through random mutagenesis and tailored (informed) selection under varying phosphorus availability*

14:30 – 14:45

EonSeon Jin and Kyle Lauersen – Concluding remarks & farewell