

Program

Integrated Continuous Biomanufacturing III

September 17 - 21, 2017

**Hotel Cascais Miragem
Cascais, Portugal**

Conference Co-Chairs

Suzanne Farid, University College London, United Kingdom

Chetan Goudar, Amgen, USA

Paula Alves, IBET, Portugal

Veena Warikoo, Axcella Health, Inc., USA



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Engineering Conferences International (ECI) is a not-for-profit global engineering conferences program, originally established in 1962, that provides opportunities for the exploration of problems and issues of concern to engineers and scientists from many disciplines.

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Previous conference in this series

Integrated Continuous Biomanufacturing

October 20 - 24, 2013

Castelldefels, Spain

Conference Chairs:

Konstantin Konstantinov, Genzyme-Sanofi, USA

Chetan Goudar, Amgen, USA

Nigel Titchener-Hooker, University College London, UK

Integrated Continuous Biomanufacturing II

November 1 - 5, 2015

Berkeley, California, USA

Conference Chairs:

Chetan Goudar, Amgen, USA

Suzanne Farid, University College London, UK

Christopher Hwang, Genzyme-Sanofi, USA

Karol Lacki, Novo Nordisk, Denmark

INTEGRATED CONTINUOUS BIOMANUFACTURING AWARD WINNER



KONSTANTIN B. KONSTANTINOV

Engineering Conferences International (ECI) is very pleased to announce the creation of an award for the very successful conference series on Integrated Continuous Biomanufacturing (ICB). The first award will be given to **Konstantin Konstantinov** in recognition of his vision and effort to create this conference series and for his multiple contributions to the field. This award will be presented to Konstantin at ICB III.

Konstantin will give a keynote lecture and chair a committee to select future winners of this award.

Konstantin continues to make differentiating contributions to process development and commercialization activities for multiple new products through his over 50 Peer Reviewed publications and his many conference contributions. This activity was recently recognized by the Cell Culture Engineering (CCE) community and Konstantin was selected from many contenders as the 2016 recipient of the Conference award which was presented to him in May at CCE XV in La Quinta, California.

We anticipate that the Integrated Continuous Biomanufacturing Conference will grow in importance over future years.

Conference Sponsors

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UCB Pharma

Amicus Therapeutics

Bayer

Momenta

Semba Biosciences, Inc.

Wuxi Biologics

NOTES

- *Technical Sessions will be in Rooms I and II. Poster sessions will be in Room III.*
- *All meals will be on the 3rd Floor, with the exception of the conference banquet on Wednesday.*
- *The ECI office will be in Room XI.*
- *The gala dinner will be in Rooms I and II.*
- *Workshop locations will be announced on site.*
- *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 prior permission has been granted by the author and ECI.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3-5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *Please write your name on your program so that it can be returned to you if lost or misplaced.*
- *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.*

Workshop Topics

Workshop 1: Increasing Speed to Clinic with Continuous Biomanufacture

Chairs: **Todd Przybycien**, Carnegie Mellon University, USA
Jon Coffman, Boehringer Ingelheim Pharma, USA

Workshop 2: Evaluating Future Facility Design Concepts

Chairs: **Suzanne Farid**, University College London, United Kingdom
Michael Borys, Bristol-Myers Squibb, USA

Workshop 3: Gearing Up for Process Performance Qualification Readiness for ICB

Chairs: **Mark Brower**, MSD, USA
Jeff Salm, Pfizer, USA

Workshop 4: Industry-Academia-Vendor-Government Collaboration in the ICB Space

Chairs: **Alessandro Butte**, ETH Zurich, Switzerland
Alex Xenopoulos, EMD Millipore, USA

Sunday, September 17, 2017

14:00 – 16:15 Conference Check-in

16:15 – 16:30 Welcome – Conference Chairs and ECI Liaison

16:30 – 17:15

Keynote Lecture 1

Are we prepared to meet the demands of a challenging, but promising future?

James Thomas, Just Biotherapeutics, Inc. USA

17.15 – 17.45

Break

17:45 – 19:15

Workshops (2 in parallel)

Workshop 2: Evaluating Future Facility Design Concepts (XII+XIII)

Chairs: **Suzanne Farid**, University College London, United Kingdom

Michael Borys, Bristol-Myers Squibb, USA

Workshop 3: Gearing Up for Process Performance Qualification Readiness for ICB
(XV)

Chairs: **Mark Brower**, MSD, USA

Jeff Salm, Pfizer, USA

19:30 – 21:30

Dinner

21.30 – 23.00

Social Hour

Monday, September 18, 2017

07:30 – 09:00 *Breakfast*

Session 1: Continuous Culture to Capture **(Sponsored by Pfizer)**

Chairs: **Martina Micheletti**, University College London (UCL), United Kingdom
Jason Walther, Sanofi, USA. **Thomas Ryll**, Immunogen, USA

- 09:00 – 09:25 **Continuous bioprocessing for biologics manufacturing**
Weichang Zhou, WuXi Biologics, China
- 09:25 – 09:50 **Development of highly intensified cell culture perfusion media and process with tremendous productivity potential, while having a low cell bleed requirement for maintaining an overall high yield**
Henry Lin, Boehringer Ingelheim, USA
- 09:50 – 10:15 **Scalable technologies for process intensification in the continuous biomanufacturing factories of the future**
Gerben Zijlstra, Sartorius, Germany
- 10:15 – 10:40 **Process development in screening scale bioreactors and perspectives for very high cell density perfusion**
Veronique Chotteau, KTH, Sweden
- 10:40 – 11:05 **Evaluating options objectively – Resisting the "purist" approach to arrive at the most productive, robust, and practically implementable perfusion utilizing processes**
Gregory Hiller, Pfizer, Inc., USA

11:05 – 11:45 *Coffee / Networking Break*

- 11:45 – 12:30 **Keynote Lecture 2**
Systemic rejuvenation: From blood to molecular therapies
Ludwig Aigner, Paracelsus Medical University Salzburg, Austria

12:30 – 13:45 *Lunch*

Session 2: Continuous Purification and Drug Product Sequences **(Sponsored by Amgen)**

Chairs: **Manuel Carrondo**, iBET, Portugal
Art Hewig, Amgen, USA

- 13:45 – 14:10 **Development of continuous production and purification processes for the integrated manufacture of monoclonal antibodies**
Massimo Morbidelli, ETH Zürich, Switzerland
- 14:10 – 14:35 **From development to implementation with a fully integrated downstream bioprocess**
Jeff Salm, Pfizer, USA
- 14:35 – 15:00 **Process intensification: Enabling technologies and methodologies**
Jean-Marc Bielser / Jonathan Souquet, Merck KGaA, Switzerland
- 15:00 – 15:25 **A disruptive alternative to semi-continuous multi-column chromatography (MCC) processes**
Michael Rose, UCB, United Kingdom
- 15:25 – 15:50 **Multi-column chromatographic purification of influenza virus-like particles**
Ricardo Silva, iBET, Portugal

Monday, September 18, 2017 (continued)

15:50 – 16:45	<i>Coffee / Networking Break</i>
16:45 – 18:00	Poster Snapshot Session Chairs: Alois Jungbauer , BOKU, Austria Veronique Chotteau , KTH, Sweden Natalia Gomez , Amgen, USA Jarno Robin , Sanofi, France
16:45 – 16:50	Fouling mitigation in membrane based perfusion systems by oscillating tangential flow Maria Weinberger, Technical University of Munich, Germany
16:50 – 16:55	Bioprocess intensification and optimisation using macroscopic predictive models of cell culture processes Bassem Ben Yahia, UCB Pharma S.A., Belgium
16:55 – 17:00	Use of a biphasic perfusion process based on mild hypothermia for recombinant glucocerebrosidase (GBA) production Filipa Gonçalves, Instituto Superior Técnico, Portugal
17:00 – 17:05	Ultra scale-down mimics for perfusion culture: Experimental study for rapid biopharmaceutical process development Molly Tregidgo, University College London, United Kingdom
17:05 – 17:10	Evaluation of pseudo-perfusion feeding strategies for mAb production using a CHO cell line adapted to concentrated feed media Leda Castilho, Federal University of Rio de Janeiro, Brazil
17:10 – 17:15	Conversion of an industrial batch separation process to an autonomous integrated downstream process – A case study Anton Lofgren, Lund University, Sweden
17:15 – 17:20	Continuous protein precipitation – A robust antibody purification method without the need for steady state conditions during continuous integrated production. Daniel Burgstaller, University of Natural Resources and Life Sciences, Vienna, Austria
17:20 – 17:25	Continuous extraction strategies for monoclonal antibodies: From macro- to micro-scale Ana Margarida Azevedo, Instituto Superior Técnico, Portugal
17:25 – 17:30	Design of a novel continuous flow reactor for low pH viral inactivation Stephanie A. Parker, Keck Graduate Institute, USA
17:30 – 17:35	Supervisory control of integrated continuous downstream processes Bernt Nilsson, Lund University, Sweden
17:35 – 17:40	Digitalization platform and supervisory control of a continuous integrated bioprocess based on Raman spectroscopy Fabian Feidl, ETH Zürich, Switzerland
17:40 – 17:45	Up and down scale considerations for the continuous production of glycooptimized biopharmaceuticals Vicky Goralczyk, Glycotope GmbH, Germany
17:45 – 17:50	Scalable lentiviral vector production using stable producer cell lines in perfusion mode Aziza Manceur, National Research Council Canada, Canada

Monday, September 18, 2017 (continued)

- 17:50 – 17:55 **Continuous gas processing without bubbles using thin liquid film bioreactors containing biocomposite biocatalysts**
Michael C. Flickinger, North Carolina State University, USA
- 17:55 – 18:00 **Enabling next-generation cell line development using continuous perfusion and nanofluidic technologies**
Chetan Goudar, Amgen, USA
- 18:00 – 19:00 *Free Time*
- 19:00 – 20:30 *Dinner*
- 20:30 – 22:30 **Poster Session** with dessert and Social Hour

Tuesday, September 19, 2017

07:30 – 09:00

Breakfast

Session 3: End-to-end Continuous Biomanufacture
(Sponsored by Boehringer Ingelheim)

Chairs: **Massimo Morbidelli**, ETH Zurich, Switzerland
Rohan Patil, Sanofi, USA

09:00 – 09:25

Towards the implementation of a continuous bioprocess in single use technology
Jorgen Magnus / Thomas Daszkowski, Bayer, Germany

09:25 – 09:50

Implementation of an end-to-end continuous bioprocessing platform using novel technologies
Peter Levison, Pall Life Sciences, United Kingdom

09:50 – 10:15

Fully integrated continuous antibody processing demonstrates improved productivity
Kenneth Lee, MedImmune LLC, USA

10:15 – 10:40

Balancing continuous, integrated, and batch processing
Jonathan Coffman, Boehringer Ingelheim, USA

10:40 – 11:05

Continuous freeze-drying and its relevance to the pharma/biotech industry
Roberto Pisano, Politecnico di Torino, Italy

11:05 – 11:45

Coffee / Networking Break

11:45 – 12:30

Keynote Lecture 3
Continuous manufacturing - EMA perspective and experience
Nino Mihokovic, European Medicines Agency, United Kingdom

12:30 – 13:30

Lunch

13:30 – 15:00

Poster Session with dessert and Social Hour
Chairs: **Alois Jungbauer**, BOKU, Austria
Veronique Chotteau, KTH, Sweden
Natalia Gomez, Amgen, USA
Jarno Robin, Sanofi, France

15:00 – 22:00

Excursion and Dinner on your own before returning to hotel

Wednesday, September 20, 2017

07:30 – 09:00 *Breakfast*

Session 4: Predictive Continuous QbD Case Studies **(Sponsored by Sartorius Stedim Biotech)**

Chairs: **Naz Karim**, Texas A&M University, USA
Dorothee Ambrosius, Boehringer Ingelheim Pharma, Germany

09:00 – 09:25 **Continuous bioprocessing and process analytical technologies: A path towards quality by design**

Nuno Pinto, Merck & Co., Inc., USA

09:25 – 09:50 **Commercialization of a 2nd generation intensified perfusion process during life cycle management**

Jiuyi Lu, Sanofi, USA

09:50 – 10:15 **Regulatory aspects of continuous downstream processing**

Marc Bisschops, Pall Corporation, Netherlands

10:15 – 10:40 **Integrating analysis with process control for continuous bioprocessing: Extending the lifecycle concept to process analytical technologies**

Jose Menezes, Instituto Superior Tecnico & 4Tune Engineering Ltd, Portugal

10:40 – 11:05 **A comprehensive study in PAT-applications for a QbD-compliant development of continuous biopharmaceutical production**

Reiner Luttmann, Hamburg University of Applied Sciences, Germany

11:05 – 11:45 *Coffee / Networking Break*

11:45 – 13.15 **Workshops** (2 in parallel)

Workshop 1: Increasing Speed to Clinic with Continuous Biomanufacture (XII+XIII)

Chairs: **Todd Przybycien**, Carnegie Mellon University, USA
Jon Coffman, Boehringer Ingelheim Pharma, USA

Workshop 4: Industry-Academia-Vendor-Government Collaboration in the ICB Space (XV)

Chairs: **Alessandro Butte**, ETH Zurich, Switzerland
Alex Xenopoulos, EMD Millipore, USA

13:15 – 14:30 *Lunch*

Session 5: Business Case for Facilities of the Future **(Sponsored by Merck)**

Chairs: **Alex Kiparissides / Nigel Titchener-Hooker**, University College London (UCL), United Kingdom
Thomas Sauer, Sanofi, Germany

14:30 – 14:55 **Delivering a toolbox of flexible platforms for clinical and commercial bioprocessing production: 'Defining the business drivers for development and implementation'**

Mark Brower, Merck & Co Inc, USA

14:55 – 15:20 **Are integrated processes a solution looking for a problem to solve, or a tool to solve the problem?**

Joseph Shultz, Novartis Pharma AG, Switzerland

15:20 – 15:45 **Process economics in biologics manufacturing**

John Machulski, Sanofi, USA

Wednesday, September 20, 2017 (continued)

15:45 – 16:10 **Next generation manufacturing for biologics: Integration of a hybrid model for continuous manufacturing concepts into a clinical facility**
Michael Borys, Bristol-Myers Squibb, USA

16:10 – 16:30 *Coffee / Networking Break*

Session 6: Continuous Biomanufacture Beyond CHO or Proteins
(Sponsored by GE Healthcare)

Chairs: **Chris Love**, Massachusetts Institute of Technology, USA
Uwe Gottschalk, Lonza, Switzerland

16:30 – 16:55 **Beyond CHO – Non-mammalian hosts could be the future expression systems of choice for recombinant biotherapeutics**
Chapman Wright, Biogen, USA

16:55 – 17:20 **Integrated manufacturing with microbial hosts for fast process development and production**
J. Christopher Love, Massachusetts Institute of Technology, USA

17:20 – 17:45 **Continuous biomanufacturing concepts for cell therapy processes**
Erika M. McAfee, Lonza Walkersville, Inc., USA

17:45 – 18:10 **Bioprocess intensification for the continuous expansion of 3D human induced pluripotent stem cell aggregates in bioreactors**
Bernardo Abecasis, IBET, Portugal

18:10 – 18:25 *Stretch Break*

18:25 – 19:00 **Keynote Lecture 4 (ICB Award Lecture)**
Development and large scale manufacturing of exosome-based therapeutics
Konstantin Konstantinov, Codiak Biosciences, USA

19:00 – 19:45 *Free Time*

19:45 – 20:30 *Reception*

20:30 – 22:30 *Conference Banquet and Awards*

22.30 – 23.30 *Social Hour*

Thursday, September 21, 2017

07:00 – 09:30 Breakfast and departures

Poster Presentations

Continuous Culture to Capture

1. **Optimizing media for perfusion combining predictive scale-down models and multivariate approaches**
Jochen Sieck, Merck KGaA, Germany
2. **Development of a scale down toolbox for perfusion process development**
Jean-Marc Bielser, Merck KGaA, Switzerland
3. **Development and application of screening scale bioreactor systems for very high cell density perfusion of mammalian cells**
Caijuan Zhan, KTH - Cell Technology Group (CETEG), Sweden
4. **Fouling mitigation in membrane based perfusion systems by oscillating tangential flow**
Maria Weinberger, Technical University of Munich, Germany
5. **Bioprocess intensification and optimisation using macroscopic predictive models of cell culture processes**
Bassem Ben Yahia, UCB Pharma S.A., Belgium
6. **Ultra scale-down mimics for perfusion culture: Experimental study for rapid biopharmaceutical process development**
Molly Tregidgo, University College London, United Kingdom
7. **Evaluation of pseudo-perfusion feeding strategies for mAb production using a CHO cell line adapted to concentrated feed media**
Leda Castilho, Federal University of Rio de Janeiro, Brazil
8. **Use of a biphasic perfusion process based on mild hypothermia for recombinant glucocerebrosidase (GBA) production**
Filipa Gonçalves, Instituto Superior Técnico, Portugal
9. **Enhancing crispr-mediated CHO cell antibody productivity through concentrated fed-batch or continuous perfusion**
Ching-Jen Yang, Development Center for Biotechnology, Taiwan
10. **Evaluation of cell culture with a simulated continuous manufacturing (sCM) process in 50mL tubespins for clone selection**
Natalia Gomez, Amgen, USA
11. **Screening cell growth in simulated continuous manufacturing spin tubes determines optimal media conditions for cell lines**
Jonathan Lull, Amgen, USA
12. **Development of a novel automated perfusion mini bioreactor 'ambr® 250 perfusion'**
Barney Zoro, Sartorius Royston, United Kingdom
13. **More than 15 years of continuous processing using chemostat cultures. A Shire niche?**
Daniel Fleischanderl, Shire, Austria
14. **Small-scale development and optimization of stirred tank mammalian cell perfusion cultures**
Moritz Wolf, ETH Zurich, Switzerland

15. **Intensification of a multi-product perfusion platform through medium and process development**
Shawn Barrett, Sanofi, USA
16. **Computational Fluid Dynamics (CFD) modelling and experimental confirmation of hollow fiber tangential flow filtration (HFTFF) and alternating tangential flow filtration (ATF) In a perfusion bioreactor**
Flaka Radoniqi, Keck Graduate Institute and Boehringer Ingelheim, USA
17. **Up and down scale considerations for the continuous production of glycooptimized biopharmaceuticals**
Vicky Goralczyk, Glycotope GmbH, Germany
18. **Ultra scale-down concepts to address early stage process development challenges in integrated continuous bioprocessing**
Andrea Rayat, University College London, United Kingdom

Continuous Purification and Drug Product Sequences

19. **Continuous protein precipitation – A robust antibody purification method without the need for steady state conditions during continuous integrated production**
Daniel Burgstaller, University of Natural Resources and Life Sciences, Vienna, Austria
20. **Continuous in-line virus inactivation for next generation bioprocessing**
Melissa Holstein, MilliporeSigma, USA
21. **Consideration of filter design space for validation of virus filtration in continuous processing applications**
Nigel Jackson, Pall Life Sciences, United Kingdom
22. **Impact of product and recycle times in MCSGP polishing on charge variant separation**
Sebastian Vogg, ETH Zurich, Switzerland
23. **Novel single-column simulated moving-bed chromatography platform for quasi-continuous biopurification**
José P. B. Mota, LAQV-REQUIMTE, FCT-UNL, Portugal
24. **Design of a novel continuous flow reactor for low pH viral inactivation**
Stephanie A. Parker, Keck Graduate Institute, USA
25. **Progress towards continuous aqueous two-phase extraction via TAPPIR**
Andreas Bommarius, Georgia Institute of Technology, USA
26. **Continuous extraction strategies for monoclonal antibodies: From macro- to micro-scale**
Ana Margarida Azevedo, Instituto Superior Técnico, Portugal
27. **Enabling end-to-end continuous biomanufacturing by exploring integration approaches of continuous TFF**
Eva Udovic, University of Ljubljana, Slovenia
28. **Viral clearance considerations for continuous viral inactivation**
Raquel Orozco, Boehringer Ingelheim, USA

29. **Conversion of an industrial batch separation process to an autonomous integrated downstream process – A case study**
Anton Lofgren, Lund University, Sweden
30. **Much-efficient and cost-effective manufacturing of antibody biotherapeutics employing integrated negative chromatography technology**
Razwan Hanif, UCB, United Kingdom
31. **A fully continuous downstream process concept without column chromatography**
Todd Przybycien, Carnegie Mellon University, USA
32. **Dynamic process control of twin-column periodic countercurrent chromatography processes**
Thomas Muller-Spath, ETH Zurich, Switzerland

End-to-end Continuous Biomanufacture

33. **Application of single pass TFF to enable intensified and continuous biological manufacturing**
Herbert Lutz, MilliporeSigma, USA
34. **Development of an N-1 perfusion process and optimized scale-down models for implementation in a platform CHO cell culture manufacturing process**
Frank V. Ritacco, Bristol-Myers Squibb, USA
35. **Process considerations for Protein A affinity capture, virus inactivation, and linked polishing steps in multi-column continuous purification of monoclonal antibodies**
Robert Mierendorf, Semba Biosciences, Inc., USA
36. **Continuous purification of monoclonal antibody using periodic counter-current chromatography**
Wei-Kuang Chi, Development Center for Biotechnology, Taiwan
37. **Clarification and capture of a CHO-derived monoclonal antibody through flocculation and AEX processes**
Rimenys J. Carvalho/Leda Castilho, Federal University of Rio de Janeiro (UFRJ), COPPE, Brazil

Predictive Continuous QbD Case Studies

38. **Supervisory control of integrated continuous downstream processes**
Bernt Nilsson, Lund University, Sweden
39. **Process analytical technologies for a continuous capture and connected downstream process**
Nina Brestrich/Joseph Shultz, Novartis Pharma AG, Switzerland
40. **Digitalization platform and supervisory control of a continuous integrated bioprocess based on raman spectroscopy**
Fabian Feidl, ETH Zürich, Switzerland
41. **Process analytical technology (PAT) in continuous bioprocessing**
Edita Botonjic-Sehic, Pall Life Sciences, USA

42. **Qualification of single use in-line sensors for use in continuous bioprocessing**
James Furey, PendoTECH, USA
43. **Time-series datamining for continuous bioprocess analysis**
Yang Yang, University College London, United Kingdom
44. **Enhancing multivariate calibration model reproducibility for the online monitoring of upstream processes in continuous biomanufacturing**
Nicholas A. Trunfio, University of Massachusetts - Lowell, U.S. Food and Drug Administration, USA
45. **FDA/OBP laboratory research to support continuous bioprocessing**
Scott Lute, U.S. FDA, CDER/OBP, USA

Business Case for Facilities of the Future

46. **Cost modeling of an integrated, continuous downstream mAb platform**
Mark Schofield, Pall Life Sciences, USA
47. **Facility design concepts for adoptive T-cell immunotherapy**
Tania Pereira Chilima, UCL, United Kingdom

Continuous Biomanufacture Beyond CHO or Proteins

48. **Continuous desalting of refolding solution by ion exchange chromatography**
Nicole Walch, Austrian Centre of Industrial Biotechnology, Austria
49. **Continuous gas processing without bubbles using thin liquid film bioreactors containing biocomposite biocatalysts**
Michael C. Flickinger, North Carolina State University, USA
50. **Novel concepts for efficient and predictable membrane separation in continuous cell retention and downstream processing**
Ulrich Kulozik, Technical University of Munich, Germany
51. **Stirred tanks in cascades and plug-flow tubular bioreactors for continuous production of viral vaccines**
Felipe Tapia, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
52. **Scalable lentiviral vector production using stable producer cell lines in perfusion mode**
Aziza Manceur, National Research Council Canada, Canada
53. **Continuous chromatography beyond affinity capture of monoclonal antibodies**
Linda Mathiasson, GE Healthcare, Sweden
54. **Enabling next-generation cell line development using continuous perfusion and nanofluidic technologies**
Chetan Goudar, Amgen, USA

ICB III (2017) SCHEDULE AT A GLANCE

Sun. Sep 17	Mon. Sep 18	Tues. Sep 19	Wed. Sep 20	Thur. Sep 21
	07:30-09:00 Breakfast	07:30 - 09:00 Breakfast	07:30 - 09:00 Breakfast	06:30 - 09:30 Breakfast & Departures
	09:00 - 11:05 Session 1: Continuous Culture to Capture	09:00 - 11:05 Session 3: End-to-end Continuous Biomanufacture	09:00 - 11:05 Session 4: Predictive Continuous QbD Case Studies	
	11:05 - 11:45 Coffee/Networking Break	11:05 - 11:45 Coffee/Networking Break	11:05 - 11:45 Coffee/Networking Break	
	11:45 - 12:30 Keynote 2	11:45 - 12:30 Keynote 3	11:45 - 13:15 Workshops (2 in parallel)	
	12:20 - 13:45 Lunch	12:30 - 13:30 Lunch	13:15 - 14:30 Lunch	
14:00 - 16:15 Conference Check-in	13:45 - 15:50 Session 2: Continuous Purification and Drug Product Sequences	13:30 - 15:00 Poster Session with dessert	14:30 - 16:10 Session 5: Business Case for Facilities of the Future	
16:15 - 16:30 Welcome - Conference Chairs & ECI Liaison	15:50 - 16:45 Coffee/Networking Break	15:00 - 22:00 Excursion and Dinner on your own before returning to hotel	16:10 - 16:30 Coffee/Networking Break	
16:30 - 17:15 Keynote 1	16:45 - 18:00 Poster Snapshot Session		16:30 - 18:10 Session 6: Continuous Biomanufacture Beyond CHO or Proteins	
17:15 - 17:45 Break			18:10 - 18:25 Stretch Break	
17:45 - 19:15 Workshops (2 in parallel)	18:00 - 19:00 Free Time		18:25 - 19:00 Keynote 4 (ICB Award Lecture)	
19:30 - 21:30 Dinner	19:00 - 20:30 Dinner		19:00 - 19:45 Free Time	
		19:45 - 20:30 Reception		
21:30 - 23:00 Social Hour	20:30 - 22:30 Poster Session with dessert and Social Hour	20:30 - 22:30 Conference Banquet & Awards		
		22:30 - 23:30 Social Hour		