

Program

Biochemical and Molecular Engineering XXIV

Harnessing the Power of Community for a Stronger Biotech Future

July 19 – 23, 2026

Puerto Rico

Conference Chairs

Mark Blenner, University of Delaware, USA

Amanda Lewis, Moderna, USA

Danielle Tullman-Ercek, Northwestern University, USA



Engineering
Conferences
International

Engineering Conferences International

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Previous conferences in this series:

Biochemical Engineering

August 20-25, 1978

New England College, Henniker, New Hampshire

Conference Chairs:

W. R. Vieth, Rutgers University

A. Constantinides, Rutgers University

Biochemical Engineering II

July 13-18, 1980

New England College, Henniker, New Hampshire

Conference Chair:

A. Constantinides, Rutgers University

Biochemical Engineering III

Sept. 19-24, 1982

Santa Barbara, California

Conference Chair:

K. Venkatsubramanian, H.J. Heinz Co. and Rutgers University

Biochemical Engineering IV

Sept. 30 - Oct. 5, 1984

Galway, Ireland

Conference Chairs:

H. Lim, Purdue University

Patrick Fottrell, University of Galway

Biochemical Engineering V

July 27-Aug 1, 1986

New England College, Henniker, New Hampshire

Conference Chair:

W.A. Weigand, Illinois Institute Of Technology

Biochemical Engineering VI

October 2-7, 1989

Santa Barbara, California

Conference Chair:

Walter E. Goldstein, ESCA Genetic Corp.

Biochemical Engineering VII

March 3-8, 1991

Santa Barbara, California

Conference Chairs:

H. Pedersen, Rutgers University

D. DiBiasio, Worcester Polytechnic

Biochemical Engineering VIII

July 11-16, 1993

Princeton, New Jersey

Conference Chairs:

Subhash Karkare, Amgen

Robert M. Kelly, North Carolina State University

Previous conferences in this series:

Biochemical Engineering IX

May 21-26, 1995

Davos, Switzerland

Conference Chairs:

J. Bailey, ETH

D. Zabriskie, SmithKline Beecham

Biochemical Engineering X

May 18-23, 1997

Kananaskis, Alberta, Canada

Conference Chairs:

W-S. Hu, University of Minnesota

J. Swartz, Genentech

Biochemical Engineering XI

July 25-30, 1999

Salt Lake City, Utah

Conference Chairs:

George Georgiou, University of Texas

Steven Lee, Merck & Co., Inc.

Biochemical Engineering XII

June 10-15, 2001

Rohnert Park, California

Conference Chairs:

Doug Clark, University of California-Berkeley

Jay Keasling, University of California-Berkeley

David Robinson, Merck

Biochemical Engineering XIII

July 19-23, 2003

Boulder, Colorado

Conference Chairs:

Eleftherios Terry Papoutsakis, Northwestern University

Weichang Zhou, Protein Design Labs

Biochemical Engineering XIV

July 10-14, 2005

Harrison Hot Springs, B.C., Canada

Conference Chairs:

William Bentley, University of Maryland

Hendrik J. Meerman, Genencor International, Inc.

Mike Betenbaugh, Johns Hopkins University

Vijay Yabannavar, Chiron

Biochemical Engineering XV

July 15-19, 2007

Quebec City, Quebec, Canada

Conference Chairs:

M. Betenbaugh, Johns Hopkins University

V. Yabannavar, Trubion Pharmaceuticals

A. Robinson, University of Delaware

E. Schaefer, BMS

Previous conferences in this series:

Biochemical Engineering XVI

July 5-9, 2009

Burlington, Vermont, USA

Conference Chairs:

A. Robinson, University of Delaware

E. Schaefer, BMS

Biochemical Engineering XVII

June 26-30, 2011

Seattle, Washington, USA

Conference Chairs:

F. Baneyz, University of Washington

C. Maranas, Penn State University

B. Junker, Merck Research

Biochemical Engineering XVIII

June 16-20, 2013

Beijing, China

Conference Chairs:

David Robinson, Merck

Tianwei Tan, Beijing University of Chemical Technology

Huimin Zhao, University of Illinois at Urbana-Champaign

Biochemical Engineering XIX

July 12-16, 2015

Puerto Vallarta, Mexico

Conference Chairs:

Theresa Good, National Science Foundation

Gargi Seth, Intas Pharmaceuticals Ltd.

Biochemical Engineering XX

July 16-20, 2017

Newport Beach, CA, USA

Conference Chairs:

Wilfred Chen, University of Delaware, USA

Nicole Borth, Universität für Bodenkultur, Vienna, Austria

Stefanos Grammatikos, UCB Pharma, Belgium

Biochemical Engineering XXI

July 14-18, 2019

Mont Tremblant, Quebec, Canada

Conference Chairs:

Christina Chan, Michigan State University, USA

Mattheos Koffas, Rensselaer Polytechnic Institute, USA

Steffen Schaffer, Evonik Industries, Germany

Rashmi Kshirsagar, Biogen, USA

Previous conferences in this series:

Biochemical and Molecular Engineering XXII:

The Dawn of a New Era

June 26 – 30, 2022

Cancun, Mexico

Conference Chairs:

Michael Jewett, Northwestern University

Kristala Prather, MIT

Michael Köpke, LanzaTech

Diane Hatton, AstraZeneca

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

July 21 – 25, 2024

Dublin, Ireland

Conference Chairs:

Michelle O'Malley, University of California at Santa Barbara

Brian Pfleger, University of Wisconsin

Varnika Roy, GSK

Amgen BME Award Winner

Kristala L. J. Prather



Kristala L. J. Prather is the Arthur D. Little Professor and Department Head in the Department of Chemical Engineering at the Massachusetts Institute of Technology. She obtained a Bachelor of Science degree in chemical engineering from MIT in 1994, and a Ph.D. degree from the University of California, Berkeley, in 1999. At Berkeley, she worked under the supervision of Prof. Jay D. Keasling on the development of expression vectors for metabolic engineering. Prof. Prather joined the faculty of MIT after four years in BioProcess Research and Development at Merck Research Labs (Rahway, NJ), first as a Senior Research Biochemical Engineer and then as a Research Fellow. While at Merck, she worked on projects in the areas of biocatalysis for small molecule transformations, high-yield production of plasmids as DNA vaccines, and mammalian cell line development for production of therapeutic proteins.

Prof. Prather is internationally recognized for pioneering contributions to metabolic engineering and synthetic biology that have fundamentally advanced the design of microbial chemical factories. Her research introduced transformative concepts in dynamic metabolic control, including the development of “metabolite valve” technologies that autonomously regulate cellular metabolism to balance growth and production phases, significantly improving pathway productivity and establishing a new paradigm for engineered bioprocesses. She also pioneered retrobiosynthetic pathway design approaches that enabled the first heterologous biosynthetic production of glucaric acid in *E. coli*, work that became a foundational example of de novo pathway engineering and later led to commercial translation through Kalion, Inc.

Over the course of her career, Prof. Prather has developed broadly applicable technologies spanning quorum-sensing–based autonomous regulation systems, modular biosynthetic pathway engineering, CRISPR-based genome editing tools, biosensors, and scalable bioprocess innovations for sustainable chemical production. Her work has enabled microbial synthesis of hydroxyacids, gasoline-range alkanes, terpenoids, aromatic aldehydes, and polymer precursors, while also advancing tools that integrate metabolic engineering with process design and industrial translation.

Prather is the recipient of an Office of Naval Research Young Investigator Award (2005), a Technology Review “TR35” Young Innovator Award (2007), a National Science Foundation CAREER Award (2010), the Biochemical Engineering Journal Young Investigator Award (2011), the Charles Thom Award of the Society for Industrial Microbiology and Biotechnology (2017), and the Andreas Acrivos Award for Professional Progress in Chemical Engineering (AIChE, 2021), and the Marvin J. Johnson Award (BIOT Division, American Chemical Society, 2024). Additional honors include selection as the Van Ness Lecturer at Rensselaer Polytechnic Institute (2012), as a Fellow of the Radcliffe Institute for Advanced Study (2014-2015), the American Association for the Advancement of Science (AAAS; 2018), the American Institute for Medical and Biological Engineering (AIMBE; 2020), and the American Institute of Chemical Engineers (AIChE; 2020); and election to the National Academy of Engineering (2025). Prather has been recognized for excellence in teaching with the C. Michael Mohr Outstanding Faculty Award for Undergraduate Teaching in the Dept. of Chemical Engineering (2006, 2016), the MIT School of Engineering Junior Bose Award for Excellence in Teaching (2010), and through appointment as a MacVicar Faculty Fellow (2014), the highest honor given for undergraduate teaching at MIT.

In addition to her scientific accomplishments, Prof. Prather has played a defining leadership role in the biochemical engineering community through her service as President of the International Metabolic Engineering Society (IMES), leadership within the Engineering Biology Research Consortium (EBRC), and mentorship of a generation of leaders across academia and industry. Currently serving as Department Head of Chemical Engineering at MIT, she continues to shape the future of engineering biology through research excellence, community leadership, and an enduring commitment to mentorship and inclusion.

The Amgen Award

The Amgen Award (supported by Amgen, Inc., Thousand Oaks, CA, a leading biotechnology company with pioneering human therapeutic products) is given in memory of James E. Bailey to recognize research excellence and leadership in Biochemical and Molecular Engineering.

List of Previous Amgen Award Winners

- 1993** – James E. Bailey (ETH-Zurich)
- 1995** — Daniel I. C. Wang (MIT)
- 1997** — Michael Shuler (Cornell University)
- 1999** — Douglas Lauffenburger (MIT)
- 2001** — Harvey Blanch (University of California Berkeley)
- 2003** – -Douglas Clark (University of California Berkeley)
- 2005** – -Eleftherios (Terry) Papoutsakis (Northwestern University/University of Delaware)
- 2007** — George Georgiou (University of Texas)
- 2009** – Gregory Stephanopoulos (MIT)
- 2011** – Jens Nielsen (Chalmers University of Technology)
- 2013** – Sang Yup Lee (KAIST)
- 2015** – Wei-Shou Hu (University of Minnesota)
- 2017** – Jay Keasling (University of California Berkeley)
- 2019** – Jonathan S. Dordick (Rensselaer Polytechnic University)
- 2022** – Robert M. Kelly (North Carolina State University)
- 2024** – William E. Bentley (University of Maryland)

Conference Sponsors

Amgen

Computational and Structural Biotechnology Journal

Genentech

NIIMBL

Northwestern University Center for Synthetic Biology

Sunday, July 19, 2026

13:00 – 15:15 Conference Check-in (Rio Mar Foyer)

15:15 – 15:25 Conference Welcome (Conference Chairs)

Session 1: Harnessing the Power of Communities for a Stronger Biotech Future

Session Chairs: Bradley Biggs and Angela Chen

15:25 – 15:30 **Towards an understanding of microbial community assembly to enable improved metabolic engineering SynComs design**
Bradley Biggs, University of Michigan, USA

15:30 – 15:35 **Leveraging cross-kingdom RNA communication and nanotechnology for improved disease control**
Angela Chen, Michigan State University, USA

15:35 – 15:55 **Engineering microbial consortia for mixed plastic upcycling**
Tae Seok Moon, J. Craig Venter Institute, USA

15:55 – 16:15 **Invited Talk: Modular enzyme display in microbial consortia for efficient polymer upcycling**
Qing Sun, Texas A&M University, USA

16:15 – 16:35 **Invited Talk: Accelerating synthetic biology tools for anaerobic microbial communities**
Michelle O'Malley, University of California - Santa Barbara, USA

16:35 – 16:55 **Invited Talk: Hidden figures: Gut microbes and their enzymes that promise efficient plastics wastes deconstruction for sustainable biomanufacturing**
Kevin Solomon, University of Delaware, USA

17:00 – 18:00 **Keynote 1: Communities in Industrial Biotechnology**
From reactors to ecosystems: Lessons in deploying microbial technologies
Kirsten Benjamin, Oath, Inc., USA

18:00 – 19:30 Dinner (Marbella Garden)

19:30 – 21:30 **Poster Session 1 (Odd numbers present)**
Chairs: Carolyn Mills and Ben Woolston

Locations and Notes

- *Technical sessions will be in the Rio Mar 6.*
- *Poster Sessions will be in Rio Mar 6-10.*
- *Breakfasts and lunches will be in Caribbean Ballroom 2-3. Dinner locations are noted in the program.*
- *The ECI on site office is El Morro 1-2.*
- *Audio, still photo and video recording by any device (e.g., cameras, cell phones, laptops, PDAs, watches) is strictly prohibited during the technical sessions, unless the author and ECI have granted prior permission.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.*
- *Emergency Contact Information: Because of privacy concerns, ECI does not collect or maintain emergency contact information for conference participants. If you would like to have this information available in case of emergency, please use the reverse side of your name badge.*

Monday, July 20, 2026

- 07:00 – 08:30 Breakfast
- 08:30 – 09:30 **Keynote 2: Communities in Biopharmaceuticals**
Evolving platforms for the next generation of mRNA medicines
Shyam Subramanian, Moderna, Inc., USA
- Session 2: Discovery and Manufacturing of Biopharmaceuticals**
Session Chairs: Blaise Kimmel and Lisa Volpatti
- 09:30 – 09:35 **Generating a high-throughput platform technology for the discovery, assembly, and evaluation of immune-modulating nanobodies**
Blaise Kimmel, Ohio State University, USA
- 09:35 – 09:40 **Engineering valency in LDL-targeted IL-10 fusion proteins**
Lisa Volpatti, Northwestern University, USA
- 09:40 – 10:00 **Complete biosynthesis of penicillin g in the plant host nicotiana benthamiana**
Elizabeth Skellam, University of North Texas, USA
- 10:00 – 10:20 **Engineering the next generation of microbial production strains for biologics**
Markus Mund, Sanofi, USA
- 10:20 – 11:00 Coffee Break
- 11:00 – 11:20 **Invited Talk: Novel receptors to enhance cell immunotherapy safety and efficacy**
Johnny Blazeck, Georgia Institute of Technology, USA
- 11:20 – 11:40 **Design and directed evolution of brain-penetrant biologics**
Pete Tessier, University of Michigan, USA
- 11:40 – 12:00 **Invited Talk: Discovery and engineering of natural product biosynthetic pathways**
Yi Tang, University of California Los Angeles, USA
- 12:00 – 13:15 Lunch
- 13:15 – 15:30 **Poster Session 2 (Even numbers present)**
Chairs: Carolyn Mills and Ben Woolston
Coffee and refreshments will be served.
- Session 3: Constructing and Deconstructing Materials**
Session Chairs: Sara Molinari and Carolyn Mills
- 15:30 – 15:35 **Engineering self-assembling living materials via elastin-like polypeptide surface display in *E. coli***
Sara Molinari, University of Maryland College Park, USA
- 15:35 – 15:40 **Investigating the molecular principles governing protein recruitment to bacterial condensates**
Carolyn Mills, University of California, Santa Barbara, USA
- 15:40 – 16:00 **Invited Talk: Expression and evolution of high conductivity cytochrome nanowires**
Keith Keitz, University of Texas at Austin, USA
- 16:00 – 16:20 **Using a genetic approach to design novel mycelial materials**
Mark Marten, University of Maryland Baltimore County, USA
- 16:20 – 16:40 **Invited Talk: 3D-printed bio-hybrid systems for sustainable production of hydrogen fuel**
Anne Meyer, University of Rochester, USA

Monday, July 20, 2026 (continued)

- 16:40 – 17:00 **Invited Talk: Engineering the circular economy—Molecular precision as a catalyst for industrial disruption**
Julie Willoughby, TerraSafe, USA
- 18:00 – 19:30 Dinner (Vista Verde Gardens)
- 19:30 – 21:00 **Special Networking Trivia Night**
Host: Thomas Mansel
Come socialize with conference attendees while competing for bragging rights.

Tuesday, July 21, 2026

07:00 – 08:30	Breakfast
08:30 – 09:30	<u>Keynote 3: Communities in Academic Biotechnology</u> Synthetic biology for people and planet health Mike Jewett, Stanford University, USA <u>Session 4: Design and Applications of Biomolecular Sensors</u> Session Chairs: Cat Majors and Asher Williams
09:30 – 09:35	A split enzyme-based self-amplification system for rapid, sensitive detection of proteins and small molecules Cat Majors, Clemson University, USA
09:35 – 09:40	Engineering molecular recognition for biotechnology and therapeutic applications Asher Williams, Columbia University, USA
09:40 – 10:00	Invited Talk: Point-of-care protein sensing with minimal equipment using cell-free systems Mark Styczynski, Georgia Institute of Technology, USA
10:00 – 10:20	Invited Talk: A protein engineering platform for sustainable metal separations Ariel Furst, Massachusetts Institute of Technology, USA
10:20 – 11:00	Coffee Break
11:00 – 11:20	Invited Talk: Fluorescent based protease detection probe with logic gating capabilities Wilfred Chen, University of Delaware, USA
11:20 – 11:40	Invited Talk: Design and selection of new sensors for non-canonical amino acids Ross Thyer, Rice University, USA
11:40 – 12:00	Computational design of biosensors for diagnostics, screening tools, and controlling life Tim Whitehead, University of Colorado, USA
12:00 - 13:30	Lunch Free time / Optional Activities Dinner on your own

Wednesday, July 22, 2026

07:00 – 08:30 Breakfast

08:30 – 09:00 **Special: Bob Kelly Tribute**
Mike Betenbaugh, Johns Hopkins University, USA

Session 5: Bioproduction Innovation

Session Chair: Wheaton Schroeder

09:00 – 09:05 **Enzyme-constrained metabolic modeling of the tripartite synapse reveals how redox and lipid metabolism impacts seizures in a mouse model**
Wheaton Schroeder, Washington State University, USA

09:05 – 09:25 **Improving harvest efficiency and sustainability through integration of single-use centrifugation and chromatographic filtration**
Zach Hyde, ThermoFisher Scientific, USA

09:25 – 09:45 **Microbial rock weathering for CO₂ sequestration: Process and genetic engineering**
Neil Dalvie, Harvard Medical School, USA

09:45 – 10:05 **Leveraging fungal precision fermentation to break cost barriers and enable global access to biologics**
A. Pedro Gonçalves, VTT - Technical Research Centre of Finland

10:05 – 10:35 Coffee Break

Session 6: Discovery and Manufacturing of Biopharmaceuticals

Session Chair: Emma Chory

10:35 – 10:40 **Automated multi-objective continuous evolution**
Emma Chory, Duke University, USA

10:40 – 11:00 **Invited Talk: Programmable platelets as living devices**
Tara Deans, Georgia Institute of Technology, USA

11:00 – 11:20 **Invited Talk: Creating a niche for engineered live biotherapeutics**
Thomas Mansell, Iowa State University, USA

11:20 – 11:40 **Engineering dual expression-dependent molecular AND gates**
Ben Hackel, University of Minnesota, USA

11:40 – 12:00 **Combining aerobic and anaerobic metabolism in a single bioreactor for transformative biochemical production metrics from C₁ feedstocks**
Ben Woolston, Northeastern University, USA

12:00 – 13:00 Lunch

Session 7: Emerging Technologies and Alternative Perspectives

Session Chairs: Ashty Karim and Quentin Dudley

13:00 – 13:05 **The Karim Lab: Where synthetic biology meets process design**
Ashty Karim, Northwestern University, USA

13:05 – 13:10 **Cell-free prototyping strategies for plant metabolic engineering**
Quentin Dudley, University of Wisconsin–Madison, USA

13:10 – 13:30 **Invited Talk: The double-edged sword of DNA's extreme information density**
Albert Keung, North Carolina State University, USA

Wednesday, July 22, 2026 (continued)

- 13:30 – 13:50 **Invited Talk: Onboarding nonconventional yeasts: Developing the right host for the right product**
Eric Young, Worcester Polytechnic Institute, USA
- 13:50 – 14:10 **Electro-enhanced bioproduction: Characterization of current-consuming microbes**
Ken Reardon, Colorado State University, USA
- 14:10 – 14:30 **Development of a microdroplet-based functional genomic screening pipeline combining DNA nanoflowers and PURExpress cell-free expression**
Minyong Chen, New England Biolabs, USA
- 14:30 – 14:50 **Invited Talk: Empowering synthetic biology by AI and automation**
Huimin Zhao, University of Illinois at Urbana-Champaign, USA
- 14:50 – 15:10 **Invited Talk: Determinants of host fitness, gene expression, and genetic stability in recombinant E. coli**
Nik Nair, Tufts University, USA
- 15:10 – 15:40 Coffee Break
- Session 8: Community Building Session**
Session Chairs: Mark Blenner, Amanda Lewis, and Danielle Tullman-Ercek
- 15:40 – 16:00 **Invited Talk: Mining proteins for mining solutions**
Scott Banta, Columbia University, USA
- 16:00 – 16:20 **Invited Talk: Reprogramming PYR1 receptors for detection of PFAS “Forever Chemicals”**
Ian Wheeldon, University of California, Riverside, USA
- 16:20 – 17:00 **Invited Talk: Systematic design of auxotrophic strains and protein engineering: A combined experimental and computational effort**
Brian Pfleger, University of Wisconsin–Madison, USA
Costas Maranas, Pennsylvania State University, USA
- 17:00 – 17:10 Stretch break
- 17:10 – 18:10 **Amgen Award Lecture**
A novel platform for high-throughput analysis of polymer biodegradation
Kristala Prather, Massachusetts Institute of Technology, USA
- 18:30 – 19:30 Reception (Ocean Terrace 2)
- 19:30 – 21:30 Conference Banquet (Rio Mar 6)

Thursday, July 23, 2026

07:00 – 09:00

Breakfast

Session 9: Biochemical Production Innovations

Session Chairs: Blake Rasor and Hyeongmin Seo

09:00 – 09:05

Sustainable biomanufacturing through cell-free photosynthesis

Blake Rasor, North Carolina State University, USA

09:05 – 09:10

Accelerating design–build–test–learn cycles in synthetic microbial coculture engineering for advanced biomanufacturing

Hyeongmin Seo, University of Iowa, USA

09:10 – 09:30

Invited Talk: Enabling models to digital twins for therapeutic protein biomanufacturing & the power of data

Terry Papoutsakis, University of Delaware, USA

09:30 – 09:50

Invited Talk: Metabolites and Biomass: A New Economic and Product Architecture for Fermentation

Bryan Tracy, Superbrewed Foods, USA

09:50 – 10:10

Biosystems design of modular cells for selective biosynthesis of designer esters

Cong Trinh, University of Tennessee, USA

10:10 – 10:50

Coffee Break

10:50 – 11:10

Natural and engineered microbial platforms for the conversion of Sargassum into fuels, chemicals, and natural products

Jose Avalos, Princeton University, USA

11:10 – 11:30

Invited Talk: Interactomics-driven discovery of plant natural product biosynthetic pathways in yeast

Sijin Li, Cornell University, USA

11:30 – 11:50

Invited Talk: From code to compound: Hacking polyketide synthases for custom chemistry

Jay Keasling, University of California, Berkeley, USA

Conference close

Mark Blenner, Amanda Lewis, Danielle Tullman-Ercek

Departures

Poster Presentations

- 1 . **Cell-free prototyping strategies for plant metabolic engineering**
Quentin Dudley, University of Wisconsin-Madison, USA
- 2 . **Engineering conductive cytochrome nanowires for scalable self-powered bioelectronic materials**
Eric Szmuc, University of Texas at Austin, USA
- 3 . **Uncovering endogenous bypass mechanisms to engineer improved redox-based growth coupling in *E. coli***
Dennis Wu, UC Berkeley, USA
- 4 . **PhenoTypic: An open-source, hardware-agnostic toolkit for high-throughput phenotyping of filamentous fungi and microbes**
Alexander Nguyen, ExFAB NSF BioFoundry, USA
- 5 . **Rational and evolutionary engineering of *Saccharomyces cerevisiae* for improved agave toxicity tolerance**
Sangcheon Lee, University of California, Riverside, USA
- 6 . **Defining the mechanism of binding domain appended pet-degrading enzymes**
Shoili Banerjee, University of California, Santa Barbara, USA
- 7 . **The Karim Lab: Where synthetic biology meets process design**
Ashty Karim, Northwestern University, USA
- 8 . **Engineering valency in LDL-targeted IL-10 fusion proteins**
Lisa Volpatti, Northwestern University, USA
- 9 . **Accelerating design–build–test–learn cycles in synthetic microbial coculture engineering for advanced biomanufacturing**
Hyeongmin Seo, University of Iowa, USA
- 10 . **Leveraging cross-kingdom RNA communication and nanotechnology for improved disease control**
Angela Chen, Michigan State University, USA
- 11 . **Development and engineering of the JumpIN transposase for improving antibody titers in Chinese hamster ovary cells**
Christopher Pirner, University of Delaware, USA
- 12 . **Generating a high-throughput platform technology for the discovery, assembly, and evaluation of immune-modulating nanobodies**
Blaise Kimmel, Ohio State University, USA
- 13 . **Multifunctional polymersomes as a modular system for robust cancer immunotherapies**
Kayleigh Trumbull, Northwestern University, USA
- 14 . **Engineering self-assembling living materials via elastin-like polypeptide surface display in *E. coli***
Sara Molinari, Fischell Department of Bioengineering, University of Maryland College Park, USA
- 15 . **Sustainable biomanufacturing through cell-free photosynthesis**
Blake Rasor, North Carolina State University, USA
- 16 . **Towards an understanding of microbial community assembly to enable improved metabolic engineering SynComs design**
Bradley Biggs, University of Michigan, USA
- 17 . **A synthetic symbiotic co-culture of aerobes and anaerobes for bioproduction from C1 feedstock**
Guanyu Zhou, Northeastern University, USA

- 18 . **Boolean AND gates for orthogonal control of shared-precursor pathways in pseudomonas putida**
Johanna Kann, UC Berkeley, USA
- 19 . **Rewiring nutrient stress pathways enhances higher alcohol production and cell robustness in yeast**
Kouichi Kuroda, Kyoto Institute of Technology, Japan
- 20 . **Engineering a tunable 3D hydrogel platform to model foam cell formation and identify molecular drivers of atherosclerosis**
Ela Eames, Northwestern University, USA
- 21 . **Investigating the molecular principles governing protein recruitment to bacterial condensates**
Carolyn Mills, University of California, Santa Barbara, USA
- 22 . **Demonstrating scalable N-1 perfusion for intensified fed-batch production from research to production**
Zachary Hyde, ThermoFisher Scientific, USA
- 23 . **Melding protein design with biomaterials science for precision regenerative medicine**
Vince Kelly, University of Colorado Boulder, USA
- 24 . **Genome-scale metabolic models for a synthetic soil microbial community as a path for understanding community functioning**
Omar Keshk, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- 25 . **Modeling microbial community dynamics in well-mixed environments: From genome-scale to monod-based models**
Yigit Sibal, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- 26 . **Engineering Saccharopolyspora erythraea for natural product discovery and production**
Justin Baerwald, UC-Berkeley, USA
- 27 . **Replacing anaerobic fermentation with reverse β -oxidation enables growth-coupled adaptive evolution for enhanced fatty-alcohol production**
Bridgie Cawthon, University of California, Berkeley, USA
- 28 . **Withdrawn**
- 29 . **Engineering short prokaryotic argonaute protein for colorimetric detection of pathogenic nucleic acids**
Samiha Zaman, University of Delaware, USA
- 30 . **Novel CN bond formation from enzymatically generated nitrenes**
Isaac Donnell, UC Berkeley, USA
- 31 . **Flux directionality profiles reveal structure in metabolic solution space**
Luca Milazzo, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- 32 . **Mechanistic reconstruction of receptor-to-transcription factor signaling integrating prior knowledge and omics**
Vassily Hatzimanikatis, École Polytechnique Fédérale De Lausanne (EPFL), Switzerland
- 33 . **Valorization of lignocellulosic biomass as fodder for the cultivation of circular bioeconomy-enabling fungi**
Pedro Gonçalves, VTT Technical Research Centre of Finland, Finland
- 34 . **Expression and scale-up tech transfer to enhanced single-use fermentor**
August Wright, Thermo Fisher Scientific, USA
- 35 . **A split enzyme-based self-amplification system for rapid, sensitive detection of proteins and small molecules**
Catherine Majors, Clemson University, USA

- 36 . **AAV-ailable on demand – optimisation of an e. coli cell-free protein synthesis platform for improved production of recombinant adeno-associated virus 5**
Danielle Deuker, UCL, UK
- 37 . **Establishing Halomonas as a next-generation industrial biotechnology chassis**
André A. B. Coimbra, University College London, UK
- 38 . **Enzyme-constrained metabolic modeling of the tripartite synapse reveals how redox and lipid metabolism impacts seizures in a mouse model**
Wheaton Schroeder, Washington State University, USA
- 39 . **Synthetic protein degradation circuits using programmable cleavage and ligation by Sortase**
Pragati Muthukumar, University of Delaware, USA
- 40 . **A novel two-step optimization framework for high-yield, high-quality lentiviral vector production in perfusion bioreactors**
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