

Program

Cell Culture Engineering XIX

April 27 – May 2, 2025

Tucson, Arizona, USA

Conference Chairs

Michael Betenbaugh
Johns Hopkins University

Anurag Khetan
Bristol Myers Squibb

Marcella Yu
Gilead Sciences



Engineering
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International

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A warm welcome to CCE-XIX, the 19th Cell Culture Engineering conference!

The CCE conference has grown and flourished along with the field over the past 37 years to create a tight-knit community in the United States and around the world. For CCE-XIX, we are thankful to have engaged partners in industry, government and academia across the various sessions to develop a compelling program. With ~450 participants from 21 countries, CCE-XIX reflects the diversity and expanding interests of our vibrant community.

We are excited about the conference program which includes keynote presentations by Avak Kahvejian, Vijay Yabannavar, and John Lambert; the Marty Sinacore award lecture by Yu Luo; and a concluding CCE award lecture by Weichang Zhou. The 7 oral sessions include 29 full-length talks and 14 poster highlights. As part of this we have a special session recognizing Professor Wei-shou Hu's contributions to our field with former students, colleagues and a panel discussing the evolution of the field over the past 4 decades. Prof. Hu who co-founded the conference in 1988 and sowed the seeds for its continuing success, is retiring from the University of Minnesota this year. In addition, there are 8 interactive workshops and poster sessions will include 224 posters that were carefully selected from a large list of submissions. Recognizing the innovations in products and services from the vendor community, we are proud to champion special Lunch and Learn sessions for interested attendees. Recognizing recent progress in Machine learning and Artificial Intelligence, we have an overview session dedicated to this topic, along with a special panel session with strategic leaders dedicated to exploring the potential of AI/ML in our field.

We thank the numerous CCE-XIX sponsors whose contributions enabled the participation of our academic colleagues and students. Chairs across the early career, oral, workshop, and poster sessions have volunteered their time to assemble high quality presentations that reflect the breadth and diversity of our community. The ECI team, including Barbara Hickernell, Tressa D'Ottavio, Renee Smith and Kevin Korpics, is the invisible hand behind every ECI conference, and we have benefited immensely from their expertise as we navigated through the complex CCE-XIX logistics.

CCE-XIX was heavily oversubscribed and with the intent to preserve the spirit of the conference, we limited participation to ~450. The conference location in Tucson, AZ lies within the Saguaro National Park. The beautiful saguaro (sah-WAH-row) cactus is ubiquitous in the surroundings of this area that is part of the Sonoran Desert. Keeping with the Western traditions of the region, we have also arranged for a highlight event on Tuesday evening at the local Old Tucson Studios.

Thanks for your interest. We hope you share our excitement and enthusiasm for this upcoming conference and look forward to seeing all of you in sunny Tucson. We promise an exciting technical program and opportunities to interact, reconnect and make new friendships in the coming days!

Anurag, Marcella and Mike

Cell Culture Engineering Series History

Cell Culture Engineering I (1988)
Anthony Sinskey and Wei-Shou Hu
Palm Coast, Florida

Cell Culture Engineering II (1990)
Anthony Sinskey and Wei-Shou Hu
Santa Barbara, California

Cell Culture Engineering III (1992)
Michael Flickinger
Palm Coast, Florida

Cell Culture Engineering IV (1994)
Barry Buckland, Theodora Bibila, Wei-Shou Hu
San Diego, California

Cell Culture Engineering V (1996)
Barry Buckland, Theodora Bibila
San Diego, California

Cell Culture Engineering VI (1998)
Jeff Chalmers, Rob Arathoon
San Diego, California

Cell Culture Engineering VII (2000)
Bill Miller, Richard Schoenfeld
Santa Fe, New Mexico

Cell Culture Engineering VIII (2002)
Mike Betenbaugh and John Aunins
Snowmass, Colorado

Cell Culture Engineering IX (2004)
Octavio Ramirez and Lynne Krummen
Riviera Maya Cancun, Mexico

Cell Culture Engineering X (2006)
James Piret and Konstantin Konstantinov
Whistler, British Columbia, Canada

Cell Culture Engineering XI (2008)
Peter Gray and Carole Heath
Coolum, Queensland, Australia

Cell Culture Engineering XII (2010)
Kelvin Lee and Dana Andersen
Banff, Alberta, Canada

Cell Culture Engineering Series History

(continued)

Cell Culture Engineering XIII (2012)
Matt Croughan and Mark Leonard
Scottsdale, Arizona

Cell Culture Engineering XIV (2014)
Amine Kamen and Weichang Zhou
Quebec City, Quebec, Canada

Cell Culture Engineering XV (2016)
Robert Kiss, Sarah Harcum and Jeff Chalmers
La Quinta, California

Cell Culture Engineering XVI (2018)
Anne Skaja Robinson, Raghavan Venkat and Gene Schaefer
Tampa, Florida

Cell Culture Engineering XVII (canceled)
Tim Charlebois, Jamey Young and Gargi Maheshwari

Cell Culture Engineering XVIII (2023)
Chetan Goudar, Laura Palomares, Tongtong Wang
Cancun, Mexico

2025 Cell Culture Engineering Award Winner



Weichang Zhou

Dr. Weichang Zhou is a globally recognized leader in cell culture engineering and bioprocessing. He earned his Ph.D. in Chemical Engineering and Biotechnology from the University of Hannover, Germany, in 1989 under the mentorship of Prof. Karl Schügerl, followed by postdoctoral research at esteemed institutions such as the German DECHEMA Institute, ETH Zurich, and the University of Minnesota, where he began his pioneering work in cell culture engineering under Prof. Wei-Shou Hu in 1992. Dr. Zhou has played pivotal roles in the biopharmaceutical industry, holding leadership positions at Merck, Genzyme (Sanofi), PDL BioPharma, and WuXi Biologics. Until his retirement in 2024, he served as Chief Technology Officer and President of Global Biologics Development and Operations at WuXi Biologics, where he now remains Honorary President and Senior Advisor to CEO. His contributions span pioneering research, industrial innovation, and transformative leadership, reflected in over 85 publications, 16 patents, and groundbreaking technologies that greatly advanced biologics and vaccine manufacturing.

Contributions to Cell Culture Engineering and Bioprocessing

Dr. Zhou's technical innovations have reshaped cell culture engineering and industrial bioprocessing:

- **Viral Vaccine Manufacturing:** At Merck, he developed modern cell culture process monitoring and control technologies to advance viral vaccine production, including Rotavirus and Hepatitis A vaccines. He also led the development and scale-up of PER.C6™ cell culture and replication-defective adenovirus vector propagation for HIV vaccine production.
- **Metabolic Control Strategies:** He pioneered dynamic nutrient feeding based on oxygen uptake and lactate production rates, optimizing metabolism for higher productivity in fed-batch cultures. His 1990s work at Merck achieved a then-record antibody titer of 2.7 g/L, a benchmark unbroken for years. At PDL BioPharma, his team demonstrated the importance of shifting from lactate production to consumption for sustained high productivity, and was the first employing a strategy of high glucose culture and salt replacement based on the principle of osmotic balance.
- **Perfusion and Continuous Processing:** At Genzyme and WuXi Biologics, he drove advancements in intensified perfusion culture and integrated continuous bioprocessing. His leadership led to the development of WuXiUP™, a platform that increased cell culture productivity to 30–50 g/L—10 times higher than traditional fed-batch—with 80–90% downstream yields, reducing costs and accelerating drug development.
- **Process Analytical Technology (PAT):** He pioneered PAT platforms integrating Raman spectroscopy and machine learning, enabling real-time monitoring and predictive control from lab to GMP manufacturing.

At WuXi Biologics, Dr. Zhou led the development of integrated CMC platforms that streamlined biologics manufacturing. Under his leadership, the company:

- Reduced biologics development timelines from DNA to IND to 6–10 months, and for pandemic biologics (e.g., COVID-19 antibodies), to as little as 3–6 months from DNA to IND and 14 months to Emergency Use Authorization.
- Supported over 700 biologics programs (30% of global candidates), resulting in 500+ INDs and 20+ commercial approvals.
- Developed and scaled up high-productivity fed-batch, perfusion, and integrated continuous bioprocesses for manufacturing monoclonal antibodies, multispecific antibodies, ADCs, and recombinant proteins.

In 2023, he was elected **Chief Technology Officer of the Year (Asia-Pacific Biopharma Excellence Awards)** for his contributions to accelerating global biologics development and manufacturing.

Service to the Biotechnology Community

Dr. Zhou has been a cornerstone of global bioprocessing collaboration:

- **Conference Leadership:** He co-chaired major conferences, including the 2003 Biochemical Engineering XIII Conference (with Prof. Terry Papoutsakis), the 2004 ACS Division of Biochemical Technology Annual Meeting (with Prof. Anne Robinson), and the 2014 ECI Cell Culture Engineering Conference (with Prof. Amine Kamen), fostering innovation and collaboration.
- **Editorial Contributions:** He co-edited key monographs in the *Advances in Biochemical Engineering and Biotechnology* series on gene therapy (with Prof. David Schaffer) (2005) and biologics manufacturing (with Dr. Anne Kantardjieff) (2014), which remain essential resources.
- **Academic Engagement:** As a guest professor/lecturer at universities in the U.S. and China, he has actively bridged industry and academia. As Chair of the 2009 ACS Biochemical Technology Division, he revitalized its leadership and outreach.

Mentorship and Training

Dr. Zhou has dedicated his career to mentoring and training the next generation of bioprocessing professionals:

- **Industry Training:** As a lead lecturer for the University of Minnesota's annual cell culture bioprocessing course and guest lecturer at several Chinese universities, he has trained thousands of scientists and engineers.
- **Team Building:** He established and led large cell culture development teams at Merck, PDL BioPharma, and Genzyme. At WuXi Biologics, he built and led a 5,000-member team—the largest biologics development team at any CDMO—executing complex projects across diverse modalities.
- **Global Knowledge Sharing:** He has delivered over 200 presentations at international conferences, sharing best practices in cell culture engineering worldwide.

Recognizing a Legacy of Innovation and Leadership

Dr. Weichang Zhou's career epitomizes excellence in innovation, leadership, and service. His breakthroughs in cell culture engineering, transformative industrial platforms, and dedication to mentorship have accelerated biologics development and accessibility, setting new industry standards. By advancing both science and the professionals who drive it, he is a visionary leader deserving of the **2025 Cell Culture Engineering Award**.

This prestigious award, given biennially at the Cell Culture Engineering Conference, honors outstanding contributions to the field. Former recipients include Wei-Shou Hu (2002), Eleftherios T. Papoutsakis (2004), W. Robert Arathoon (2006), Martin Fussenegger (2008), Michael J. Betenbaugh (2010), James M. Piret (2012), Jeffrey J. Chalmers (2014), Konstantin B. Konstantinov (2016), William Miller (2018), and Manuel Carrondo (2023). Dr. Zhou joins this distinguished lineage of pioneers who have shaped the future of cell culture engineering and bioprocessing.

2025 Martin Sinacore Young Investigator Awardee

Sponsored by Biogen and ECI



Yu Luo

Yu Luo is a Principal Investigator and modeling SME in the Biopharmaceutical Drug Substance Development department at GSK. He joined GSK in 2021 after completing his Ph.D. in Chemical Engineering at Columbia University and a postdoctoral position at the University of Delaware.

During his tenure at GSK, Yu has played a pivotal role in advancing model-based process development, monitoring, and control. He leads a matrix PAT team with members from manufacturing and R&D organizations to advance and industrialize Raman spectroscopy for real-time process monitoring and control at both pilot and commercial scales. Additionally, he applied his modeling skills to enhance the productivity of multiple assets. Notably, he introduced the Design of Dynamic Experiments approach to cell culture process development at GSK, enabling the creation of efficient experiments with dynamic inputs. In collaboration with R&D and Global Supply Chain partners, Yu has developed and deployed digital twins for commercial products and late-phase biologics, thereby enhancing the consistency and productivity during the manufacture of commercial products such as Nucala and Jemperli.

Yu served as an Associate Fellow at GSK and continues to mentor multiple employees, as well as industry-affiliated Ph.D. students and postdoctoral fellows from various academic institutions. Through these efforts, Yu is advancing scientific innovation both within and outside GSK and nurturing the next generation of talent in bioprocessing.

History of the Award

This award, sponsored by Biogen Idec and Engineering Conferences International, is in memory of Martin Sinacore whose career in the biotechnology industry spanned over 25 years. Over the years, Marty established himself as a thought leader in the industry and a champion of constantly innovating and adopting new technologies to facilitate the delivery of life changing medicines to patients. Marty's influence can also be seen in the numerous junior scientists who have trained and grown under his guidance.

This award was first presented at the Cell Culture Engineering Conference at Quebec City in May 2014.

Previous winners of this award:

- Colin Clarke (Dublin City University, Ireland)
- Corinne Hoesli (McGill University, Canada)
- Huong Le (Amgen)
- Amanda M. Lewis (Bristol-Myers Squibb)
- Pooja Jambunathan (Merck)
- Madhuresh Sumit (Pfizer)

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Schedule and Poster List

Cell Culture Engineering XIX

April 27 – May 2, 2025

Tucson, Arizona, USA



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Room locations and notes

- General Sessions will be held in the Tucson Ballroom (sections E-J).
- Poster Sessions will be held in the Arizona Ballroom (sections 6 & 7).
Posters must be taken down at the conclusion of the poster session on Wednesday evening. ECI will not collect posters that have not been removed Wednesday evening.
- Workshop locations are listed in the program and conference app.
- Breakfasts are all “on your own.” All attendees will receive a \$60 room credit that can be used for breakfast at Signature Grill, In-room Dining, JW Market, and Starbucks.
- Lunches will be in Arizona 1-5, Arizona 8-12 and Tucson A-D.
- Coffee breaks will be in the Tucson Foyer.
- Dinners on Sunday and Monday will be on the Ania Terrace / Lawn. Dinner on Tuesday will be off site at Old Tucson Studios during the conference excursion. Dinner on Wednesday will be outdoors at the hotel with food trucks and outdoor games. The conference banquet on Thursday will be in Arizona 6 & 7.
- Please make sure to wear your name badge as it is required for admission to meals.
- The ECI office is in the San Xavier Room.
- Boardroom 2 is available for small *ad hoc* meetings during the week. Please see ECI staff if you would like to schedule a meeting.
- 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 discussion time as previously directed by your session chair.
- 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.

Early Careers Preconference Program

Saturday, April 26, 2025

- 17:00 - 17:30 **Early Careers Preconference Check-in** ([San Pedro Foyer](#))
- 17:30 - 21:30 **Early Careers Preconference** ([San Pedro Room](#))
Co-chairs: David Garcia, Novartis Pharma; Eric M Young, Worcester Polytechnic Institute; Eric Hodgman, Bristol Myers Squibb
- 17:30 – 18:30 Course 1: Advances in Manufacturing Platforms
Facilitators: Seongkyu Yoon, UMass-Lowell; Jon Coffman, AstraZeneca
- 18:30 – 19:30 Course 2: New Modalities
Facilitators: Jamie Piret, University of British Columbia; Rashmi Korke-Kshirsagar, Be Biopharma
- 19:30 – 21:30 Buffet and Networking ([Tash Lawn](#))

Sunday, April 27, 2025

- 06:30 - 08:00 Breakfast on your own
- 08:00 - 16:30 **Early Careers Preconference** ([San Pedro Room](#))
Co-chairs: David Garcia, Novartis Pharma; Eric M Young, Worcester Polytechnic Institute; Eric Hodgman, Bristol Myers Squibb
- 08:00 – 09:00 Course 3: New Frontiers in Gene Editing and Synthetic Biology
Facilitators: Nicole Borth, Boku; Kevin Smith, Asimov
- 09:00 - 10:00 Course 4: Machine Learning for Data Analytics and Cell Culture Modeling
Facilitators: Ioscani Jiménez De Val, University College Dublin; Anne Richelle, Sartorius
- 10:00 - 10:45 Coffee break
- 10:45 – 11:45 Workshop 1: Professional Skills Development: What is Industry Looking For?
Facilitator: Eric Hodgman, BMS
- 11:45 – 12:45 Course 5: Decoding Product Quality & Advanced Control Techniques
Facilitators: Michael Borys, BMS; Sarah Harcum, Clemson University
- 12:45 – 13:45 Q&A Plated Lunch Panel
- 13:45 – 14:30 Workshop 2: Securing collaborations and funding
Facilitator: Eric Young, WPI
- 14:30 – 15:30 Flash Poster Talks
- 15:30 – 16:30 Networking Event (Bingo) & Closing Remarks

Early Careers Preconference Program

Sunday, April 27, 2025

- 14:00 - 16:30 **Conference Check-in** ([Tucson Ballroom Registration Desk](#))
- 16:45 - 17:00 **Welcoming Remarks** ([Tucson Ballroom](#))
Co-chairs: Anurag Khetan, Bristol Myers Squibb; Michael Betenbaugh, Johns Hopkins University, AMBIC; Marcella Yu, Gilead Sciences, Inc.
- 17:00 - 18:00 **Keynote Presentation** (Chair: Anurag Khetan, Bristol Myers Squibb)

Developing Programmable Medicines
Avak Kahvejian, Flagship Pioneering, USA
- 18:00 - 19:30 **Dinner** ([Ania Terrace/Lawn](#))
- 19:30 - 21:30 **Poster Session I** ([Arizona 6 & 7](#))
Sponsored by Biomarin
Co-chairs: Paul Gramlich, Amgen; Kristen Douglas, VIR Biotechnology, Inc.; Aaron Chen, Immunome; Seongkyu Yoon, Univ. of Massachusetts Lowell, AMBIC
- Authors of odd numbered posters from 1-112 and even numbered posters from 113-223 are asked to remain with their presentations.***

Monday, April 28, 2025

- 06:30 - 08:00 **Breakfast on your own**
- 08:00 - 09:55 **Session I: New Technologies and Approaches to Enhance Tech Transfer Efficiency and Product Understanding**
Sponsored by Abbvie and Regeneron
Co-chairs: Olivier Henry, Polytechnique Montréal; Henry Lin, Sanofi; Kara Calhoun, NGM Bio
- 08:00 - 08:05 **Session Introduction**
- 08:05 - 08:30 **Development of an optimized FIH process to accelerate a multi-modality drug discovery pipeline**
Ravali Raju, Amgen, USA
- 08:30 - 08:55 **Unlocking productivity in an upstream continuous process by combining media concentrates and multi-phase feeding**
Nuno Carinhas, Novartis, Switzerland
- 08:55 - 09:20 **Model-based scale-up of CHO cell culture processes for accelerated technology transfer**
Emmanuel Anane, FUJIFILM Diosynth Biotechnologies, Denmark
- 09:20 - 09:45 **Lessons learned from scaling and improving tech transfer and the manufacturing process: a history of 1000L to 18,000L Cell Culture mAb production**
Sarwat Khattak, Biogen, USA
- 09:45 - 09:50 ***Poster Highlight:* Elucidating Mechanisms for Hollow Fiber Filter Fouling**
Samik Das, AstraZeneca, USA
- 09:50 - 09:55 ***Poster Highlight:* Investigating the metabolic load of monoclonal antibody production conveyed to an inducible CHO cell line using a Transfer-Rate Online Monitoring system**
Juan Sebastian Reyes, Polytechnique Montreal, Canada
- 10:00 - 11:00 **Coffee Break**
- 11:00 - 12:00 **Keynote Presentation** (Chair: Marcella Yu, Gilead Sciences, Inc.)

Global access needs innovations for producing affordable monoclonal antibodies and cell culture-based vaccines with easy to use delivery technologies
Vijay Yabannavar, Bill & Melinda Gates Foundation, USA
- 12:00 - 13:00 **Lunch ([Arizona 1-5, 8-12](#) and [Tucson A-D](#))**
- 12:30 - 13:00 **Lunch & Learn Session I** ([Arizona 8-12](#))
Sponsored by Repligen
History Repeats: Leveraging process intensification strategies for monoclonal antibodies to quadruple lentiviral vector production
Charles Hill, Repligen, USA; Xiaojun Liu, RecBioPharm, USA
(Seating limited / Optional)
- 13:00 - 13:30 **Break**

Monday, April 28, 2025 (continued)

13:30 - 15:00

Workshops (4 concurrent)

Chairs: Nick Abu-Absi, AbbVie; Nate Lewis, University of Georgia; Inn Yuk, Genentech

Workshop 1: Bridging the Gap: Best Practices for Academia-Industry Collaborations (Tucson Ballroom)

Sponsored by GSK

Chairs: Luhong He, Eli Lilly and Company; Anne Richelle, Sartorius; Stacy Springs, Massachusetts Institute of Technology

Workshop 2: Mastering the Maze: Cell Line Development and Analytical Strategies for Multi-specific antibodies (Arizona 8-12)

Sponsored by Takeda

Chairs: Kristi Daris, Amgen; Simon Fischer, Boehringer Ingelheim; Lauren Kraft, Johnson & Johnson

Workshop 3: Developability Across Cell Culture Modalities: Insights from Protein-based Biologics applied to Advanced Therapy Medicinal Products (ATMPs) (Tucson A-D)

Chairs: Oliver Kraemer, Flagship; Rashmi Kshirsagar, Be Biopharma; Anne Tolstrup, AbtBioConsulting

Workshop 4: Challenges and Best Practices with Scale up, Scale-down and Tech transfer of Cell Culture Processes (Arizona 1-5)

Sponsored by Novo Nordisk

Chairs: Ravi Pangule, GSK; Jochen Schaub, Boehringer Ingelheim; Natarajan Vijayasankaran, Sanofi

15:00 - 16:00

Coffee Break

16:00 - 17:55

Session II: Complex and Emerging Modalities: Opportunities and Challenges

Sponsored by Johnson & Johnson and Lilly

Co-chairs: Latonia Harris, Janssen; Yao-Ming Huang, Eli Lilly and Company; Mark Blenner, University of Delaware

16:00 - 16:05

Session Introduction

16:05 - 16:30

State of the ARC; Manufacturability of an antibody-siRNA conjugate

Ronan Michael Kelly, Eli Lilly and Company, USA

16:30 - 16:55

Pilot-scale generation of antibody retargeted AAV viral vectors using a hexad transfection

Debby Liu, Regeneron, USA

16:55 - 17:20

Invited Talk: Glucagon-like peptide-1: Its development and role in diabetes and obesity

John Mayer, University of Colorado, Boulder, USA

17:20 - 17:45

Optimization of multispecific antibody production: the impact of vector topology, ratio, and selection strategies for improved productivity and quality

José Escandell, IBET, Portugal

Monday, April 28, 2025 (continued)

- 17:45 - 17:50 ***Poster Highlight: Effect of AAV and AdV gene expression on the transcriptome and proteome of CHO cells***
Konstantina Tzimou, Technical University of Denmark, Denmark
- 17:50 - 17:55 ***Poster Highlight: Simultaneous enhancement in AAV productivity and particle quality in batch and perfusion cultures of Producer Cell Lines through systems approach***
Madhuresh Sumit, Sanofi, USA
- 18:00 - 19:30 **Dinner ([Ania Terrace/Lawn](#))**
- 19:30 - 21:30 **Poster Session II**
Sponsored by KBI Biopharma and Thermo Fisher Scientific
Co-chairs: Paul Gramlich, Amgen; Kristen Douglas, VIR Biotechnology, Inc.; Aaron Chen, Immunome; Seongkyu Yoon, Univ. of Massachusetts Lowell, AMBIC
- Authors of even numbered posters from 1-112 and odd numbered posters from 113-223 are asked to remain with their presentations.***

Tuesday, April 29, 2025

- 06:30 - 08:00 **Breakfast on your own**
- 08:00 - 09:00 **Keynote Presentation** (Chair: Michael Betenbaugh, Johns Hopkins University, AMBIC)

Antibody-Drug Conjugates (ADCs): Design, Developing Trends and Future Prospects
John M. Lambert, Consultant, Cambridge, Massachusetts, USA
- 09:00 - 12:00 **Session III: Celebrating Four Decades of Cell Culture Engineering: Honoring Wei-Shou Hu's Legacy**
Sponsored by Bristol Myers Squibb and Pfizer
Co-chairs: Emmanuel Tzanakakis, Tufts University; Clinical and Translational Science Institute, Tufts Medical Center; Susan Abu-Absi, Be Biopharma; Weichang Zhou, WuXi Biologics; Nitya Jacob, Biogen
- 09:00 - 09:30 **Professor Wei-Shou's Career: Educating generations of leaders & advancing the biopharmaceutical industry**
Nitya Jacob, Anne Kantardjieff, Biogen, USA
- 09:30 - 09:45 **When the means becomes the end: CCE for cell therapy products**
Susan Abu-Absi, Be Biopharma, USA
- 09:45 - 10:00 **Integrative systems approach to cell line design: From bistability to metabolic byproduct reduction to amino acid prototrophy**
Bhanu Chandra Mulukutla, Laura Greenfield, Pfizer
- 10:00 - 10:45 **Coffee Break**
- 10:45 - 11:00 **Perspectives from the early years, and an inspiration for a lifetime**
Jamie Piret, University of British Columbia, Canada
- 11:00 - 11:15 **Wei-Shou Hu and industrial cell culture**
John Aunins, Janis Biologics, USA
- 11:15 - 11:55 **Panel Discussion: Cell culture engineering successes and perspectives**
Samira Azarin, University of Minnesota, USA; Anne Robinson, Carnegie Mellon University, USA; Manolis Tzanakakis, Tufts University, USA; Konstantin Konstantinov, Ring Therapeutics, USA; Michael Betenbaugh, John Hopkins University, USA; Weichang Zhou, Wuxi Biologics, China
- 11:55 - 12:00 **Final Remarks**
Wei-shou Hu, University of Minnesota, USA
- 12:00 - 13:30 **Lunch** ([Arizona 1-5, 8-12](#) and [Tucson A-D](#))
- 12:30 - 13:00 **Lunch & Learn Session II** ([Arizona 8-12](#))
Sponsored by MilliporeSigma
Transfection 101: Tips that lead to improvements in upstream processing for AAV manufacturing
Sandy Tseng, Mirus Bio, USA
(Seating limited / Optional)

Tuesday, April 29, 2025 (continued)

- 13:00 - 13:30 **Lunch & Learn Session III (Arizona 1-5)**
Sponsored by Lonza
Advancing multispecific molecule manufacturing through optimized vector design and CHO cell line development
Stephen Jaffé, Lonza, USA; Arina Alfred, Lonza, USA
(Seating limited / Optional)
- 13:30 - 15:00 **Poster Session III**
Sponsored by Sartorius
Co-chairs: Paul Gramlich, Amgen; Kristen Douglas, VIR Biotechnology, Inc.; Aaron Chen, Immunome; Seongkyu Yoon, Univ. of Massachusetts Lowell, AMBIC

Authors of all odd numbered posters are asked to remain with their presentations.
- 13:30 - 14:30 **Coffee Break (with Poster Session)**
- 15:00 - 17:00 **Session IV: Product Quality Modulation and Real-Time Controls in Cell Culture**
Sponsored by Genentech and Gilead Sciences, Inc.
Co-chairs: Maciek Antoniewicz, University of Michigan; Sanjeev Ahuja, Merck; Huong Le, Gilead Sciences, Inc.
- 15:00 - 15:05 **Session Introduction**
- 15:05 - 15:30 **Enabling expedited biologics process development and robust manufacturing by Raman-based PAT**
Hang Zhou, WuXi Biologics, China
- 15:30 - 15:55 **Doubling recombinant protein productivity in CHO cells and altering glycosylation profiles by modulating underexplored autophagy and cellular growth mechanisms**
Sri Madabhushi, Merck & Co., Inc., USA
- 15:55 - 16:20 **Application of data-driven upstream levers and hybrid models to control Afucosylation at desired levels in CHO cell cultures**
Khandaker Siddiquee, Bristol Myers Squibb, USA
- 16:20 - 16:45 **Interplay between amino acid depletions, Sequence variants and other product quality attributes in a bispecific mAb: A case study**
Nancy Guillen, Protein Therapeutics API, J&J Innovative Medicine, USA
- 16:45 - 16:50 **Poster Highlight: Monitoring recombinant adeno-associated virus production in mammalian cell cultures via single-cell biophysical profiling and machine learning**
Francesco Destro, Massachusetts Institute of Technology, USA
- 16:50 - 16:55 **Poster Highlight: Evolution of platforms with emerging technologies: Application of an intensified process with a focus on product quality**
Yang Yang, Takeda, USA
- 17:00 - 17:30 **Departures for Old Tucson Excursion**

Tuesday, April 29, 2025 (continued)

17:00 - 17:30	Buses Loading Buses start departing for Old Tucson Studios at 17:30 Last bus departs at 17:45
18:00 - 22:00	<u>Old Tucson Studios Excursion</u>
18:00	Buses arrive
18:30 - 20:30	Outdoor Buffet Dinner Service
18:00 - 21:00	The Wild Western Show and other fun activities
21:00 - 21:30	Buses depart for JW Marriott Starr Pass Resort <ul style="list-style-type: none">- Early return bus available at 20:00- Last bus departs at 21:30

Wednesday, April 30, 2025

- 06:30 - 08:00 **Breakfast on your own**
- 08:00 – 10:00 **Free Time | Optional Sessions**
- 08:00 - 08:45 **Navigating career journeys in cell culture - growth phases and stationary phases**
Gargi Maheshwari, USA
- 08:45 - 09:00 **Break**
- 09:00 - 09:45 **An introduction to machine learning in cell culture bioprocessing**
Qi Zhang, University of Minnesota, USA; Yen-An Lu, Merck & Co., Inc., USA;
Pralhad Srinivasan, University of Minnesota, USA; Wei-Shou Hu, University of Minnesota, USA
- 09:45 - 10:30 **Coffee Break**
- 10:30 - 12:00 **Workshops (4 concurrent)**
Chairs: Nick Abu-Absi, AbbVie; Nate Lewis, University of Georgia; Inn Yuk, Genentech
- Workshop 5: From Proteins to Cultured Meat: Accelerating Innovation while Balancing Cost, Risk, and Sustainability! (Tucson A-D)**
Sponsored by Kerry
Chairs: Mike Laird, Genentech; Jayanthi Lakkyreddy, Upside Foods; Shahid Rameez, Merck and Co., Inc.
- Workshop 6: The Continuous and Intensified Processing Debate: Where are we now and why? (Tucson Ballroom)**
Sponsored by Amgen
Chairs: Jon Coffman, AstraZeneca; Marco Jenzsch, Roche; Brian Kelley, Vir Biotechnology
- Workshop 7: Closing the gap between rich data generation and actionable insights using AI, ML, and other computational methods (Arizona 8-12)**
Sponsored by NIIMBL
Chairs: Hooman Hefzi, Technical University of Denmark; Will Johnson, Asimov; Moritz von Stosch, DataHow
- Workshop 8: Overcoming Regulatory Hurdles to Accelerate Innovation and Implement Novel Technologies (Arizona 1-5)**
Jason Walther, Sanofi; Michael Handlogten, AstraZeneca; Simon Hotchin, Amgen
- 12:00 – 13:30 **Lunch (Arizona 1-5, 8-12 and Tucson A-D)**
- 12:30 - 13:00 **Lunch & Learn Session IV (Arizona 8-12)**
Sponsored by Asimov
Model-driven genetic design and bioprocess optimization across modalities
Imroz Ghangas, Asimov, Inc., USA
(Seating limited / Optional)

Wednesday, April 30, 2025 (continued)

- 13:30 - 14:30 **Martin Sinacore Young Investigator Award Lecture**
- 13:30 - 13:35 **Introduction** (Sarwat Khattak, Biogen)
- 13:35 - 14:20 **Stories of Growth in Model-Based Process Development, Monitoring, and Control**
Yu Luo, GSK, USA
- 14:30 - 18:00 **Session V: Innovation in Cell Line Development, from Synthetic Biology to Integrated Process Development**
Sponsored by Cytiva and Sanofi
Co-chairs: Christina Alves, Takeda; Kevin D. Smith, Asimov, Inc.; Laura Segatori, Rice University
- 14:30 - 14:35 **Session Introduction**
- 14:35 - 15:00 **Galileo revisited: The end of the genocentric view of the cell**
Nicole Borth, BOKU University, Austria
- 15:00 - 15:25 **Speed: Accelerating antibody drug discovery and development through advances in transient and stable gene expression technologies**
Gavin Barnard, Genentech, USA
- 15:25 - 15:30 ***Poster Highlight: Machine-learning assisted clone selection yields improved clone titers in intensified cell culture processes***
Brandon Downey, Lonza, USA
- 15:30 - 15:35 ***Poster Highlight: Next generation approaches to genetic characterization of Chinese hamster ovary cell lines using next generation sequencing***
Sofie O'Brien, Pfizer Inc, USA
- 15:35 - 16:35 **Coffee Break**
- 16:35 - 17:00 **Systems biology, cell line and protein engineering for increased AAV production**
Johan Rockberg, KTH Royal Institute of Technology, Sweden
- 17:00 - 17:25 **Engineering mammalian cell growth dynamics for biomanufacturing**
Alan Dickson, University of Manchester, United Kingdom
- 17:25 - 17:50 **From insect to impact: Discovery of a novel chimeric transposase system to advance mammalian cell factories**
Simon Fischer, Boehringer Ingelheim Pharma GmbH & Co. KG, Germany
- 18:00 - 20:00 **Dinner – “Taste of Tucson” with food trucks and outdoor games ([STARR Circle](#))**
- 20:00 - 21:30 **Poster Session IV**
Sponsored by FUJIFILM Irvine Scientific and Wuxi Biologics
Co-chairs: Paul Gramlich, Amgen; Kristen Douglas, VIR Biotechnology, Inc.; Aaron Chen, Immunome; Seongkyu Yoon, Univ. of Massachusetts Lowell, AMBIC
- Authors of all even numbered posters are asked to remain with their presentations.***

Thursday, May 1, 2025

- 06:30 - 08:30 **Breakfast on your own**
- 08:00 - 11:05 **Session VI: Systems Biology and Process Modeling for Digitalization of Bioprocessing**
Sponsored by Boehringer Ingelheim and Merck & Co., Inc.
Co-chairs: Cleo Kontoravdi, Imperial College; Shawn M. Lawrence, Regeneron Pharmaceuticals; Dong-Yup Lee, Sungkyunkwan University, Bioprocessing Technology Institute; Bhanu Chandra Mulukutla, Pfizer
- 08:00 - 08:05 **Session Introduction**
- 08:05 - 08:30 **Invited Talk: Leveraging generative artificial intelligence for optimized biologic design and production**
Adam Root, Generate Biomedicines, USA
- 08:30 - 08:55 **Hybrid modeling for in silico optimization and supervisory control of Perfusion cell culture processes**
Chris McCready, Sartorius, Canada
- 08:55 - 09:20 **Data- and knowledge-driven modeling of cell culture processes**
Qi Zhang, University of Minnesota, USA
- 09:20 - 10:05 **Coffee Break**
- 10:05 - 10:30 **Autonomous process development for cell culture processes**
Nandita Vishwanathan, EMD Serono, Switzerland
- 10:30 - 10:55 **Quantifying metabolism of CHO cells using comprehensive stable-isotope tracing**
Maciek Antoniewicz, University of Michigan, USA
- 10:55 - 11:00 ***Poster Highlight: Enhancing bioreactor performance predictions by integrating process conditions into dynamic metabolic flux analysis models***
Eleftherios Papoutsakis, University of Delaware, USA
- 11:00 - 11:05 ***Poster Highlight: CELIA: A model based platform for media and feeding strategy design for improved process metrics***
Ziomara Gerdtsen, University of Chile, Chile
- 11:05 - 12:05 **Fireside Chat - Strategy and Direction of AI in Biopharma: Now and in the Next Decade**
Co-chairs: Chetan Goudar, Amgen, Inn H. Yuk, Genentech
- 12:05 - 13:30 **Lunch ([Arizona 1-5, 8-12](#) and [Tucson A-D](#))**
- 12:30 - 13:00 **Lunch & Learn Session V ([Arizona 8-12](#))**
Sponsored by Ark Biotech
Computational bioprocess: The role of robust virtual presentations in bioprocess
Zheng Huang, Ark Biotech, USA; Yossi Quint, Ark Biotech, USA
(Seating limited / Optional)

Thursday, May 1, 2025 (continued)

- 13:30 - 15:25 **Session VII: Evolution of Cell Culture Technologies for New Applications**
Sponsored by AstraZeneca and Vertex
Co-chairs: Ioscani Jimenez del Val, University College Dublin; Mercedes Segura, ElevateBio; Andy Snowden, J&J Innovative Medicine
- 13:30 - 13:35 **Session Introduction**
- 13:35 - 14:00 **Invited Talk: Cultivated meat: A new frontier for hungry cell culture engineers**
Robert Kiss, Biotechnology Consultant, USA
- 14:00 - 14:25 **Improving CAR T cell potency through process control**
Marta Costa, iBET/ITQB-NOVA, Portugal
- 14:25 - 14:30 ***Poster Highlight: Developing a next-gen process for BCAT1 KO CHO host to enable robust lactate shift and higher productivities***
Mariah Brantley, Pfizer, USA
- 14:30 - 14:35 ***Poster Highlight: Process development approaches for Engineered B Cell Medicines, a new class of cellular medicines***
Alan Gilbert, Be Biopharma, USA
- 14:35 - 15:00 **Implementation of 3D bioreactors to deliver expansion and patient access potential of allogeneic iPSC-derived cell therapies**
Chen-Yuan Kao, Century Therapeutics, USA
- 15:00 - 15:25 **Invited Talk: Scaling mRNA medicines: Unlocking the power of Moderna's platform across vaccines and therapeutics**
Shyam Subramanian, Moderna, Inc, USA
- 15:30 - 16:30 **Coffee Break**
- 16:30 - 18:00 **CCE Award Presentation and Lecture**

Introduction: Jamie Piret, University of British Columbia; Gene Schaefer, NIIMBL

Driving Innovations to Secure the Future of Cell Culture Bioprocessing
Weichang Zhou, WuXi Biologics, China
- 18:00 - 18:30 **Break**
- 18:30 - 19:30 **Reception ([Arizona Foyer](#))**
- 19:30 - 22:00 **Conference Banquet ([Arizona Ballroom](#))**

Friday, May 2, 2025

- 06:30 - 10:00 **Breakfast on your own**
- 10:00 - 11:00 **Hotel check-out and departures**

Poster Presentations

1. **Engineering the future of AAVs - Driving cost-efficiency, market access, and regulatory success in gene therapy**
Sven Markert, Roche Diagnostics GmbH, Germany
2. **Advancing AAV manufacturability toolbox for early phase programs and beyond**
Ayda Mayer, Regenxbio Inc., USA
3. **A novel, site-specific N-linked glycosylation model provides mechanistic insights into the process-condition dependent distinct Fab & Fc glycosylation of an IgG produced in CHO VRC01 cells**
Eleftherios Papoutsakis, University of Delaware, USA
4. **Removing rhabdovirus (RV) from cell culture process to enable RV-negative production of rAAV**
Luhong He, Eli Lilly and Company, USA
5. **Addressing nutritional and sensory qualities of cultivated meat with COGS and regulatory considerations**
Jayanthi Lakkyreddy, Upside Foods, USA
6. **Production of a fusogenic oncolytic virus: Establishment of a scalable integrated production process**
Sven Gobel, Max-Planck Institute, Germany
7. **Next-Gen "Super" CHO host development: Metabolically engineered host with cysteine/tyrosine prototrophy and negligible BCAA metabolic byproduct formation**
Laura Greenfield, Pfizer, USA
8. **Setting recombinant AAV manufacturing for success with smart process design and engineering**
Nic Preyat, UCB, Belgium
9. **Developing an improved cell line development platform for the production of complex multi-specific antibodies**
Jie Zhu, AstraZeneca, USA
10. **Developing inducible stable cell lines for rAAV production**
Seongkyu Yoon, University of Massachusetts Lowell, USA
11. **Enhanced ER protein processing gene expression increases rAAV yield and full capsid ratio in HEK293 cells**
Yongdan Wang, University of Massachusetts Lowell, USA
12. **Immunocompetent human 3D liver model to accelerate AAV-based ATMP development**
Paula Alves, iBET, ITQB NOVA, Portugal
13. **The use of mixture design can improve 109-Fold rAAV titers by plasmid ratio optimization**
Jesús Lavado García, DTU, Denmark
14. **Assessing the impact of transient dissolved oxygen excursions on process performance and product quality**
Cathleen Schiraldi, Regeneron Pharmaceuticals, Inc., USA

- 15. Without a trace: Identification, characterization and stable host cell engineering of CHO hydrolases to tackle the polysorbate degradation challenge**
Linus Weiss, University of Applied Sciences Biberach, Boehringer Ingelheim Pharma GmbH & Co.KG, Germany
- 16. Streamlining cell line development: A case study comparing random integration and transposon system for bispecific antibody**
Yashas Rajendra, Denali Therapeutics, USA
- 17. Machine-learning assisted clone selection yields improved clone titers in intensified cell culture processes**
Brandon Downey, Lonza, USA
- 18. Innovative horizons: Perfusion-driven process intensification for HEK293 cells in cell and gene therapy**
Vera Ortseifen, Sartorius Xell GmbH, Germany
- 19. Lifecycle management of a commercial monoclonal antibody platform: understanding the impact of raw material variability and its impact on supply resilience**
Cillian McCabe, Eli Lilly, Ireland
- 20. Tuning lactate metabolism with Raman enabled automated lactate control**
Venkata Gayatri Dhara, Pfizer, USA
- 21. Effect of AAV and AdV gene expression on the transcriptome and proteome of CHO cells**
Konstantina Tzimou, Technical University of Denmark, Denmark
- 22. NISTCHO: Use of open access living reference material for enhancing tech transfer efficiency and product understanding**
Hussain Dahodwala, IBBR-UMD, NIST, USA
- 23. “Organized stress” for robust scale-up of intensified process with non-perfusion seed bioreactor**
Bassem Yahia, UCB Pharma S.A., Belgium
- 24. Multiplex genome editing to eliminate the Warburg effect and attenuate ammonia production**
Hooman Hefzi, Technical University of Denmark, Denmark
- 25. Raman spectroscopy as an enabling technology for advanced control strategies for upstream bioprocessing**
Matthew Zustiak, Thermo Fisher Scientific, USA
- 26. Epigenomics: A key player in the omics revolution driving digital twins and in-silico bioprocess optimization**
Karlheinz Landauer, QBDC GmbH, Austria
- 27. Advanced manufacturing controls using process analytical technologies (PAT) to enable robust and productive drug substance processes**
Kyle McElearney, Amgen, USA
- 28. Late-stage development and upstream process characterization of UX701, an AAV gene therapy for Wilson Disease**
Jan Panteli, Ultragenyx Pharmaceutical Inc., USA

- 29. N-1 perfusion platform technology development, implementation, and business case analysis in commercial manufacturing**
Jianlin Xu, Sanofi, USA
- 30. Mitigating scale-up challenges: The impact of feed media filtration and storage on CHO cell culture performance at 2000 L scale**
Abhinav Jain, Denali Therapeutics, USA
- 31. Optimization of an upstream process improves production and preserves product quality through a multifaceted and intensified approach**
Anna Peterson, Alexion, USA
- 32. Developing a digital twin for *In Silico* medium development**
Amy Johnson, Regeneron Pharmaceuticals, USA
- 33. Next generation of genetically engineered stable producer cell lines to overcome viral vector manufacturing challenges**
Robert Whitfield, Cytiva, United Kingdom
- 34. Supertransfection vs. co-transfection: An evaluation of two orthogonal transposases for improving protein expression in CHO cells**
Melina Lenser, Denali Therapeutics, USA
- 35. Enhancing bioreactor performance predictions by integrating process conditions into dynamic metabolic flux analysis models**
Marianthi Ierapetritou, University of Delaware, USA
- 36. Developing a next-gen process for BCAT1 KO CHO host to enable robust lactate shift and higher productivities**
Mariah Brantley, Pfizer, USA
- 37. Next generation approaches to genetic characterization of Chinese hamster ovary cell lines using next generation sequencing**
Sofie O'Brien, Pfizer, USA
- 38. New transposase integration in SUREtechnology Platform™ takes high-performance clones to the next-level**
Juliette Trepreau, KBI Biopharma, Switzerland
- 39. Derisking tech transfer using process understanding and functional bioassay**
Thu Phan, Gilead Sciences, Inc., USA
- 40. Acceleration of knowledge-based process development through application of hybrid modeling**
Karna Shah, AbbVie Bioresearch Center, USA
- 41. Autophagy and Akt-stimulated cellular proliferation synergistically improve antibody production in CHO cells**
Anne Robinson, Carnegie Mellon University, USA
- 42. Integrative Analysis of Metabolomics, Lipidomics, and Process Outputs in CHO Cells: Unveiling Correlation Patterns**
Sandeep Ranpura, Lonza Biologics Plc, United Kingdom

- 43. Integration of triple gene vectors for improved expression and product quality of multispecific molecules**
Lauren Kraft, Johnson & Johnson, USA
- 44. Transposon-based gene integration strategies for seamless cell line development workflow (Protein Biologics & Gene Therapy)**
Saurabh Sen, Sanofi, USA
- 45. Revealing scale down model challenges of biopharmaceutical upstream processes**
Michael Loeffler, Boehringer Ingelheim Pharma GmbH & Co. KG, Germany
- 46. Investigating the metabolic load of monoclonal antibody production conveyed to an inducible CHO cell line using a transfer-rate online monitoring system**
Juan Sebastian Reyes, Polytechnique Montreal, National Research Council Canada
- 47. Elucidating mechanisms for hollow fiber filter fouling**
Samik Das, AstraZeneca, USA
- 48. Designing cell factories for difficult to express proteins**
Verónica S. Martínez, Australian Institute for Bioengineering and Nanotechnology (AIBN), The University of Queensland, Australia
- 49. Developing a high-productivity and robust ultra-intensified WuXiUI™ bioprocess strategy empowered by pat and in-silico process modeling**
Jun Tian, WuXi Biologics, USA
- 50. Integrating long-read sequencing and multiomics for precision cell line engineering**
Mounika Boddireddy, Lonza, USA
- 51. Machine learning-based hybrid model enables accelerating the upstream process development in CHO cells**
Michael Borys, Bristol Myers Squibb, USA
- 52. Cell engineering to optimize viral vector production**
Kerstin Otte, University of Applied Sciences Biberach, Germany
- 53. Optimized gene configuration design for enhanced production of standard and complex antibodies in targeted integration CHO cell lines**
Zion Lee, Genentech, USA
- 54. A framework approach for application of a chemometric-based screening method to predict raw material variability in bioprocesses**
Geraldine Kelly, Eli Lilly, Ireland
- 55. Innovative process intensification for adenoviral vector production: A path to faster and higher product yields**
Alena Roßkamp, Sartorius Stedim Biotech GmbH, Germany
- 56. Intensified perfusion culture enabling high productivity, high product quality, and low manufacturing cost**
Weichang Zhou, WuXi Biologics, China
- 57. Simultaneous enhancement in AAV productivity and particle quality in batch and perfusion cultures of producer cell lines through systems approach**
Madhuresh Sumit, Sanofi, USA

- 58. Development of a novel mechanistic model for describing the growth and infection / transfection of HEK cells**
Kim B. Kuchemüller, Sartorius Stedim Biotech GmbH, Germany
- 59. Increasing mAb productivities in CHO cells by manipulating adenosine update- novel insights into cell growth and productivity regulation**
Sri Madabhushi, Merck & Co., Inc., USA
- 60. Evolution of platforms with emerging technologies: Application of an intensified process with a focus on product quality**
Yang, Takeda, USA
- 61. Innovative and accelerated approach towards cell culture media raw material control strategy to increase manufacturing process robustness of biologics**
Delia Lyons, AbbVie, USA
- 62. Next generation transient protein expression**
Divya Goel, Celltheon, USA
- 63. Machine learning driven (Bio)process exploration**
Matteo Planchestainer, FHNW, Switzerland
- 64. Novel PAT solutions enable precise, real-time feed control for improved mAb product quality profiles**
Stephanie Klaubert, 908 Devices, USA
- 65. Platform development for a dynamic perfusion process and performance across scales**
Aravindan Rajendran, Pfizer, USA
- 66. Development of a continuous manufacturing process to control product quality with representative scale-up performance**
Tiffany Tang, Merck and Co., Inc., USA
- 67. Enhancing AAV production using tunable molecular dials in HEK-293 producer cell lines**
Kathy Ngo, CHO Plus, Inc., USA
- 68. From single cell cloning to perfusion: combined AI-driven and hybrid clone selection model for cost-effective and time-efficient cell culture and bioprocessing**
Franziska Stefurak, Sartorius, Germany
- 69. Uncovering mechanisms of high rAAV production using genome-wide CRISPR screens**
José Escandell, IBET, Portugal
- 70. Mapping Cellular Processes that Determine Delivery of Plasmid DNA into the Nucleus: Application in Mammalian Expression Host Cells to Enhance Recombinant Protein Production**
James Budge, University of Kent, United Kingdom
- 71. Technical development of the Ambr® 250 mini bioreactor to optimise performance for late-stage process development**
Francesco Mancuso, Sartorius, United Kingdom
- 72. Maduramycin and kifunensine for modulating high mannose glycoforms in antibody-based protein therapeutics**
Nandita Vishwanathan, Merck Serono SA, Switzerland

- 73. Single cell transcriptomics identifies limitations in transfection-based adeno-associated virus production process**
Sofia Tunmats, KTH, Cell Technology Group, Sweden
- 74. Stress and success: Understanding NK cell production through single-cell analysis**
Brian Ladd, KTH, Cell Technology Group, Sweden
- 75. Enhancing rAAV yield through mixer-based optimization of transient transfection for scalable gene therapy production**
William Larsson, KTH, Cell Technology Group, Sweden
- 76. Molecular mechanisms of lactate metabolic shift in CHO cells: Role of ATF4 pathway**
Leon Pybus, FUJIFILM, United Kingdom
- 77. Monitoring recombinant adeno-associated virus production in mammalian cell cultures via single-cell biophysical profiling and machine learning**
Francesco Destro, Massachusetts Institute of Technology, USA
- 78. Improving mAb production in a fed-batch process: A paradigm shift in CHO cell culture**
Mitch Raith, Teva Pharmaceuticals, USA
- 79. Combining directed evolution with multi-omics analysis for host cell engineering**
Sarika Mehra, IIT Bombay, India
- 80. Cell and product specific synthetic genetic components and assemblies for biopharmaceutical production and gene therapy**
David James, University of Sheffield, Syngensys Ltd., United Kingdom
- 81. Integrating Raman spectroscopy, multiarray fluorescent and data-driven soft sensors for enhanced real-time monitoring within bioprocess digital twins**
Dong-Yup Lee, Sungkyunkwan University, South Korea
- 82. Leveraging orthogonal transposase/transposon pairs as an alternative genetic engineering tool in CHO cells**
Mário Pereira, ATUM, USA
- 83. Enabling automation, data management, and in silico tools for cell culture development**
Kyle McHugh, Takeda, USA
- 84. Enhancing production and purification of adenovirus-like particles (ADDomer) for snakebite therapy**
Antonio Roldao, iBET, Portugal
- 85. Mass transfer modeling of dissolved carbon dioxide levels across scales and sites**
Sanjeev Ahuja, Merck & Co. Inc., USA
- 86. Withdrawn**
- 87. Novel cell engineering platform yielding highly productive CHO cells for therapeutic antibody manufacturing**
Larry Forman, CHO Plus, USA
- 88. AI-driven lead clone selection for enhanced cell line development**
Stephen Goldrick, University College London, United Kingdom

- 89. Playing defense and offense: Scale down models and process solutions to mitigate protein reduction**
Ryan Sanford, Biogen, USA
- 90. Mitigation of LMW impurities via feed optimization in a high-titer fed batch process**
Daniela Espinosa-Hoyos, Sanofi, USA
- 91. Enhancing deep-well plate cultures for predictive bioprocess development**
Cheong Xin Ooi, University of British Columbia, Canada
- 92. Transcriptomics-guided design of a feeder-free culture system for NK cell expansion**
Janani Narayan, University of Minnesota, USA
- 93. Process development approaches for engineered B cell medicines, a new class of cellular medicines**
Alan Gilbert, Be Biopharma, USA
- 94. Feeding TCA Cycle Intermediates for pH control improves CHO cell culture performance and increases TCA cycle flux**
Sandra Bennum, Merck & Co., Inc., USA
- 95. Impact of PAT ultra-low continuous glucose control on mAb Product Quality and CHO culture performance**
Awab Nehela, 908 Devices, USA
- 96. Cell culture optimization through metabolic modeling and metabolomics in cellular agriculture**
Pomaikaimaikalani Yamaguchi, Tufts University, USA
- 97. Celia: A model-based platform for media and feeding strategy design for improved process metrics**
Ziomara Gerdzen, University of Chile, Chile
- 98. Pilot scale integrated dynamic bioprocessing - scaling perfusion technology**
Alex Gadberry, AstraZeneca, USA
- 99. High-throughput screening for high performance cell culture media development**
Shan Gao, FUJIFILM Irvine Scientific, USA
- 100. Scalable and automated bioprocessing strategies for intensified viral vector production in Hek293 cell culture**
Omid Taghavian, FujiFilm Irvine Scientific, USA
- 101. Identification and epigenetic induction of co-fluctuating heritable gene expression states for activating stress tolerance in CHO**
Spencer Grissom, University of Delaware, USA
- 102. Early screening of clones based mitochondrial capacity and cellular redox for improved productivity and lactate accumulation**
Malini Ahuja, Bristol Myers Squibb, USA
- 103. Process Intensification without N-1 Perfusion: A case study on process and media development for a CHO cell line**
Andrew Hu, AbbVie, USA

- 104. Using Ambr250 as a scale down model to accelerate late-stage process development and process characterization / process validation for a Chinese hamster ovary cell culture process**
Anh Nguyen Dang, AbbVie, USA
- 105. Exploring non-oncogenic hTERT cell lines as alternative AAV producers**
Hung Tran, University of Massachusetts Lowell, USA
- 106. Subcloning of HEK293T cells increases lentiviral vector production**
Kim Curtis, Cytiva, USA
- 107. *Withdrawn***
- 108. Vero suspension cells as host to produce oncolytic Measles virus**
Aline Zimmer, Millipore Sigma, Germany
- 109. Targeting glycolytic regulator PFKFB3 reduces excess CHO cell growth removing the bleed stream improving sustainability of the continuous bioprocess**
William Smith, University of Manchester, Fujifilm Diosynth Biotechnologies, United Kingdom
- 110. Online monitoring of the respiration activity in 96-deep-well microtiter plate CHO cultures streamlines kill curve experiment**
Tibor Andelrei, Adolf Kuhner AG, Switzerland
- 111. A precise and sustainable doxycycline-inducible cell line development platform for reliable mammalian cell engineering with gain-of-function mutations**
Jae Seong Lee, Ajou University South Korea
- 112. Optimizing transfection condition to improve bispecific antibody expression in CHO cells**
Qingxiang Wei, Incyte, USA
- 113. Accelerated intracellular antibody transport by Sar1A overexpression toward developing high-producing CHO cell lines**
Yu Tsunoda, Osaka University, Japan
- 114. Metabolic cytometry for in-line process analysis**
Kanika Goel, University of Massachusetts LowellUSA
- 115. Improving copper concentration to enhance the robustness of cell culture production processes**
Toshiaki Shimoyama, Chugai Pharmaceutical Co., Ltd., Japan
- 116. Development of an automated high throughput transfection, selection and screening process for generation of stable pools expressing BsAb's based on the common light chain and the knob-into-hole technology**
Simone Oldenburg, Symphogen a Servier Company, Denmark
- 117. SiMPI-GS and SiMPI-DHFR: advancing cell line development via synthetic selection markers for next-generation biopharmaceutical production**
Gyun Min Lee, KAIST, South Korea
- 118. Production of oncolytic Newcastle disease virus in EB66 cells: Characterization of parameters for process intensification**
Lennart Jacobtorweihe Max-Planck-Institute Magdeburg, Germany

- 119. Identifying manufacturing facilities for concentrated fed batch**
Brian Kwan, Gilead Sciences, Inc., USA
- 120. Development of a process toolbox to modulate glycosylation of therapeutic proteins**
Linda Hoshan, Bristol Myers Squibb, USA
- 121. Evaluation of advance bioreactor scale-down models for an intensified cell culture perfusion platform process**
Jennifer Nguyen, Pfizer, USA
- 122. *Withdrawn***
- 123. Establishment of novel CHO-MK cells and optimal culture strategy for enhancement of therapeutic protein production**
Erike Sukowati, Chitose Laboratory Corp., Japan
- 124. Highly efficient transposases for single- and multi-target integration of transgenes in mammalian cells**
Nicolas Marx, BOKU University Vienna, Austria
- 125. Scalable stem cell-based platform to produce tissue specific extracellular vesicles**
Rachel Moen, Vanderbilt University, USA
- 126. Feedback regulated expression of therapeutic proteins for enhanced Biomanufacturing**
Carlos Llanos, Rice University, USA
- 127. End-to-end process models as life cycle companions**
Meena George, Boehringer Ingelheim Fremont Inc, USA
- 128. Establishing an intensified fed-batch model in the Ambr250 high throughput system**
Andres Martinez, Eli Lilly and Company, USA
- 129. Integrated process development for early-stage bispecific antibody**
Jun Luo, WuXi Biologics, USA
- 130. The modern cell line development toolbox: Integrating machine learning and genome editing into automated CLD workflow**
Yizhou Zhou, Bristol Myers Squibb, USA
- 131. Validation of the automated Beacon Optofluidic System for ensuring monoclonality of production cell lines**
Tina Hummelshøj, Novo Nordisk, Denmark
- 132. Cross-species application of bacterial GS selection markers to enhance CHO cell line performance via selection stringency modulation**
Simon Fischer, Boehringer Ingelheim Pharma GmbH & Co.KG, Germany
- 133. Biomanufacturing and lipidomics analysis of extracellular vesicles secreted by human blood vessel organoids in a vertical wheel bioreactor**
Justice Ene, FAMU-FSU College of Engineering, USA
- 134. ¹³C Metabolic flux analysis of HEK producer cell lines to enhance lentiviral vector production**
Jamey Young, Vanderbilt University, USA

- 135. Phase-specific mitochondrial metabolism regulation of CHO cells for enhanced monoclonal antibody yield**
Kevin Ruiz-Marquez, Vanderbilt University, USA
- 136. Developing a low-cost prophylactic monoclonal antibody for malaria**
Chun Chen, Bill & Melinda Gates Medical Research Institute, USA
- 137. Hybrid modeling approach for cell metabolism and lactate accumulation in biomanufacturing**
Kevin Clark, Johnson & Johnson Innovative Medicines, USA
- 138. Lessons learned in network advancement of process analytical technologies**
Andrew Maloney, Amgen, USA
- 139. Development of a universal Raman spectroscopy model for real-time monitoring of cell culture production parameters**
Laetitia Macon, Sanofi, France
- 140. Purine precursor supplementation increases productivity of antibody-expressing CHO cells by elevating intracellular ATP level**
Jong Youn Baik, Inha University, South Korea
- 141. Using a multi-omics approach to identify targets for improved cell metabolism in fed-batch and perfusion cultures**
Jimmy Kirsch, Amgen, USA
- 142. Mitigating commercialization challenges for in-licensed programs**
Arpan Bandyopadhyay, Gilead Sciences, Inc., USA
- 143. Accelerating monoclonal antibody titer prediction and cell culture medium optimization via nonparametric regression empowered transfer learning**
Liang Zhao, Shanghai BioEngine Sci-Tech Co., Ltd, China
- 144. Advancing adeno-associated virus vector manufacturing: a comparative study of transient transfection and stable producer cell lines**
Alana C. Szkodny, Spark Therapeutics, USA
- 145. High demand, low titer, no change of quality accepted -The ancient challenge in a modern world- A case study**
Julia Marini, Roche Diagnostics GmbH, Germany
- 146. Metabolic analysis of newly established Chinese hamster-derived cell lines, CHL-YN and CHO-MK**
Takeshi Omasa, Osaka University, Manufacturing Association of Biologics, Japan
- 147. Understanding transcriptional variance in CHO cells: A quantitative meta-analysis**
Markus Riedl, BOKU University, Austria
- 148. Reprogramming lipid metabolism in Chinese hamster ovary cells for enhanced recombinant biotherapeutic protein production**
Ankita Mishra, University of Kent, United Kingdom
- 149. Improvement in productivity of protein biologics in recombinant CHO cells created with transposon technology**
Tiffany McIamarras, Sanofi, USA

- 150. Integrating mechanistic modelling with process measurements for cross-cell line state and parameter estimation in CHO cell culture**
Luxi Yu, Imperial College London, United Kingdom
- 151. Strategic vector design to improve asymmetric bispecific antibody assembly and purity with high expression levels in the GOCHO™ platform**
Sheffali Dash, Cytiva, USA
- 152. Characterization of extrinsic chromophores and their impact on therapeutic protein**
Dominique Monteil, Vera Therapeutics, USA
- 153. A scale-down semi-perfusion platform coupled with dynamic metabolic flux analysis to inform continuous perfusion process design**
Nikola Malinov, University of Delaware, USA
- 154. Engineering of the tRNA landscape in CHO cells for enhanced recombinant biotherapeutic protein production**
Kishor Elango, University of Kent, United Kingdom
- 155. Data-driven optimization of perfusion processes to reduce throughput volumes and increase productivity**
Srikanth Rapala, Clemson University, USA
- 156. Upstream process parameter optimization for product quality: A comparative study of statistical and probabilistic design space identification**
Syazana Mohamad Pauzi, Imperial College London, United Kingdom
- 157. Development of a novel transposase for cell line development**
Nikolas Zeh, Asimov Inc., USA
- 158. Process improvements to the CLD workflow lead to higher producing clones**
Christopher Tsiros, Cytiva, USA
- 159. Detachable CD3/CD28 magnetic beads: A convenient and flexible upstream solution in T cell therapy manufacturing**
Andrew Campbell, Thermo Fisher, USA
- 160. Multi-level characterization of NISTCHO: Temperature shift affects phenotype and critical quality attributes**
Larissa Hofer, BOKU University, Austria
- 161. Bioprocessing of stem-cell derived allogeneic cell therapy products - enabling large-scale cell harvesting using single-use centrifugation**
Mats Akesson, Novo Nordisk A/S, Denmark
- 162. Flexible deployment of advanced automated tools for cell culture process development and beyond**
Chris Lowe, Takeda Pharmaceuticals, USA
- 163. Revealing the impact of extracellular vesicles on cell culture performance: An overlooked component in conditioned media**
Hong Nguyen, University of Delaware, USA
- 164. Targeting bottlenecks in recombinant adeno-associated virus production: Optimizing gene expression for improved content ratio**
Sofia Alfieri, University of Delaware, USA

- 165. Elucidating Aggregation Mechanisms of Multispecific Antibodies**
Hillary Miller, Johnson & Johnson, USA
- 166. Process development and titer improvement for transient production of AAV**
Michael Gillmeister, REGENXBIO, Inc., USA
- 167. Next generation torture chamber: Effect of extensional flows on cells and high-density culture results**
Hyeon Choe, The Ohio State University, USA
- 168. Site-directed integration platform can support industry-relevant titers while reducing CLD time and effort**
Michelle Sabourin, Cytiva, USA
- 169. Improvement of cellular mechanisms via protein hydrolysate supplementation**
Brandon Wrage, Kerry, USA
- 170. iCHO3K: A new community-driven genome-scale metabolic model network reconstruction of Chinese hamster ovary cell**
Dong-Hyuk Choi, Sungkyunkwan University, South Korea
- 171. Engineering high-yield, stable packaging and producer cell lines for scalable lentivirus manufacturing**
Adam Carcella, Asimov, Inc., USA
- 172. Engineering UGCG-overexpressing stable cell lines for enhanced viral vector production**
Marzia Rahimi, Technical University of Denmark, Denmark
- 173. *Withdrawn***
- 174. Leveraging metabolic models to transfer knowledge from fed-batch to continuous cultures**
Mariana Monteiro, Imperial College London, United Kingdom
- 175. A modular platform of reconstructive 3D cell models of tumor microenvironments to evaluate antibody-based therapies**
Margarida Serra, iBET, ITQB NOVA, Portugal
- 176. Overcoming oxidative cellular senescence in high-density cell bioreactor for viral vaccine production improving the productivity**
Hsian-Yu Wang, National Pingtung University of Science and Technology, Taiwan
- 177. Deciphering the individual and interactive effects of media selection and type of production process on the stability of biopharmaceutical drugs**
Rama Bhupal Reddy Kandula, Dr.Reddy's Laboratories Ltd, India
- 178. Digital twin modelling of mammalian cell culture systems for biopharmaceutical manufacturing**
Li Qin, University College London, United Kingdom
- 179. Leveraging MFA and multi-omics to modulate fucosylation and uncover underlying mechanisms**
Ping Xu, Bristol Myers Squibb, USA
- 180. Enhancing process development through knowledge transfer across clones and scales with platform cell model (PCM)**
Mehran Rafigh, Yokogawa Insilico Biotechnology, Germany

- 181. Modulation and control of antibody glycosylation: An experimental and computational study**
Susan Sharfstein, University at Albany, USA
- 182. Mixture Design as a tool for improving full-to-empty particle ratios across various GOIs in rAAV production**
Pol Hulsbus i Andreu, The Novo Nordisk Foundation Center for Biosustainability, Denmark
- 183. Tunable-laser NIR spectroscopy enables robust prediction of process attributes in mammalian cell cultivations without prior model training**
Claes Nymand Nilsson, Novo Nordisk A/S, Denmark
- 184. Integrating development, manufacturing, and regulatory considerations into advanced therapy medicinal products (ATMPs)**
Tiffany Rau, Rau Consulting, Bio Pharma Technical Consulting, USA
- 185. Production process development in suspension HEK293 for AAV vectors to improve productivity and quality attributes**
Alicia Coombs, Regeneron Pharmaceuticals, USA
- 186. Assessing the impact of selective pressures on the genetic and epigenetic landscape of HEK293 cells used for rAAV production**
Nikolaus Virgolini, BOKU University, Austria
- 187. Improved detection of high-risk host cell proteins through spectral library construction for Chinese hamster-derived cell cultures**
Tomoko Matsuda, Nihon BioData Corporation, Osaka University Japan
- 188. Controlling Rep gene expression using synthetic biology tools**
Emily Doleh, University of Delaware, USA
- 189. Optimizing bioreactor scale-up: AbbVie's comprehensive approach for scaling cell culture bioreactors from lab to large-scale**
Anisur Rahman, AbbVie, USA
- 190. Applying ¹³C isotope tracing to elucidate CHO cell metabolism and composition**
Bradley Priem, Johns Hopkins University, USA
- 191. Enhancing the productivity of an intensified process by optimizing feed composition for efficient cell metabolism**
Lynn Theprungsirikul, AstraZeneca, USA
- 192. Optimizing T-cell manufacturing with a high-performance medium free of animal derived components**
Joanna Kern, Thermo Fisher Scientific, USA
- 193. Controlling and applying the lactate shift for bioprocess monitoring and bioproduction improvements**
Yu-Jun Hong, University of Michigan, USA
- 194. Streamlining bioprocesses by converting a dual-feed into a single-feed system with peptides**
Zach Demorest, Evonik Operations GmbH, Germany

- 195. Transcriptomic analysis of recombinant CHO cell lines in response to endoplasmic reticulum stress inducing agents**
Priya Mishra, IIT Bombay, India
- 196. Mechanistic modeling of recombinant adeno-associated virus production in synthetic cell lines**
Pralhad Srinivasan, University of Minnesota, USA
- 197. Scalable 3D scaffold-based bioreactor platform for exosome research, development, and GMP manufacturing**
David Sergeant, IPRATECH sa, Belgium
- 198. Approaches for scale-down model qualifications using ambr250 high-throughput bioreactor for process characterization**
Shaunak Uplekar, KBI Biopharma, USA
- 199. Optimizing fed-batch feeding strategy using metabolic flux analysis and Raman spectroscopy**
Woo Suk Ahn, Sanofi, USA
- 200. Development of scalable clarification step for extracellular vesicles by using tangential flow depth filtration (TFDF) system**
Lauren Torres, Repligen, USA
- 201. Implementation of a multi-omics systems biology methodology for CHO based cell culture process development and product quality enhancement**
Pubali Banerjee, Takeda, USA
- 202. AOF peptones in cell culture media for viral vaccine manufacturing**
James Brooks, Thermo Fisher Scientific, USA
- 203. Development and scale-up of a novel adenovirus production process**
Greg Bremer, Ensoma, Inc., USA
- 204. Comparative analysis of critical quality attributes of lentivirus across three production processes**
Brianna Jayanthi, Asimov, USA
- 205. Development of an apoptosis-resistant CHO cell line for biopharmaceutical production**
Camila Orellana, Pontificia Universidad Católica de Chile, Chile
- 206. Demonstrating key processes of the T Cell therapy workflow in chemically defined media**
Katsuko Sato, FUJIFILM Irvine Scientific, USA
- 207. AMBIC: An I/ucrc bringing together academia, industry, and government to progress pre-competitive biopharmaceutical Research**
Edward Ma, Johns Hopkins University, USA
- 208. Bioprocess development for influenza A universal vaccine with chimeric hemagglutinin viruses**
Eduard Puente Massaguer, Icahn School of Medicine at Mount Sinai, USA
- 209. Enhancing glycan quality prediction in therapeutic antibodies through integrated hybrid modeling**
Juan Camilo Gonzalez Rivera, Bristol Myers Squibb, USA

- 210. Reconstructing the mammalian secretory pathway: secRecon as a fundamental tool for protein secretion research**
Pablo Di Giusto, University of California, San Diego, USA
- 211. Improving cell culture media preparation through automation and digitalization**
Thomas Fletcher, Fujifilm, USA
- 212. A cost effective and flexible approach towards tubespun bioreactors automation and accessibility**
Kim Le, Upside Foods, USA
- 213. Modulation of mAb productivity and quality using automated multivariable control of perfusion bioreactor**
Jaeweon Lee, University of Massachusetts Lowell, USA
- 214. Leveraging the biomimetic Expansify™ gas permeable petri dish for cell therapy**
Colin Cook, XDemics Corporation, USA
- 215. Cellular response and hydrodynamic stress adaptation of CHO cell lines by exposure to resonant acoustic mixing**
Mauricio Trujillo-Roldan, Universidad Nacional Autónoma de México, Mexico
- 216. Comparative proteomic study of the enriched mitochondrial fraction of antibody-producing CHO cells**
Norma A. Valdez-Cruz, Universidad Nacional Autónoma de México, Mexico
- 217. Regeneron's upstream "Bench of the Future": Automating towards a future of "No Touch" bioreactor sampling**
John Czukkermann, Regeneron Pharmaceuticals, Inc., USA
- 218. Enhancing CHO cell productivity through omics technologies and machine learning**
Arathi Krishnakumar, Bristol Myers Squibb, USA
- 219. Development of a high yield intensified fed-batch process for a CHO-DG44 cell line**
Peifeng Chen, National Institutes of Health, USA
- 220. Optimizing recombinant adeno-associated virus production and characterization: assessing physical and functional titer for therapeutic development**
Yaxin Yang, Carnegie Mellon University, USA
- 221. *Withdrawn***
- 222. Achieving extreme cell densities in perfusion culture: Strategies and challenges**
Jongchan Lee, Bristol Myers Squibb, USA
- 223. Data augmentation models for stem cell bioprocessing**
Emmanuel Tzanakakis, Tufts University, USA