

SCIENTIFIC PROGRAM

SESSION LECTURE

No.9

Synthetic Biology and Advanced Biotechnology
Room: Swan Room 3

Co-Chairs:
Hua Xiang



Arnold J.M. Driessen



Day 2 October 20th (Sunday) 14:00 – 17:30

Time	Speaker	Title
14:00-14:30	Arnold J.M. Driessen University of Groningen, Netherlands	Genome engineering of filamentous fungi to produce bioactive compounds
14:30-15:00	Zixin Deng Shanghai Jiaotong University, China	DNA Modification by Sulfur--Fundamental Progress Pinpointed Syn-Bio Developments
15:00-15:30	Mehdi D. Davari Leibniz Institute of Plant Biochemistry, Halle (Saale), Germany	Empowering computer-assisted enzyme design with machine learning
15:30-16:00	Tea Break	
16:00-16:30	Chenli Liu Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences	Quantitative synthetic biology: build to learn to build
16:30-17:00	Huimin Zhao University of Illinois, USA	Synthetic Biology 2.0: the Dawn of a New Era.
17:00-17:30	Hua Xiang Institute of Microbiology, Chinese Academy of Sciences, China	Harnessing endogenous CRISPR-Cas and associated systems for Synthetic Biology of extremophiles



Arnold J.M. Driessen

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Filamentous fungi are a rich reservoir of bioactive compounds that are applied from crop protection and medicine. Many biosynthetic gene clusters (BGC) are transcriptionally silent under laboratory conditions. Using CRISPR/cas9-based techniques and developed a collection of genetic parts for synthetic biology approaches, a *Penicillium rubens* strain with an industrial background was developed that was used as a production host for bioactive molecule.



Zixin Deng

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Professor of Microbiology and Chemical Biology at Shanghai Jiaotong/Wuhan University, the current President of Globe Industrial Microbiology (GIM), and honorary President of Chinese Society for Microbiology. He is a Member of Chinese Academy of Sciences, a Fellow of the World Academy of Sciences (formally the Third World Academy of Sciences, TWAS), Fellow of the American Academy of Microbiology, and a Fellow of the Royal Society of Chemistry. His major interest is on Streptomyces genetics, biochemistry molecular biology and synthetic biology of antibiotic biosynthesis, and is a pioneer for the discovery of DNA backbone modification by sulfur (phosphorothiolation).



Mehdi D. Davari

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Dr. Davari's research group is dedicated to unravelling the intricate interplay between protein sequence, structure, dynamics, and function, employing computational techniques. With a focus on multiscale simulations and the integration of artificial intelligence methodologies, the group delves into the realms of protein and enzyme mining, discovery, and design. The group strives to uncover molecular insights that pave the way for breakthroughs in understanding biological mechanisms and innovations in enzyme catalysis and design.



Chenli Liu

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Prof. Chenli Liu is a Pengcheng Distinguished Professor and Acting President of Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences, the Founding Directors of National Industrial Innovation Center for Biomanufacturing (NIICB) and Shenzhen Institute of Synthetic Biology (iSynBio). Liu also serves as the Executive Editor-in-Chief of Synthetic Biology Journal (Chinese). His lab is focused on bringing together concepts and approaches from synthetic biology together with quantitative biology. Current research interest includes synthesizing a cellular life from bottom up and engineering bacteria for solid tumor therapy.



Huimin Zhao

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Dr. Zhao is professor at the University of Illinois at Urbana-Champaign, director of NSF AI Institute for Molecule Synthesis (moleculemaker.org), and Editor in Chief of ACS Synthetic Biology. His primary research interests are in the development and applications of synthetic biology, machine learning, and laboratory automation tools to address society's most daunting challenges in health, energy, and sustainability.



Hua Xiang

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Prof. Dr. Hua Xiang serves as the Director of the State Key Laboratory of Microbial Resources at the Institute of Microbiology, Chinese Academy of Sciences (CAS), and also as the Director-General of the Tianjin Institute of Industrial Biotechnology, CAS. He was the first to report the RNA-type safeguard system (CreTA) within the CRISPR-Cas system. He is dedicated to exploring functional elements from microbial resources for novel biotechnologies such as gene editing and regulation tools, as well as constructing extremophile microbial cell factories for the production of biodegradable plastics.