

Program

Vaccine Technology VII



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Vaccine Technology © Conferences History

An ECI Conference Series

Vaccine Technology I (2006)

Barry C. Buckland, John G. Aunins, Emilio A. Emini, and Jerald C. Sadoff
Puerto Vallarta, Mexico

Vaccine Technology II (2008)

Barry C. Buckland, John G. Aunins, Paula Marques Alves, and Kathrin Jansen
Albufeira, Algarve, Portugal

Vaccine Technology III (2010)

Barry C. Buckland, John G. Aunins, Paula Marques Alves, and Kathrin Jansen
Nuevo Vallarta, Mexico

Vaccine Technology IV (2012)

Barry C. Buckland, John G. Aunins, Paula Marques Alves, and Kathrin Jansen
Albufeira, Algarve, Portugal

Vaccine Technology V (2014)

Laura Palomares, Manon Cox, John Aunins and Kathrin Jansen
Playa del Carmen, Mexico

Vaccine Technology VI (2016)

Laura Palomares, Tarit Mukhopadhyay, Manon Cox and Nathalie Garçon
Albufeira, Portugal

Welcome from the VT VII Chairs

Welcome everyone to Mont-Tremblant, a constantly evolving destination bringing nice surprises within a Natural Park in the Laurentide's region, for the 7th Vaccine Technology (VT-VII) conference! It is enthusing that our meeting is being established as the premiere vaccine technology conference and contributes to informing on the scientific and technological trends in developing vaccines to meet the global needs of public health priorities.

Throughout this time, the VT series has been the main forum where industry, academia, public health authorities and philanthropic organizations meet to facilitate linkages and enable collaborations between all regions of the world.

With over 200 participants from 27 countries on 5 continents, this year's meeting is certainly one of the largest VT-ECI conferences ever, and one of the most diverse to date involving many students, academics, government, international bodies and industry representatives to invest in the future and sustain the growth of the vaccine field as a global priority. We will have the largest number of participants from low and medium income countries ever to attend the meeting and this is made possible by the generous sponsorship from the Bill and Melinda Gates Foundation. In addition, the kind sponsorship of our industry partners enabled the attendance a large number of academics and students.

The conference program includes more than 45 oral presentations, two keynote addresses, and six lead lectures. In addition, we have four thematic workshops. The first workshop titled: "Meet the funders for Global Health" recognize the important theme of funding for sustainability of vaccine development for global interventions. Other workshops aim to highlight technical insights in cell and process engineering, -omics tools and analytics.

As has been the tradition and a key success factor of this conference series, a significant amount of time has been allocated to poster sessions. More than 90 posters are presented, and ten short talks have been selected from these posters to underline the important topics covered. All participants are strongly encouraged to take full advantage of this opportunity to further discuss the excellent work that will be presented during the oral and poster sessions. To encourage discussion and debate, a reception will be held during the evening poster session.

Innovation in antigen design and deployment of advanced vaccine technologies are essential to strengthen the public health vaccination policies and support the preparedness plans against emerging and re-emerging infectious diseases. We find ourselves now in a position with the ability to respond to these pathogens of epidemic potential; the debate today is how best to respond – and will be a test of both the technical means and the political will.

Recently, the true potential of therapeutic vaccines was realized by the patients and health authorities are challenging the field to speed up the development of these new medical

interventions that harness the human immune system. With this in mind, we have put together a program that will present the new directions, recognize the challenges, and build on the successes in the vaccine development arena, as shared by leading academic, institutional and industrial experts.

The success of this conference is fundamentally determined by the active engagement each one of you in the dialogue that is enabled by this conference venue, sharing your thoughts and expertise with other participants as we collectively contribute to the accelerated development of the vaccine sciences and technologies and make them available globally. For those of you returning to the VT conference series – welcome back. For those first-time participants – welcome! This is a unique opportunity to rub shoulders with some of the leaders in the vaccine field – so we warmly encourage you to make a friend!

Finally, we would like to thank all the oral session chairs, workshop program session chairs, poster session chairs, and scientific committee members for their time and efforts. All have worked with remarkable dedication to put together a high-quality program. And, once again, thanks to the generous contributions from our sponsors for enabling an outstanding international attendance.

Special thanks to Barbara Hickernell and her dedicated team at ECI, particularly Kathy Chan, Kevin Korpics, and Tressa D’Ottavio for their tireless help and enormous assistance with the logistics and numerous details. Many thanks to John Aunins, for his friendly help in supporting the conference as ECI liaison for this conference. We also want to thank the many student volunteers, and Fairmont Hotel Mont-Tremblant staff, for helping make this meeting a success.

Once again, welcome to Mont-Tremblant and the Laurentide’s region in Quebec. We look forward to meeting each of you personally.

Amine Kamen, Nathalie Garcon, Charles Lutsch and Tarit Mukhopadhyay
Chairs, Vaccine Technology VII Conference

Conference Sponsors

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***Vaccines* Journal**

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Room locations and notes

- General Sessions and Workshops will be held in Mali III-IV.
- Poster Sessions will be in Mali I-II.
- Meals will be in Soutana 1-2. The conference banquet location will be announced on site.
- The ECI office is the Meeting Planner Office.
- 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).
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- 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.

Sunday, June 17, 2018

14:00 – 16:00 Conference check-in

16:30 – 18:30

Workshop 1: Meet the Funders in Global Health

Moderators: Vivian Hsu, Bill & Melinda Gates Foundation;
Torey de Rozario, Bill & Melinda Gates Foundation;
Tarit Mukhopadhyay, University College London

Objectives:

- To connect scientists from academia and industry to organizations who fund innovations in Global Health, and to provide greater insight on how to gain access to those funding streams
- To hear from Bill & Melinda Gates Foundation grantees on their experience in working with a funding organization and to hear an overview of their funded technology
- Ultimately, we aim to support continued funding of innovative technology to further vaccine development and manufacturing for global needs

Opening

Vivian Hsu, Bill & Melinda Gates Foundation

Meet the funders

1. Bill & Melinda Gates Foundation (BMGF), Torey de Rozario
2. Global Health Investment Fund (GHIF), Glenn Rockman
3. The National Institute for Innovations in Manufacturing (NIIMBL), Chris Roberts
4. Coalition for Epidemic Preparedness Innovations (CEPI), Simone Blayer

BMGF Grantees

1. UCL- ULTRA Platform Grant, Tarit Mukhopadhyay & Lourdes Velez Suberbie
2. University of Kansas Center for Research- MSA, David Volkin
3. Vaxess- Microneedles Platform Technology Grant, Michael Schrader

Open discussion

Questions via [Sli.do](https://www.sli.do). Go to address www.sli.do and use event code #G330.

Wrap-up

19:00 – 20:00

Opening Keynote

The impact of vaccines worldwide and the challenges to achieve universal immunization

Dr. Alejandro Cravioto, Chair of WHO Strategic Advisory Group of Experts (SAGE) and Faculty Medicine of the Universidad Nacional Autonoma de Mexico

20:00 – 22:00

Opening Reception Dinner

Monday, June 18, 2018

- 07:00 – 08:30 Breakfast
- 08:30 – 10:30 **Session 1: Technological and Clinical Advances in Vaccinology (I)**
Session Chairs: David Weiner, The Wistar Institute, USA;
Frank Böhner, CureVac AG, Germany
- 08:30 – 09:10 *Lead talk:*
Structure-based vaccines for respiratory viruses
Dr. Barney Graham, Deputy Director of the Vaccine Research Center of the NIH, USA
- 09:10 – 09:35 **mRNA Vaccines: On the progress from promise to reality**
Hari Pujar, Moderna, USA
- 09:35 – 10:00 **RNActive®-An mRNA-based vaccine technology for next generation prophylactic vaccines**
Edith Jasny, Senior Scientist CureVac AG, Tübingen, Germany
- 10:00 – 10:25 **Virus-like particle vaccines against BK and JC polyomaviruses**
Diana V. Pastrana, NCI/NIH, USA
- 10:25 – 10:55 Coffee break (*Sponsored by GE Healthcare and GSK*)
- 10:55 – 12:35 **Session 2: Technological and Clinical Advances in Vaccinology (II)**
Session Chairs: Udo Reichl, Max Planck Institute, Germany;
Hari Pujar, Moderna Therapeutics, USA
- 10:55 – 11:20 **Molecular quality engineering for low cost vaccine production**
Kerry Routenberg Love, Koch Cancer Institute at MIT, USA
- 11:20 – 11:45 **Single-cell analysis uncovers a novel influenza A virus-derived defective interfering particle for antiviral therapy**
Sascha Young Kupke, Max Planck Institute for Dynamics of Complex Technical Systems
Magdeburg, Germany
- 11:45 – 12:10 **Persistent antibody clonotypes dominate the serum response to influenza following repeated vaccination over multiple years**
Jiwon Lee, University of Texas at Austin, USA
- 12:10 – 12:35 **Pan-HA antibodies confer protection in mice against influenza**
Aziza Manceur, National Research Council, Canada
- 12:35 – 14:00 Lunch
- 14:00 – 15:30 **Workshop 2: Advanced Technologies, Equipment and Instrumentation for Vaccine Manufacturing**
Moderators: Charles Lutsch, Sanofi-Pasteur, France;
Laura Palomares, IBT, UNAM, Mexico
- Short presentations:
- Optimisation of a flocculation step using a scale-down model with 3D-printed impellers and focused beam reflectance measurement (FBRM) particle-size monitoring.**
Francis DiGennaro, Merck & Co., Inc., USA
- CRISPR-dCAS9 for controlling Baculovirus replication and increasing production of Virus-Like particles**
Mark Bruder, University of Waterloo, Canada

Monday, June 18, 2018 (continued)

EXPISF - A chemically-defined Baculovirus-based expression system for enhanced protein production in SP9 Cells.

Maya Yovcheva, Thermo Fischer Scientific Inc., USA

Fully automated high-throughput process development for the novel purification of Rotavirus Vaccines.

Shaleem I. Jacob, University College London, UK

Influenza virus capture using membrane chromatography: Improving selectivity by matrix design and pseudo-affinity ligand interactions

Stefan Fischer-Frühholtz, Sartorius Stedim Biotech, Germany

A scalable adenovirus production process, from cell culture to purified bulk

Åsa Hagner-McWhirter, GE Healthcare, Sweden

Panel Discussion (all speakers)

15:30 – 16:00 Coffee break (*Sponsored by McGill University - Faculty of Engineering*)

16:00 – 18:20 **Session 3: Bioprocessing Advances in Vaccine Manufacturing (I)**

(*Sponsored by Sartorius Stedim Biotech GmbH*)

Session Chairs: Linda Lua, Queensland University, Australia; Richard Peluso, Merck and Co., USA

16:00 – 16:40 *Lead talk:*

The story of a successful biotech (ad)venture: The development of Flublok

Manon Cox, NextWaveBio, USA

16:40 – 17:05 **Accelerating bioprocess development by analysis of all available data: A USP case study**
Diego Suarez-Zuluaga, Intravacc, Netherlands

17:05 – 17:30 **Purifying viruses with a sheet of paper: Single-use steric exclusion chromatography as a capture platform for vaccine candidates**

Pavel Marichal-Gallardo, Max Planck Institute for Dynamics of Complex Technical Systems, Germany

17:30 – 17:55 **Vero SF technology platform: Strategy for rapid and effective vaccine development; flavivirus vaccines case study**

Nicolas Sève, Sanofi Pasteur, France

17:55 – 18:20 **Bioprocess intensification for production of a Peste des petits ruminants virus (PPRV) vaccine**

Manuel J.T. Carrondo, iBET, Portugal

18:30 – 20:00 Dinner

20:00 – 22:00 **Poster session 1** and Social Hour

Tuesday, June 19, 2018

- 07:00 – 08:30 Breakfast
- 08:30 – 10:30 **Session 4: Bioprocessing Advances in Vaccine Manufacturing (II)**
(Sponsored by Takeda Vaccines, Inc.)
Session Chairs: Francesc Godia, UAB, Spain;
Manon Cox, NextWaveBio, USA
- 08:30 – 09:10 *Lead talk:*
Developing vaccines for low resource settings through product development partnerships (PDPs)
Dr. David Kaslow, Vice President, Essential Medicines, and Director, the PATH Center for Vaccine Innovation and Access, USA
- 09:10 – 09:30 **Continuous purification of cell culture-derived influenza A virus particles through pseudo-affinity membrane chromatography**
A. Raquel Fortuna, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
- 09:30 – 09:50 **Integrated scalable cyto-technology for recombinant protein bioprocessing**
J. Christopher Love, Koch Institute at MIT, USA
- 09:50 – 10:10 **Low-cost cell-based production platform for seasonal and pandemic influenza vaccines**
Alan Yung-Chih Hu, NIIDV/NHRI, Taiwan
- 10:10 – 10:30 **Polymer grafted chromatography media for direct capture and high-resolution purification of enveloped virus-like particles**
Patricia Pereira Aguilar, University of Natural Resources and Life Sciences Vienna, Austria
- 10:30 – 11:00 Coffee break (Sponsored by Medicago and Sanofi Pasteur)
- 11:00 – 11:20 **Virus-like particles (VLPs) as a platform for the development of yellow fever and Zika virus vaccine candidate**
Renata Alvim, Federal University of Rio de Janeiro (UFRJ), Brazil
- 11:20 – 11:40 **Manufacturing strategies for sustainable supply of ultra-low cost vaccines for global health**
Tania Pereira Chilima, University College London, United Kingdom
- 11:40 – 12:00 **A tailor-made purification strategy for oncolytic measles viruses using membrane-based processes**
Daniel Loewe, University of Applied Sciences Mittelhessen, Germany
- 12:00 Boxed lunches available for pick up
- 12:20 – 13:40 **Workshop 3: Genomics and Systems Biotechnology in Vaccine Development**
Moderators: Wei-Shou Hu, University of Minnesota, USA;
Gautam Sanyal, Vaccine Analytics, USA
- Short presentations:
- Options and challenges for systems biology driven cell line development in virus production**
Udo Reichl, Max-Planck Institute for Dynamics of Complex Technical Systems, Germany
- Acceleration and intensification of influenza pandemic seed stock candidate vaccine production from HA and NA sequence identification**
Amine Kamen, McGill University, Canada

Tuesday, June 19, 2018 (continued)

FluChip-8G: Influenza Genotyping Assay for Enhanced Surveillance and Pandemic Preparedness

Kathy Rowlen, InDevR, USA

Molecular quality engineering for low cost vaccine production

Kerry Love, Massachusetts Institute of Technology, USA

High-resolution systems biology modeling of human-virus interactions

Brandon Xia, McGill University, Canada

Panel Discussion (all speakers)

External activities

Networking

Dinner on your own

Wednesday, June 20, 2018

- 07:00 – 08:30 Breakfast
- 08:30 – 10:30 **Session 5: Formulation and Delivering Vaccines**
Session Chairs: Nathalie Garcon, Bioaster, France;
Lakshmi Krishnan, NRC, Canada
- 08:30 – 09:10 *Lead talk:*
Formulation considerations for the development of adjuvanted vaccines
Dr. Jean Haensler, Director, Antigen & Adjuvant Design, Production and Characterization
Research Department, Sanofi Pasteur, Lyon, France
- 09:10 – 09:30 **Intradermal administration of synthetic DNA vaccines induce robust cellular and humoral immune responses**
Jean D. Boyer, Inovio Pharmaceuticals Inc., USA
- 09:30 – 09:50 **Thermostabilization of adenovirus-vectored vaccines, removing the need for continual cold-chain storage**
Alexander Douglas, Jenner Institute, University of Oxford, United Kingdom
- 09:50 – 10:10 **Safety and biodistribution of sulfated archaeal glycolipid archaeosomes as vaccine adjuvants**
Mike McCluskie, National Research Council, Canada
- 10:10 – 10:30 **Recombinant hemagglutinin proteins formulated in a novel PELC/CpG adjuvant for H7N9 subunit vaccine development**
Suh-Chin Wu, Institute of Biotechnology, National Tsing Hua University, Taiwan
- 10:30 – 11:00 Coffee break (*Sponsored by Intravacc*)
- 11:00 – 13:00 **Session 6: Capacity Building and Intervention Plan for Emerging and Re-emerging Infectious Diseases (I)**
Session Chairs: Amadou A. Sall, Institute Pasteur Dakar, Senegal;
Erin Sparrow, WHO, Geneva;
Simone Blayer, CEPI, UK
- 11:00 – 11:20 **Accelerated process development and stockpile for MERS, LASSA AND NIPAH viral vaccine**
Simone Blayer, CEPI, UK
- 11:20 – 11:40 **Rapid response pipeline for stabilized subunit vaccines**
Keith Chappell, University of Queensland, Australia
- 11:40 – 12:00 **Using the AdVac® vaccine manufacturing platform for rapid response to infectious disease outbreaks**
Guus Erkens, Janssen Vaccines, Leiden, Netherlands
- 12:00 – 12:20 **Preclinical development of filovirus and flavivirus vaccines based on recombinant insect cell expressed subunits**
Axel T. Lehrer, University of Hawaii, USA
- 12:20 – 12:40 **Development of Pan-filovirus vaccine against Ebola and Marburg virus challenges**
Xiangguo Qiu, Public Health Agency of Canada, Canada
- 12:40 – 13:00 **High-titer rapid response platform for epidemic preparedness**
José Castillo, Univercells, Belgium
- 13:00 – 14:00 Lunch

Wednesday, June 20, 2018 (continued)

- 14:00 – 15:30 **Workshop 4: Analytical Tools in Vaccine Development**
Moderators: Nathalie Garcon, Bioaster, France;
Manon Cox, NextWaveBio, USA
- Short presentations:
- Structure-based vaccine design by electron microscopy**
Bridget Carragher, Nanolmaging Services Inc., USA
- Strategies to overcome the age-old problem of immunosenescence**
Brian Schanen, Sanofi, USA
- VaxArray NA reagent kit**
Kathy Rowlen, InDevR, USA
- Laser force cytology for rapid quantification of viral infectivity**
Sean J. Hart, LumaCyte, USA
- Panel Discussion (all speakers)**
- 15:30 – 16:00 Coffee break (*Sponsored by LumaCyte*)
- 16:00 – 18:30 **Session 6: Capacity Building and Intervention Plan for Emerging and Re-emerging Infectious Diseases (II)**
Session Chairs: Amadou A. Sall, Institute Pasteur Dakar, Senegal;
Erin Sparrow, WHO, Geneva;
Simone Blayer, CEPI
- 16:00 – 16:40 *Lead talk:*
Vaccines for poverty. Associated infection diseases: Accessing innovation
Jerome Kim, Director-General International Vaccine Institute, Seoul, South Korea
- 16:40 – 17:00 **Future prospects and application for the development of adenovirus-based vaccine**
Tao Zhu, Cansino Biologics, China
- 17:00 – 17:20 **Adjuvant manufacturing scale-up and technology transfer**
Christopher Fox, IDRI, USA
- 17:20 – 17:40 **A vaccine for Ebola virus – approaches and results of accelerated process development and characterization studies**
Randi Saunders, Merck & Co, USA
- 17:40 – 18:00 **Product development and programmatic implementation of TYPBAR TCV® and ROTAVAC® vaccines**
V. K. Srinivas, Bharat Biotech International Limited, India
- 18:30 – 20:00 Dinner
- 20:00 – 22:00 **Poster session 2** and Social Hour

Thursday, June 21, 2018

- 07:00 – 08:30 Breakfast
- 08:30 – 10:30 **Session 7: Therapeutic Vaccines**
Session Chairs: Barry Buckland, BioLogicB, USA;
Paula Alves, IBET, Portugal
- 08:30 – 09:10 *Lead talk:*
A novel vaccinia virus backbone for the delivery of immunotherapeutic genes
John Bell, Ottawa Hospital Research Institute, Ottawa, Canada
- 09:10 – 09:30 **HER2 cancer vaccine optimization by combining *Drosophila* S2 insect cell manufacturing with a novel VLP-display technology**
Thomas Jørgensen, ExpreS2ion Biotechnologies, Denmark
- 09:30 – 09:50 **Rapid design/development and clinical deployment of synthetic DNA vaccine technology for difficult immune targets**
David Weiner, The Wistar Institute, USA
- 09:50 – 10:10 **Development of an analytical platform for delivery of recombinant oncolytic viruses**
Gautam Sanyal, Vaccine Analytics LLC, USA
- 10:10 – 10:30 **Leveraging vectored vaccine candidates manufacturing to GMP compatible bioprocesses**
Cristina Peixoto, IBET, Portugal
- 10:30 – 11:00 Coffee break (*Sponsored by Merck and Co., Inc.*)
- 11:00 – 12:00 **Session 8: Short talks selected from poster abstracts**
(*Sponsored by Thermo Fisher Scientific*)
Session Chairs: Yvonne Thomassen, Intravac, Netherlands;
Ernesto Chico, CIM, Cuba;
Marc Aucoin, University of Waterloo, Canada;
Amine Kamen, McGill University, Canada
- Purification of flavivirus VLPs by a two-step chromatographic process**
Matheus Souza, Federal University of Rio de Janeiro (UFRJ), Brazil
- Flavivirus production in perfusion processes using the EB66® cell line**
Alexander Nikolay, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
- Production and characterization of HER2-displaying budded virus-like particles and their potential as cancer vaccines**
Lisa Nika, University of Natural Resources and Life Sciences, Vienna, Austria
- Virus-like particles: A flexible platform for universal influenza vaccine development**
Sarah Slack, University College London, United Kingdom
- Rapid virus titration using flow cytometry**
Steve George, Sanofi Pasteur, Canada
- Defining the multiplicity and type of infection for the production of Zaire Ebola virus-like particles in the insect cell baculovirus expression system**
Ana Ruth Pastor, Instituto de Biotecnologia-UNAM, Mexico
- Combining novel and traditional approaches of vaccine development to overcome the challenges of first-in-human trial for Group A Streptococcus**
Elodie Burlet, VaxForm, USA
- Development of suspensions adapted Vero cell culture process for production of viruses**
Chun Fang Shen, National Research Council, Canada

Thursday, June 21, 2018 (continued)

A pre-fusion, trimeric subunit influenza HA-based vaccine elicits cross-protection between highly divergent influenza A viruses

Christopher McMillan, University of Queensland, Australia

HER1 therapeutic cancer vaccine: An active immunotherapy treatment for patients with tumors expressing the receptor of epidermal growth factor (EGF-R)

Eduardo Suarez, CIM, Cuba

12:00 – 14:30

Poster session 3

Grazing lunch

14:30 – 15:00

Coffee break (*Sponsored by NIIMBL*)

15:00 – 16:00

Session 9: Bioprocessing Advances in Vaccine Manufacturing (III)

Session Chairs: Linda Lua, University of Queensland, Australia;

Richard Peluso, Merck and Co., USA

15:00 – 15:20

Production of bacterial outer membrane vesicles as vaccine platform

Matthias Gerritzen, Intravacc, Wageningen University and Research, Netherlands

15:20 – 15:40

Extended gene expression for HIV-1 VLPs scale-up and production enhancement using shRNA and chemical additives

Laura Cervera Gracia, Universitat Autònoma de Barcelona, Spain

15:40 – 16:00

Development of scalable manufacturing process and GMP-compatible formulation for a novel recombinant schistosomiasis vaccine

Damon R. Asher, MilliporeSigma, USA

16:30 – 17:30

Closing Keynote

Innovations in global health: What has been accomplished, what is on the horizon and where are more investments needed

David Robinson, Deputy Director CMC Vaccines Development and Surveillance at the Bill & Melinda Gates Foundation, USA

19:00 – 20:00

Reception

20:00 – 22:00

Banquet

Friday, June 22, 2018

07:00 – 08:30 Breakfast

08:30 – 10:00 Check out and departures

Poster Presentations

1. **Stability evaluation of inactivated influenza H7N9 vaccines derived from adhesion and suspension MDCK cells**
Alan Yung-Chih Hu, NIIDV/NHRI, Taiwan
2. **Rapid, cost-effective and scalable gmp-compliant simian adenovirus-vectored vaccine production for early-phase clinical trials using entirely disposable product-contact components**
Alexander Douglas, University of Oxford, United Kingdom
3. **Flavivirus production in perfusion processes using the EB66® cell line**
Alexander Nikolay, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
4. **Latest advancements in process intensification to support global demand for affordable vaccines**
Alfred Luitjens, Batavia Biosciences, Netherlands
5. **Proteomic characterization of influenza H1N1 Gag virus-like particles and extracellular vesicles produced in HEK-293SF**
Alina Venereo-Sanchez, McGill University, Canada
6. **Implementation of a process-scale adenovirus purification with a single-use platform**
Amélie Boulais, Sartorius Stedim Biotech, France
7. **Membrane chromatography cassettes for bind and elute applications of viruses and large proteins**
Stefan Fischer-Frühholz, Sartorius Stedim Biotech, France
8. **Influenza virus capture using membrane chromatography: Improving selectivity by matrix design and pseudo-affinity ligand interactions**
Stefan Fischer-Frühholz, Sartorius Stedim Biotech, France
9. **Defining the multiplicity and type of infection for the production of Zaire Ebola Virus-like particles in the insect cell baculovirus expression system**
Ana Ruth Pastor, Instituto de Biotecnología, UNAM, Mexico
10. **Structure-based vaccine design by electron microscopy**
Anette Schneemann, Nanolmaging Services, USA
11. **Reducing risks with a serum-free medium for MRC-5 based vaccine production**
Anna-Barbara Hachmann, Thermo Fisher Scientific, Inc., USA
12. **Process economical effects of implementation of ready-to-use micro carriers in cell-based virus vaccine production**
Nicolas Seve, Anne Marie Beauchard, Sanofi Pasteur, France
13. **Bioprocess engineering of insect cells for accelerating vaccines development**
Antonio Roldao, iBET, Portugal
14. **A scalable adenovirus production process, from cell culture to purified bulk**
Åsa Hagner-McWhirter, GE Healthcare, Sweden

15. **Vaccine protein stabilization in silica**
Aswin Doekhie, University of Bath, United Kingdom
16. **Experimental and computational fluid dynamics studies of adherent cells on microcarriers in an ambr® 250 bioreactor**
Barney Zoro, Sartorius Stedim Biotech, United Kingdom
17. **From bench scale to pilot plant operation: Business models and challenges in the biopharmaceutical industry in Brazil**
Beatriz de Castro Fialho, Bio-Manguinhos/FIOCRUZ, Brazil
18. **Immunization with Fc-based recombinant Epstein-Barr virus gp350 elicits potent neutralizing humoral immune response in a BALB/c mice model**
Bing-chun Zhao, Sun Yat-sen University Cancer Center, China
19. **Strategies to overcome the age-old problem of immunosenescence**
Brian Schanen, Sanofi Pasteur, USA
20. **Development and validation of a proprietary medium formulation for recombinant subunit vaccines by the Baculovirus Expression Vector System (BEVS)**
Catherine Cleuziat, Boehringer-Ingelheim, France
21. **Development of an animal-component free insect medium for the Baculovirus Expression Vector System (BEVS)**
Catherine Nguyen, Irvine Scientific, USA
22. **How to limit the use of serum in viral processes: A gibco perspective**
Céline Martin, Thermo Fisher Scientific, Inc., USA
23. **A pre-fusion, trimeric subunit influenza HA-based vaccine elicits cross-protection between highly divergent influenza A viruses**
Christopher McMillan, The University of Queensland, Australia
24. **Superinfection arising in stable lentiviral vector producer cell lines bearing Cocal-G envelope proteins**
Christopher Perry, University College London, United Kingdom
25. **Development of suspensions adapted Vero cell culture process for production of viruses**
Chun Fang Shen, National Research Council of Canada, Canada
26. **Addressing the challenges of influenza virus-like particles purification**
Cristina Peixoto, iBET, Portugal
27. **A genome-wide CRISPR screen to generate high-yield cell lines for pandemic influenza vaccine production**
David M. Sharon, McGill University, Canada
28. **Process development for a flexible vaccine vector platform based on recombinant life virus**
Dieter Palmberger, ACIB - Austrian Center of Industrial Biotechnology, Austria
29. **HER1 therapeutic cancer vaccine: An active immunotherapy treatment for patients with tumors expressing the receptor of epidermal growth factor (EGF-R)**
Eduardo Suarez, CIM, Cuba

30. **Combining novel and traditional approaches of vaccine development to overcome the challenges of first-in-human trial for Group A Streptococcus**
Elodie Burlet, VaxForm, USA
31. **Accelerated mass production of influenza virus seed stocks in HEK-293 suspension cell cultures by reverse genetics**
Ernest Milián, VCN Biosciences, Spain
32. **Implementation of a strategy to produce a broadly neutralizing monoclonal antibody against Zika and dengue viruses**
Esmeralda Cuevas-Juárez, Instituto de Biotecnología, UNAM, Mexico
33. **Optimization of a flocculation step using a scale-down model with 3D-printed impellers and Focused Beam Reflectance Measurement (FBRM) particle-size monitoring**
Francis DiGennaro, Merck & Co., Inc., USA
34. **Vaccination with viral vectors expressing NP, M1 and chimeric hemagglutinin induces broad protection against influenza virus challenge in mice**
Guha Asthagiri Arunkumar, Icahn School of Medicine at Mount Sinai, USA
35. **A new porcine suspension cell line (PBG.PK-21) provides efficient production for influenza and yellow fever vaccine viruses**
Gwendal Gränicher, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
36. **HILIC-LC/MS method for non-derivatized amino acid analysis in spent media**
Hari Kosanam, Merck, USA
37. **Process development of chromatography-based purification on pandemic influenza virus-like particle based vaccines**
Hiachun Lai, NHRI, NTHU, Taiwan
38. **$\Delta\pi=0$ reverse osmosis enriches a high osmotic pressure solution from a low-titre fermentation broth to a saturated solution or salt form using RO and NF membranes**
Ho Nam Chang, Korea Advanced Institute of Science and Technology, South Korea
39. **Upstream process intensification using Viral Sensitizer technology**
Jean-Simon Diallo, Ottawa Hospital Research Institute, Canada
40. **Molecular understanding of the serum antibody repertoires after seasonal influenza vaccination among different age cohorts**
Jiwon Jung, The University of Texas at Austin, USA
41. **Formulation development of a recombinant protein based non-replicating rotavirus (NRRV) vaccine candidate: Antigen-adjuvant-preservative interactions**
John M. Hickey, University of Kansas, USA
42. **Disruptive micro-facility for affordable vaccine manufacturing**
José Castillo, Univercells, Belgium
43. **Orbital shaken bioreactor for influenza A virus production in high cell density cultivations**
Juliana Coronel, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
44. **Vaxarray for hemagglutinin and neuraminidase potency testing of influenza vaccines**
Kathy Rowlen, InDevR, Inc., USA

45. **Vaxarray potency assay for rapid assessment of “pandemic” flu vaccines**
Kathy Rowlen, InDevR, Inc., USA
46. **Application of analytical characterization tools in process and formulation development of low cost vaccines using the ULTRA manufacturing platform**
Kawaljit Kaur, University of Kansas, USA
47. **Comparaison of rabies virus purification using different methods**
Khaled Trabelsi, Pasteur Institute of Tunisia, Tunisia
48. **Comparative transcriptome analysis of a Trichoplusia ni cell line reveals distinct host responses to intracellular and secreted protein products expressed by recombinant baculoviruses**
Krisztina Koczka, ACIB - Austrian Center of Industrial Biotechnology, Austria
49. **Generation and efficacy assessment of a chimeric antigen E2-CD154 as a marker Classical Swine Fever Virus subunit vaccine produced in HEK 293 and CHO K1 mammalian cells**
Lidice Méndez-Pérez, Center for Genetic Engineering and Biotechnology, Cuba
50. **Production and characterization of HER2-displaying budded virus-like particles and their potential as cancer vaccines**
Lisa Nika, University of Natural Resources and Life Sciences, Vienna, Austria
51. **Rapid fermentation optimization for vaccine development**
Lourdes Velez, University College London, United Kingdom
52. **CRISPR-dCAS9 for controlling baculovirus replication and increasing production of virus-like particles**
Mark Bruder, University of Waterloo, Canada
53. **Purification of flavivirus VLPs by a two-step chromatographic process**
Matheus Souza, Federal University of Rio de Janeiro (UFRJ), Brazil
54. **ExpiSf™: A chemically-defined baculovirus-based expression system for enhanced Protein production in Sf9 cells**
Maya Yovcheva, Thermo Fisher Scientific, Inc., USA
55. **Media formulation to support the growth of Vero cells in suspension**
Megan Logan, University of Waterloo, Canada
56. **WITHDRAWN**
57. **Accelerating the manufacture of glycoconjugate vaccines for pneumococcal disease**
Neha Patel, University College London, United Kingdom
58. **WITHDRAWN**
59. **Development of a vaccine production platform for poultry diseases in Africa: Newcastle Disease Virus non-replicative adenovirus-vectored vaccine**
Omar Farnos, McGill University, Canada
60. **Formulation and stabilization of a recombinant human Cytomegalovirus vector for use as a candidate vaccine for HIV-1**
Ozan S. Kumru, University of Kansas, USA

61. **Formulation development of a stable, orally delivered live human neonatal rotavirus (rv3-bb) vaccine candidate**
Prashant Kumar, University of Kansas, USA
62. **Case study: Single-use platform for complete process development and scale-up of an Adenovirus**
Rachel Legmann, Pall Life Sciences, USA
63. **Development and characterization of a murine hepatoma model expressing hepatitis C virus (HCV) non-structural antigens for evaluating HCV vaccines**
Kamran Haq, National Research Council Canada, Canada
64. **Case studies: Raman implementation for process lifecycle management in fermentation based processes**
Roberto Ortiz, Merck &Co., USA
65. **Adaptation of Vero cells to suspension culture and rabies virus production on different SERUM free media**
Samia Rourou, Institut Pasteur de Tunis, Tunisia
66. **Virus-like particles: A flexible platform for universal influenza vaccine development**
Sarah Slack, University College London, United Kingdom
67. **Characteristics of rVSV-ZEBOV production kinetics in HEK293 and Vero cells**
Sascha Kiesslich, McGill University, Canada
68. **Laser force cytology for rapid quantification of viral infectivity**
Sean J. Hart, LumaCyte, USA
69. **Fully automated high-throughput process development for the novel purification of rotavirus vaccines**
Shaleem I. Jacob, University College London, United Kingdom
70. **Affinity resin screening for optimal DSP – application to rotavirus vaccine production.**
Stephen A. Morris, University College London, United Kingdom
71. **Rapid virus titration using flow cytometry**
Steve George, Sanofi Pasteur, Canada
72. **Highly efficient influenza virus production: A MDCK-based high-cell-density process**
Thomas Bissinger, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
73. **A clinically validated Drosophila S2 based vaccine platform for production of malaria vaccines**
Thomas Jørgensen, ExpreS2ion Biotechnologies, Denmark
74. **Technology transfer for local vaccine production in Argentina**
Valeria Brizzio, Sinergium Biotech, Argentina
75. **Real-time stability of a hepatitis E vaccine (Hecolin®) demonstrated with potency assays and multifaceted physicochemical methods**
Xiao Zhang, Sun Yat-Sen University Cancer Center, China

76. **Evaluating the effect of formulation on the uptake of a ZIKA subunit vaccine candidate by antigen-presenting cells**
Xiaoling Li, Envigo, United Kingdom
77. **Implications of MDCK cell heterogeneity in cell-based influenza vaccine production**
Xuping Liu, East China University of Science and Technology, China
78. **An outbreed mouse model of yellow fever for study of pathogenesis and development of vaccines and therapeutics**
Yakhya Dieye, Institut Pasteur de Dakar, Senegal
79. **Development of stabilizing formulations of a trivalent inactivated poliovirus vaccine in a dried state for delivery in the Nanopatch™ microprojection array**
Ying Wan, University of Kansas, USA
80. **Efficient influenza vaccine manufacturing: Single MDCK suspension cells in chemically defined medium**
Yixiao Wu, East China University of Science and Technology, China
81. **Analytical characterization and formulation assessment of model secretory-immunoglobulin-A (sIgAs) for their potential use as low cost, orally delivered sIgAs**
Yue (Martin) Hu, University of Kansas, USA
82. **Steric exclusion chromatography for the purification of recombinant baculovirus**
Daniel Loewe, University of Applied Sciences Mittelhessen, Germany
83. **Production and purification of Zika virus for an inactivated virus vaccine candidate**
Renato Mancini Astray, Instituto Butantan, Brazil
84. **Co-formulation of broadly neutralizing antibodies 3BNC117 and PGT121:Analytical challenges during pre-formulation characterization and storage stability studies**
Vineet Gupta, University of Kansas, USA