

Biochemical and Molecular Engineering XXIII: Accelerating Biotech Solutions to aid a Changing World

POSTER PRESENTATIONS

as of 8 July 2024

<u>Poster</u>	<u>Title</u>
1	Engineering Genetic Tools to Control Individual Microbes and Microbiota without Antibiotic Resistance Genes at a Single Strain Level Tae Seok Moon, Washington University in St. Louis, USA
2	Analyzing the potential of toluene <i>n</i>-xylene monooxygenase in drug metabolism via protein engineering Gonul Vardar-Schara, California State University Stanislaus, USA
3	Cell culture optimization through metabolic modeling and metabolomics in cellular agriculture. Pomaikaimaikalani Yamaguchi, Tufts University, USA
4	Advanced manufacturing controls using process analytical technologies (PAT) to enable robust and productive drug substance processes Kyle McElearney, Amgen, USA
5	Quantum Mechanical Modeling of Enzyme Promiscuity: Application to Carboligases Geoffrey Bonnanzio, Northwestern University, USA
6	Engineering synthetic microbial consortia for carbon-efficient waste to chemicals production Shane Orgnero, University of Toronto, Canada
7	Influence of Endocytosis on RNA-Containing Complex Activity and Specificity S. Patrick Walton, Michigan State University, USA
8	Unleashing the potential of <i>Aureobasidium pullulans</i> for biosurfactant production by strain and process engineering Marie R.E. Dielentheis-Frenken, Institute of Applied Microbiology, RWTH Aachen University, Germany
9	Multichromatic optogenetic control of microbial co-culture populations for chemical production Jaewan Jang, Princeton University, USA
10	Systems biology of isobutanol production in <i>Saccharomyces cerevisiae</i> reveals a general mechanism to boost chemical production, involving chromatin, mitochondria, and ATP level perturbations Jose Montano Lopez, Princeton University, USA

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11	Closed loop control of microbial population ratio of optogenetically controlled yeast-yeast consortia Saurabh Malani, Princeton University, USA
12	SialMAX: Maximizing Biopharmaceutical α-2,6-Sialylation in CHO Cells Cristina Abascal Ruiz, University College Dublin, Ireland
13	Accelerated, low ecological footprint, manufacturing platform for continuous production of biotechnological products Natalia Danielewicz, enGenes Biotech, Austria
14	Global Proteomics and Resource Allocation Modeling Reveals Thermodynamic Bottlenecks and Highlights Genetic and Metabolic Interventions for c. Thermocellum Wheaton Schroeder, the Pennsylvania State University, USA
15	CatPred: A comprehensive framework for deep learning in vitro enzyme kinetic parameters k_{cat}, K_{M} and K_{I} Veda Sheers Boorla, The Pennsylvania State University, USA
16	High-efficiency PET degradation with a two-enzyme system immobilized on magnetic nanoparticles Qing Sun, Texas A&M University, USA
17	Parameterizing large-scale kinetic models using an improved framework Patrick Suthers, The Pennsylvania State University, USA
18	Bottom-up reconstruction of synthetic pyrenoids unravels the evolution and mechanisms of carbon concentration by EPYC1 peptides Andreas Markus Kuffner, Max Planck Institute for Terrestrial Microbiology, Germany
19	TBA
20	Novel high-throughput screens for protein assembly reveal essential molecular interactions in bacterial organelle assembly Carolyn Mills, University of California, Santa Barbara, USA
21	Acetate availability determines the trade-off between growth and fatty acid chain length in chain-elongating bacteria Ian Gois, University of Toronto, Canada
22	Model-Driven Transfection Process Development Ana Luiza Pinto Queiroz, APC LTD, Ireland

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23	Progressive Protein Engineering for Rapid Discovery of a Detergent Protease with Enhanced Sustainability and Stain Cleaning Benefits Thomas Graycar, International Flavors & Fragrances, USA
24	Development of automatic and miniaturised continuous fermentation system for improvement of microbial strains Krittanaï Trisakulwattana, University College London, UK
25	Enhancing the growth capability of a novel industrial biotechnology host, <i>Halomonas</i> sp. under oxygen limitation Waritthorn Thanakarn, Department of Biochemical Engineering, University College London, UK
26	Genome-scale metabolic models for a synthetic soil microbial community as a path for understanding community functioning Omar Keshk, EPFL, Switzerland
27	Scalable stem cell-based platform to produce tissue specific extracellular vesicles (EVs) Rachel Moen, Vanderbilt University, USA
28	Enhancing monoclonal antibody production through targeted metabolic engineering of industrial CHO cells Kevin Ruiz-Márquez, Vanderbilt University, USA
29	Metabolite-regulated CRISPR activation for dynamic transcriptional control Anthony Stohr, University of Delaware, USA
30	Polyethylene deconstruction initiated by LDPE-oxidases from yellow mealworm gut microbiota Ross Klauer, University of Delaware, USA
31	Developing light-driven energy systems for cell-free protein synthesis Blake Rasor, Max Planck Institute for Terrestrial Microbiology, Germany
32	Enhancing Human Cell Line Engineering via Cell Line Specific Sequence Alignment Eva Price, University College London, Oxford Biomedica, UK
33	The role of IRE1 under elevated levels of palmitate on DNA damage repair and the development of chemotolerant breast cancer cells Kevin Chen, Michigan State University, USA

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Andrea Rayat, University College London, UK |
| 35 | Engineered Enzymes Enable Scalable and Sustainable Nucleic Acid Synthesis
Zhe Rui, Codexis, USA |
| 36 | Altering Degradation Pathways in Cells Under ER Stress Improves Recombinant Protein Production
R. Chauncey Splichal, Michigan State University, USA |
| 37 | Nucleic acid exchange between <i>Clostridium</i> spp. revealed through PacBio sequencing and rRNA-fluorescence in situ hybridization
John Hill, University of Delaware, USA |
| 38 | Harnessing syntrophic microbial cocultures for carbon-neutral, supratheoretical isopropanol production
Sofia Capece, University of Delaware, USA |
| 39 | Methanotrophic Culture Adaptation to Build an Efficient Electrochemical Carbon Dioxide Valorization Process
Kent Rapp, Johns Hopkins University, USA |
| 40 | ADVANCED PRODUCTION OF L-HISTIDINE AND ITS DERIVATIVES USING CUSTOMIZED CORYNEBACTERIUM GLUTAMICUM
Sung Ok Han, Korea University, South Korea |
| 41 | Tautomer-informed biochemical Reaction Prediction for Pathway Design
Konrad Lagoda, EPFL, Switzerland |
| 42 | In silico functional comparison of the leaf microbiome by reducing metabolic complexity
Evangelia Vayena, EPFL, Switzerland |
| 43 | Genetic basis of dicarboxylic acid metabolism in four <i>γ</i>-proteobacteria
Allison Pearson, University of California, Berkeley; Joint BioEnergy Institute, USA |
| 44 | Engineering Autonucleolytic Host Cells for Improved Bioprocessing of Gene Therapy Viral Vectors
Darren Nesbeth, University College London, UK |
| 45 | Robust cyanophycin production critically limited by lackluster enzyme expression and native regulatory networks
Kevin Fitzgerald, Northwestern University, USA |

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47	Polyketide synthase engineering as a tool for the rapid design and production of novel polyhydroxyalkanoates Leah S. Keiser, UC Berkeley, USA
49	Acetate as a Platform for Carbon-Negative Production of Oleochemicals Shivangi Mishra, University of Wisconsin-Madison, USA
49	Engineering of enzymatic cascades using CodeEvolver® Oscar Alvizo, Codexis, USA
50	In Vivo Transfer of Biological Nitrenes Isaac Donnell, UC Berkeley, USA
51	Engineering Saccharopolyspora erythraea for heterologous natural product discovery and production Justin Baerwald, UC-Berkeley, Lawrence Berkeley National Lab, USA
52	Engineering enzymes for green manufacturing of noncanonical amino acids Hannah Bachmeier, Aralez Bio, USA
53	Rumen-inspired synthetic consortia stably convert lignocellulose to butyrate and hexanoate Elaina Blair, University of California, Santa Barbara, USA
54	Elucidating Cancer Metabolism With Large-Scale Kinetic Modeling Ilias Toumpe, École polytechnique fédérale de Lausanne, Switzerland
55	Spatiotemporal modeling of a synthetic microbial community during colony expansion Asli Sahin, EPFL, Switzerland
56	A systems biology approach for the parallel generation of multiple condition-specific genome-scale metabolic models by integrating relative multi-omics data David Liaskos, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
57	Computational modeling of host-parasite metabolic interactions to guide host-directed therapies Denis Alain Henri Lucien Joly, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
58	Engineering Cyanobacteria for Improved Phosphorus Uptake from Wastewater Ted Chavkin, University of Wisconsin Madison, USA

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59	Towards Upcycling Waste-Stream Feedstocks into Value-Added Chemicals Using Genetically Engineered Yeasts Mohamed Nasr, University of Toronto, Canada
60	Engineering a molecular ratchet protein biosensor for affinity and specificity to novel small molecule ligands through computational modeling and design Alison Leonard, University of Colorado Boulder, USA
61	Reseeding and cryopreservation of cardiomyocyte progenitors during human pluripotent stem cell differentiation increases cardiomyocyte purity Austin Feeney, University of Wisconsin-Madison, USA
62	Developing a cell-free protein expression platform for anaerobic gut fungi Janelle Arnold, University of California, Santa Barbara, USA
63	Electro-fermentation: methodology and insights Kenneth F. Reardon, Colorado State University, USA
64	Bacterial Cellulose Esters as Highly Effective Additives for Bioplastics and Their Impact on Properties and Biodegradation Byoung-In Sang, Hanyang University, South Korea
65	Large-scale kinetic modeling of metabolic networks using stratified sampling of neural networks Subham Choudhury, EPFL, Switzerland
66	Simplifying mRNA vaccine manufacturing by using immobilised enzymes during <i>in vitro</i> transcription reactions Georgia Taylor, University College London, UK
67	Sugar, Spice, and Everything Nice: Directed Evolution of Glucose-Dependent Enzymes via Growth Complementation of Glucose Non-Utilizing <i>E. coli</i> Chiagoziem Ngwadam, Rice University, USA
68	Harnessing the Oleaginous Yeast <i>Yarrowia lipolytica</i> for Upcycling of Depolymerized Plastic Waste Cong Trinh, University of Tennessee, Knoxville, USA
69	2-Ketoacid decarboxylase engineering to improve isobutanol production in <i>Saccharomyces cerevisiae</i> Joshua Dietrich, University of Wisconsin-Madison, USA
70	Selection of Mutants that Enhance Oil Recovery from a Nonmodel Oleaginous Yeast

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Mark Blenner, University of Delaware, USA

- 71 **Engineering MS2 bacteriophage virus-like particle for targeted drug delivery into hepatocellular carcinoma.**

Daniel de Castro Assumpcao, Northwestern University, USA

- 72 **Functional genomic screening of non-conventional yeast hosts enabled by highly active genome-wide CRISPR-Cas9 libraries**

Aida Tafrihi, University of California, Riverside, USA

- 73 **Discovering novel enzymes for lignocellulose breakdown in anaerobic gut fungi**

Shiyang Jin, University of California, Santa Barbara, USA

- 74 **Characterization and engineering of non-model fungal and algal systems for bioproduction, biodegradation, and biomaterials applications**

Hugh Purdy, University of California, Santa Barbara, USA

- 75 **Genetic Engineering Strategies for Early Branching Anaerobic Gut Fungi**

Sarah Seagrave, University of California, Santa Barbara, USA