



WORLD BIOPHARM FORUM

**2016**

# **Progress in Continuous Biomanufacturing**

Robinson College, Cambridge, UK  
27th-28th June, 2016

[www.subramanian.org.uk](http://www.subramanian.org.uk)



---

# A WARM INVITATION TO COME AND JOIN US IN CAMBRIDGE

I invite you to join us at the Third international conference on Progress in Biomanufacturing which will be held at Robinson College, Cambridge, UK on June 27-28, 2016.

Continuous biomanufacturing requires the ability to think laterally and have a proactive mindset across the entire team from development to production. Today Biopharm industries accept Continuous Manufacturing Process as a novel approach to efficiently and economically produce a therapeutic product. However there are some bottlenecks still to overcome. Single use continuous processing has yet to tick all the boxes from the industry's viewpoint. Over the last few years interest in continuous bioprocessing has grown considerably due to the ongoing developments of technologies and advancing their application to meet the needs of the manufacturers. Such is the interest that several leading biopharm companies together with vendors and academics are developing the technologies to apply in their manufacturing process.

The conference is enhanced by the participation of 26 leading industrial technologists, scientific vendors and also six leading academics from

Europe and USA. They have come forward to share their experience and knowledge to provide a better understanding of the current technologies and their application in continuous biomanufacturing. There is also a plenary lecture by a distinguished professor in the field of bioprocessing, and you will also benefit from access to unpublished data. This meeting will address several advancements and their successful application with data, and project to the future direction of the industry.

By joining with us you can benefit from the current state-of-the-art advancements in continuous manufacturing and also learn about the successful organisations that are developing these methods in-house.

Together we will drive change, innovate growth and pioneer smarter technologies to ensure they reach their full potential.

I look forward to welcoming you to Robinson College in the beautiful city of Cambridge.

**G.Subramanian**

---

Sponsored by



**sartorius stedim**  
biotech

---

# MONDAY 27TH JUNE

---

**12.00 Noon**  
**Registration**

---

**12.55**  
**Introduction**

*Dr G Subramanian*

---

**1.00pm**  
**Plenary Lecture: To be continuous or discontinuous, that is the question**

*Professor Charles L. Cooney, Despande Centre for Technological Innovation, MIT, USA*

---

## **Advances in Technology Part 1**

**Chairman: Dr Christopher Gillespie**

---

**1.30pm**  
**Improving product uniformity by integrated continuous biomanufacturing**

*Dr Fabian Steinbach, Institute for Chemical Engineering, Zurich, Switzerland*

---

**1.45pm**  
**Delineating the relative contributions of continuous, integrated and single-use operation in biomanufacturing**

*Dr Alex Xenopoulos, R&D Operations, SigmaMillipore, USA*

---

**2.00pm**  
**Continuous bioprocessing: combining efficiency and flexibility**

*Dr Marc Bisschops, Principal Scientist, Pall Lifesciences*

---

**2.15pm**  
**Perfusion SU bioreactor integrating both SU pump and single-use cell retention cross-flow-filter**

*Dr Per Strobbe, Perfusecell, Denmark*

---

---

**2.30pm**  
**Improving Efficiency of Traditional Perfusion by Single-use Countercurrent Centrifugation**

*Dr Sunil Mehta, President & CEO, Ksep Systems, USA*

---

**2.45pm**  
**The benefits of Industry 4.0, modular automation and SU technology applied to continuous biomanufacturing**

*Dipl.-Ing. Dirk Tillich, Finesse Solutions AG, Switzerland*

---

## **Advances in Technology Part 2**

**Chairman: Dr David Pollard**

---

**3.00pm**  
**Next-generation biopharmaceutical downstream processes - continuous biomanufacturing**

*Dr Christopher Gillespie, EMD Millipore, USA*

---

**3.15pm**  
**EcoPrime Twin – Continuous Two-Column Chromatography at the Process Scale**

*Dr Kathleen Muhlbacher, Lewa Technologies, USA*

---

**3.30pm**  
**Refreshments and Networking**

---

**4.15pm**  
**Expanded bed adsorption and chromatography for protein capture**

*Professor Alirio Rodrigues, Department of Chemical Engineering, University of Porto, Portugal*

---

**4.45pm**  
**Countercurrent Polishing Chromatography for Proteins**

*Professor Ajoy Velayudhan, Department of Biochemical Engineering, University College London, UK*

---

**5.00pm**  
**Establishing a mAb flow through polishing process: evaluation of new materials**

*Dr Mathilde Bourguinat, Merckgroup, France*

---

---

**5.15pm**

Discussion Panel Dr Christopher Gillespie and Dr David Pollard: For what platform do you feel continuous Biomanufacturing will not work efficiently

---

## Initiatives to Accelerate Process Developments

**Chairman: Dr Marc Bisschops**

---

**5.30pm**

Continuous improvements in process intensification

*Dr Linda Mathiasson, GE Healthcare, Uppsala, Sweden*

---

**5.45pm**

Design, optimization, and operation strategy for continuous production of mAb

*Professor Seongkyu Yoon. UMASS Lowell, USA*

---

**6.00pm**

Sedimentation-perfusion in the ambr15: scale down tool for product quality and growth characteristics of larger scale ATF-perfusion cultures

*Steffen Kreye, Scientist, GlycoTope GmbH, Germany*

---

**6.15pm**

GlycoExpress™: A toolbox for the high yield production of glycooptimized fully human biopharmaceuticals in perfusion bioreactors at different scales

*Dr Rainer Stahn, Director Process Development, GlycoTope GmbH, Germany*

---

**6.30pm**

Design and implementation of novel continuous biomanufacturing concepts and technologies: Experiences, practical examples and future outlook

*Dr Gerben Zijlstra, Senior Consultant, Xendo B.V. The Netherlands*

---

---

**6.45pm**

Discussion Panel Dr Marc Bisschops  
What specifically do you see needed in order to implement Continuous Biomanufacturing

---

**8.00pm**

Gala Dinner

---

## TUESDAY 28TH JUNE

---

### New modalities & applications

**Chairman: Dr William Whitford**

---

**8.30am**

Cell line & process development approaches for a potential biosimilar development: current trends

*Dr Sanjeev Gupta, Ipca Laboratories Ltd, Mumbai, India*

---

**8.45am**

Challenges for continuous biomanufacturing - platform alternatives for scFv and mAb

*Dr Steffen Zobel Clausthal University of Technology, Germany*

---

**9.00am**

Continuous multi-column chromatography as a tool to improve enveloped virus-like particles manufacturing.

*Dr Ricardo Silva IBET, Portugal*

---

**9.15am**

An efficient approach to downstream manufacturing – combining two downstream chromatography operations into one unit operation for Phase 1 monoclonal antibody production

*Dr Patrick Sheehy, Associate Director JNJ Biologics, Ireland*

---

---

**9.30am**

**Thinking continuous for cell culture based viral vaccine production: evaluation of hollow-fiber based high cell density versus two-stage bioreactor cultivation**

*Dr Yvonne Genzel, MaxPlank Institute, Head of Upstream Processing Team, Magdeburg, Germany*

---

**9.45am**

**Manufacturing of a complex bispecific antibody by continuous bioprocessing**

*Dr Tina Like-Eversloh, Rentschler Biotechnologies GmbH, Germany*

---

**10.00am**

**Discussion Panel Dr William Whitford: What are the practical differences between continuous unit operations and end-to-end continuous biomanufacturing**

---

**Advances in Economic Cost Modeling**

**Chairman. Dr Miriam Monge**

---

**10.15am**

**Improving bioprocess variability, economics and compliance by leveraging on-line and off-line process and quality data**

*Dr Justin Neway, VP and MD, Dassault Systems Biovia, USA*

---

**10.30am**

**Refreshments and Networking**

---

**11.00am**

**Hybrid operation mixing batch & continuous, determining the optimum modality – an economic perspective**

*Dr Andrew Sinclair, Founder, Biopharmservices Ltd, UK*

---

**11.15am**

**Points to consider for commercial continuous bioprocessing**

*Dr Parrish Galliher, Chief Technology Officer, GE Healthcare, USA*

---

---

**11.30am**

**Comparative process modelling & cost of goods analysis of a continuous downstream process: a case study**

*Dr Miriam Monge, Director, Director of Marketing Integrated Solution, Sartorius Stedim, France*

---

**Process Automation & Attribute Control**

**Chairman: Dr. Patrick Sheehy**

---

**11.45am**

**Enabling continuous bioprocessing using horizontal impurity monitoring and data science approaches**

*Dr Oliver Spadiuto and Professor Christoph Herwig, Vienna University of Technology, Austria*

---

**12.00 Noon**

**Centralized control end-to-end SU integrated modular continuous facilities**

*Dr William Whitford, GE Healthcare Lifesciences, USA*

---

**12.15pm**

**Progress towards fully automated mAb production with product attribute control**

*Dr David Pollard, Merck & co, USA.*

---

**12.30pm**

**Discussion Panel Dr Miriam Monge and Dr Patrick Sheehy: What are the interplay between single-use, modular, flexible and continuous biomanufacturing.**

---

**12.45pm Chairman: Dr G Subramanian**

**Invited Lecture: Opportunities for Continuous Manufacturing in the Production of Biopharmaceuticals**

*Tom Ransohoff, Vice President & Principal Consultant, BBTC, USA.*

---

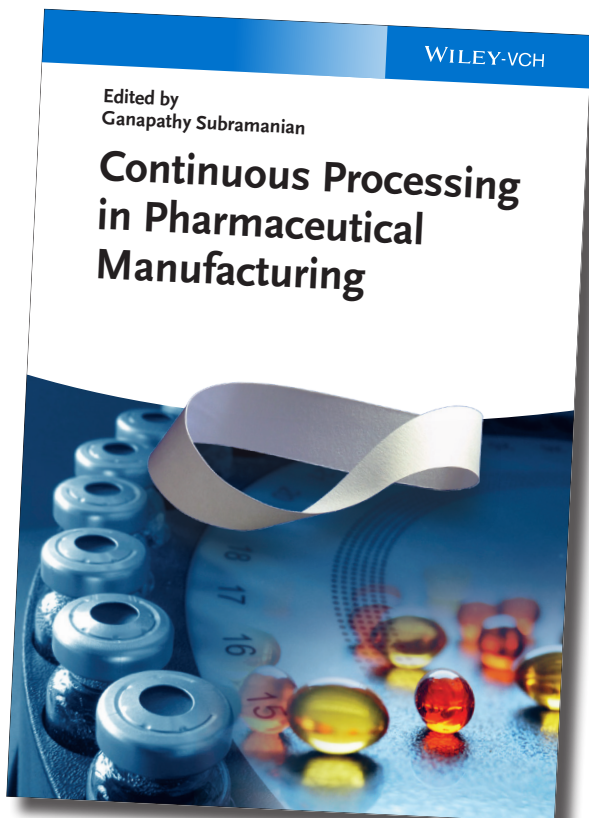
**1.00pm**

**Lunch**

## AVAILABLE NOW

With contributions from biotechnologists and bioengineers, this ready reference describes the state of the art in industrial biopharmaceutical production, with a strong focus on continuous processes. Recent advances in single-use technology as well as application guidelines for all types of biopharmaceutical products, from vaccines to antibodies, and from bacterial to insect to mammalian cells are covered. The efficiency, robustness, and quality control of continuous production processes for biopharmaceuticals are reviewed and compared to traditional batch processes for a range of different production systems.

Published Wiley-VCH and available online and at all good academic bookshops.



## COMING SOON

Continuous Biomanufacturing: Innovative Technologies and Methods.

Edited by Ganapathy Subramanian

Publishers Wiley-VCH

---

# WORLD BIOPHARM FORUM 2016

To reserve your place please complete the registration form in BLOCK LETTERS and post it with full remittance to: Dr. G. Subramanian, 44 Oaken Grove, Maidenhead, Berkshire, SL6 6HH or, email to [gsub@subramanian.org.uk](mailto:gsub@subramanian.org.uk)

Full Name: .....

Job Title: .....

Organisation: .....

Address: .....

.....

..... Postcode: .....

Country: .....

Tel: .....

Email: .....

Any Special Requirement (Dietary): .....

.....

Questions or Comments: .....

.....

.....



## Registration Fees:

Attendance, all meals and accommodation: **£750**

Attendance, all meals and no accommodation: **£600**

## Payment Method:

Online at [www.subramanian.org.uk/Conferences](http://www.subramanian.org.uk/Conferences)

Cheques payable to Dr G. Subramanian in Pound Sterling only and drawn on a UK based bank or direct bank transfer.

## Cancellation:

Should you be unable to attend, a substitute delegate is welcomed at no extra charge.



Produced by Hayward Design & Print  
hayward-design.co.uk • 01227 721 864

