BioDesign Research

6th IBDRC

INTERNATIONAL BIODESIGN RESEARCH CONFERENCE

Conference Manual

SANYA·CHINA

– 07-10 NOV 2025 –

Organizers

China Agricultural University
Nanjing Agricultural University
BioDesign Research
Yazhou Bay National Laboratory
College of Agronomy and Biotechnology, China Agricultural University
Sanya Institute, China Agricultural University
Sanya Institute, Nanjing Agricultural University
Academy for Advanced Interdisciplinary Studies, Nanjing Agricultural University
Yazhou Bay Science and Technology City
Hubei University
The College of Chemistry and Chemical Engineering at Xiamen University
The Key Laboratory for Synthetic Biotechnology of Xiamen City
ZJU-Hangzhou Global Scientific and Technological Innovation Center
Agricultural Genomics Institute at Shenzhen, Chinese Academy of Agricultural Sciences
Huazhong Agricultural University

Chairs

Jinsheng Lai, China Agricultural University
Kexuan Tang, Yazhou Bay National Laboratory
Shuhong Zhao, Yazhou Bay National Laboratory
Xianen Zhang, Institute of Biophysics, Chinese Academy of Sciences

Scientific Committee

Zongming Cheng, Nanjing Agricultural University
Zhihua Jiang, Washington State University
Shihui Yang, Hubei University
Weibin Song, China Agricultural University
Haiming Zhao, China Agricultural University
Baojian Chen, China Agricultural University
Yongjin Zhou, Dalian Institute of Chemical Physics, CAS
Mingfeng Cao, Xiamen University
Jiazhang Lian, Zhejiang University
Jianbin Yan, Agricultural Genomics Institute at Shenzhen, CAAS
Yong Li, Huazhong Agricultural University
Ping Wei, Shenzhen Institute of Advanced Technology, CAS
Yongqin Lv, Beijing University of Chemical Technology
Xuefei Li, Shenzhen Institute of Advanced Technology, CAS
Haoran Yu, Zhejiang University

Sponsors

Program Overview

Nov. 7	Nov. 8	Nov. 9			Nov. 10
Hotel Lobby 14:00-21:00 **Registration**	Yazhou Hall 1st Floor 9:00-9:30 **Opening Ceremony** 9:20-12:10 **Keynotes**	Yazhou Hall 1st Floor 9:00-12:15 **Session 1** **Plant BioDesign**	Fushan Hall 1st Floor 9:00-12:20 **Session 2** **Animal BioDesign**	Aoshan Hall 2nd Floor 9:00-12:20 **Session 3** **Microbial Synthetic Biology**	**Departure**
	Yazhou Hall 1st Floor 14:00-16:50 **Keynotes** 16:50-17:20 **Editorial Board Meeting of *BioDesign Research***	Yazhou Hall 1st Floor 14:00-17:20 **Session 4** **Pharmaceutical BioDesign**	Fushan Hall 1st Floor 14:00-17:30 **Session 5** **Synthetic Biology Common Technologies**	Aoshan Hall 2nd Floor 14:00-17:10 **Session 6** **De novo BioDesign**	

Nov. 7

Hotel Lobby

14:00-21:00	**Registration**

Nov. 8

Yazhou Hall, 1st Floor
1 楼崖州厅

9:00	**Opening Ceremony**
	Moderator: **Jinsheng Lai (赖锦盛)** China Agricultural University
9:20	**Kexuan Tang (唐克轩)** Yazhou Bay National Laboratory Synthetic biotechnology breeding for plant natural products
9:50	**Gabor Balazsi** Stony Brook University, State University of New York SynBio + Evolution Against Chemoresistant Cancer
10:20	**Tea Break**
	Moderator: **Shihui Yang (杨世辉)** Hubei University
10:40	**Jinsheng Lai (赖锦盛)** China Agricultural University Data mining, optimization and AI-assisted design of CRISPR nuclease for genome editing
11:10	**Zhihua Jiang (姜志华)** Washington State University RNAs Are People Too
11:40	**Jack Wang** College of Natural Resources NC State University Lignocellulosic BioDesign for More Sustainable Production of Biomaterials
12:10	**Lunch & Break**
	Moderator: **Zhihua Jiang (姜志华)** Washington State University
14:00	**Hongwu Ma (马红武)** Tianjin Institute of Industrial Biotechnology, CAS AI assited protein and cell design
14:30	**Jean Marie FRANCOIS** Toulouse Biotechnology Institute White biotechnology in 21th Century: Challenges to provide a success alternative to petrochemical process and meet BioEconomy expectation
15:00	**Baojun Wang (王宝俊)** Zhejiang University Engineering a two-step bacterial secretion system for enhanced delivery of nanobody-based biologics and in situ immunotherapies
15:30	**Tea Break**
	Moderator: **Kexuan Tang (唐克轩)** Yazhou Bay National Laboratory
15:50	**Qingsheng Qi (祁庆生)** Shandong University Design of cell factory based on whole biomanufacture process
16:20	**Xiaolong Wang (王小龙)** Northwest A&F University CRISPR-mediated design breeding in sheep and goats
16:50	**Zhihua Jiang (姜志华), Zong-Ming (Max) Cheng (程宗明), Shihui Yang (杨世辉)** Editorial Board Meeting of *BioDesign Research*
17:20	**Dinner**

Nov. 9

Session 1	Plant BioDesign (植物生物设计) Session Chairs: Jinsheng Lai (赖锦盛)、Jianbiin Yan (闫建斌)	Yazhou Hall, 1st Floor 1 楼崖州厅
	Moderator: **Jinsheng Lai (赖锦盛)** China Agricultural University	
9:00	**Hongting Tang (汤红婷)** Zhongshan University Designing microbial cell factories for efficient production of plant-derived metabolites	
9:25	**Xinxin Xu (徐欣欣)** Institute of Biotechnology, CAAS Biosynthesis of artificial starch and microbial protein from corn stover	
9:50	**Leqing Qu (曲乐庆)** Institute of Botany, CAS Design and develop of plant based anti-hypertensive peptides	
10:15	**Zhihua Zhou (周志华)** Nanjing Agricultural University Investigation and Heterologous Rebuilding of the Biosynthetic Pathways of Plant Natural Products	
10:40	**Tea Break**	
	Moderator: **Zhihua Zhou (周志华)** Nanjing Agricultural University	
11:00	**Yucheng Guo (郭玉成)** 百图生科 大模型驱动的虚拟细胞探索	
11:25	**Nan Peng (彭楠)** Huazhong Agricultural University Development and Application of Compact Gene Editors	
11:50	**Yong Wang (王勇)** Molecular Plant Excellence Innovation Center, CAS Synthetic Biology-Based Research on Bioactive Metabolites	
12:15	**Lunch & Break**	

Session 2	**Animal BioDesign Research (动物设计研究)** **Session Chairs: Shuhong Zhao (赵书红)、Yong Li (李勇)**	Fushan Hall, 1st Floor 1 楼富山厅
	Moderator: **Shuhong Zhao (赵书红)** Yazhou Bay National Laboratory	
9:00	**Yongfei Hu (胡永飞)** China Agricultural University Synthetic microbial community regulates the intestinal homeostasis and anti-infection immunity of broiler chickens	
9:30	**Erwei Zuo (左二伟)** Agricultural Genomics Institute at Shenzhen, CAAS High-Precision Base Editing Technology	
10:00	**Heng Wang (王恒)** Shandong Agricultural University Optimizing fatty acids composition in meat-like tissue derived from myogenic conversion of pig and chicken fibroblasts	
10:30	**Tea Break**	
	Moderator: **Yong Li (李勇)** Yazhou Bay National Laboratory	
10:50	**Yuwen Liu (刘毓文)** Agricultural Genomics Institute at Shenzhen, CAAS How to design superior genome for animals from the perspective of cis-regulatory elements	
11:20	**Shengsong Xie (谢胜松)** Huazhong Agricultural University AI-Driven Precision Gene Editing Technology and Its Application in Disease-Resistant Pig Breeding	
11:50	**Kun Xu (徐坤)** Northwest A&F University Eukaryotic Fanzor-ωRNA System Engineering and Goat Bioreactor Creation	
12:20	**Lunch & Break**	

Session 3	Microbial Synthetic Biology (微生物合成生物学) Session Chairs: Shihui Yang (杨世辉)、Mingfeng Cao (曹名锋)	Aoshan Hall, 2nd Floor 2 楼鳌山厅
	Moderator: **Shihui Yang (杨世辉)** Hubei University	
9:00	**Yongjin Zhou (周雍进)** Dalian Institute of Chemical Physics, CAS Overcoming the methanol toxicity of methylotrophic yeast by enhancing cellular homeostasis and DNA repair	
9:20	**Jingwen Zhou (周景文)** Jiangnan University Manufacturing Plant Natural Products by Microorganisms	
9:40	**Yingying Pu (普颖颖)** Wuhan University Functional crosstalk between bacterial aggresomes and bacterial persistence	
10:00	**Jifeng Yuan (袁吉锋)** Xiamen University Microbial synthesis of new-to-nature diols	
10:20	**Tea Break**	
	Moderator: **Mingfeng Cao(曹名锋)** Xiamen University	
10:40	**Chengpeng Fan (范成鹏)** Wuhan University AF3 and structural biology	
11:00	**Rongming Liu (刘嵘明)** Dalian University of Technology The construction and application of a precise genome editing toolkit for industrial microorganisms	
11:20	**Qiaoning He (何桥宁)** Hubei University Pipeline and Insulated Dual-Reporter System to Predict and Quantify Strong Terminators from RNA-Seq Datasets for Metabolic Engineering	
11:40	**Xiongfeng Dai (戴雄风)** Central China Normal University Systematic Modulation of Bacterial Resource Allocation by Perturbing RNA polymerase Availability via Synthetic Transcriptional Switches	
12:00	**Xia Wang (王霞)** Hubei University Mining and Engineering of Xylose Isomerase and Its Application in developing Zymomonas mobilis strain for Efficient Xylose Utilization	
12:20	**Lunch & Break**	

Session 4	**Pharmaceutical BioDesign (医药生物设计研究)** **Session Chairs: Jiazhang Lian (连佳长)、Ping Wei (魏平)**	Yazhou Hall, 1st Floor 1 楼崖州厅
	Moderator: **Ping Wei (魏平)** Institute of Synthetic Biology, Shenzhen Institute of Advanced Technology, CAS	
14:00	**Velia Siciliano** Italian Institute of Technology Synthetic Biology in mammalian cells for improved cell engineering for biomedicine	
14:20	**Jie Sun (孙洁)** Zhejiang University Precise Engineering of Immune Cells	
14:40	**Zhuobin Liang (梁卓斌)** Shenzhen Bay Laboratory CAT-BLAST: Engineered Bacteria for Robust Targeting and Elimination of Cancer-Associated Fibroblasts	
15:20	**Yunzi Luo (罗云孜)** Tianjin University Synthetic Biology Empowering the Creation of Natural and Unnatural Products	
15:40	**Tea Break**	
	Moderator: **Jiazhang Lian (连佳长)** Zhejiang University	
16:00	**Zehua Bao (鲍泽华)** Zhejiang University Engineering CRISPR systems for genomic sequence diversification and transcriptional activation	
16:20	**Wei Yang (杨为)** Shenzhen Medical Academy of Research and Translation Computational Protein Design for Immunotherapy and Immune Modulation	
16:40	**Jia Wang (王佳)** Beijing University of Chemical Technology Construction of Microbial Cell Factories for Aromatic Compound Production	
17:00	**Ningzi Guan (管宁子)** East China Normal University Intelligent microbial cell programming design and novel strategies for disease therapy	
17:20	**Dinner**	

Session 5	**Synthetic Biology Common Technologies (合成生物学共性技术)** **Session Chairs: Xianen Zhang (张先恩)、Yongjin Zhou (周雍进)**	Fushan Hall, 1st Floor 1 楼富山厅
	Moderator: **Yongjin Zhou (周雍进)** Dalian Institute of Chemical Physics, CAS	
14:00	**Xinqing Zhao (赵心清)** Shanghai Jiao Tong University Multi-dimensional system design and optimization of nonconventional yeasts for efficient biochemical production	
14:25	**Yang Zhang (张阳)** Xiamen University Biosensor-guided indexing of genome evolution (BRIDGE) for boosting microbial chemical synthesis	
14:45	**Xiaofeng Yang (杨晓锋)** South China University of Technology Novel approaches for Protein (Enzyme) Mining, Preparation, and Immobilization	
15:05	**Hu Zhu (朱虎)** Fujian Normal University High-Efficiency Production and Use of Welan Gum	
15:25	**Jia Zhang (张佳)** Qingdao Institute of Bioenergy and Bioprocess Technology, CAS Label-free, non-invasive, single-cell-resolved monitoring of polyhydroxyalkanoates (PHA) production by ramanomics	
15:40	**Tea Break**	
	Moderator: **Xinqing Zhao (赵心清)** Shanghai Jiao Tong University	
16:05	**Mingtao Huang (黄明涛)** South China University of Technology Systems analysis and design optimization of protein secretion in *Saccharomyces cerevisiae*	
16:30	**Haobo Han (韩浩博)** Jilin University Targeted Gene Therapy for Rheumatoid Arthritis through Macrophage-Specific Modulation	
16:50	**Qian Li (李倩)** Hubei University Identification, Engineering, and Application of Fungal Cytochrome P450 Enzyme CYP68J5_fg in Steroid Synthesis	
17:10	**Fei Li (李飞)** Tianjin Institute of Industrial Biotechnology, CAS Installing a green engine for light-powered biosynthesis	
17:30	**Dinner**	

Session 6	De Novo BioDesign (从头设计) Session Chairs: Xuefei Li (李雪飞)、Haoran Yu (于浩然)	Aoshan Hall, 2nd Floor 2 楼鳌山厅
	Moderator: **Xuefei Li (李雪飞)** Institute of Synthetic Biology, Shenzhen Institute of Advanced Technology, CAS	
14:00	**Chengxin Zhang (张成辛)** Shenzhen Institute of Advanced Technology, CAS Proteome-wide Function Annotation by Artificial Intelligence	
14:30	**Fang Bai (白芳)** ShanghaiTech University AI-Driven Strategies for Lead Compound Discovery: From Structure-Based Views to Phenotypic Approaches	
14:50	**Long Qian (钱珑)** Peking University Bio-Digital convergence	
15:10	**Xinchen Lü (吕莘辰)** Westlake University Computational design of a high-precision mitochondrial DNA cytosine base editor	
15:30	**Tea Break**	
	Moderator:**Haoran Yu (于浩然)** Zhejiang University	
15:50	**Yu Wang (王钰)** Tianjin Institute of Industrial Biotechnology, CAS A synthetic biology toolkit for designing and enhancing methanol-based biosynthesis of Bacillus methanolicus	
16:10	**Haoran Yu (于浩然)** Zhejiang University AI-Guided Enzyme Design	
16:30	**Zhi Zhou (周志)** Jiangnan University Design and evolution of artificial enzyme with in-situ biosynthesized non-canonical amino acids	
16:50	**Ziwei Luo (罗自卫)** Northwest A&F University Design and Construction of Cell Factories for Aromatic Chemicals	
17:10	**Dinner**	

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崖州宴会厅3
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161M²
崖州宴会厅1
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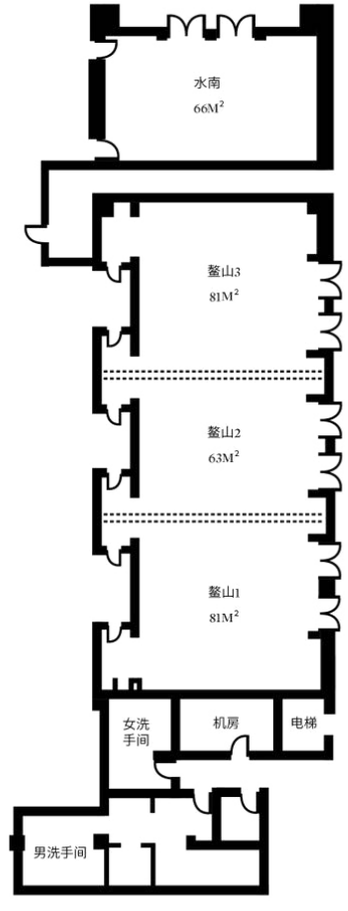
新娘房
女洗手间
机房
电梯
男洗手间

一层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机房
电梯
男洗手间

二层

ORGANIZERS:

China Agricultural University
Nanjing Agricultural University
BioDesign Research