

# **Vaccine Technology VII**

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## **Editors:**

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## **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](https://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 .....1**

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 .....2**  
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 .....3**  
Hari Pujar, Moderna, USA
- 09:35 – 10:00 **RNAActive®-An mRNA-based vaccine technology for next generation prophylactic vaccines .....4**  
Edith Jasny, Senior Scientist CureVac AG, Tübingen, Germany
- 10:00 – 10:25 **Virus-like particle vaccines against BK and JC polyomaviruses .....5**  
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 .....25**  
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 .....26**  
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Magdeburg, Germany
- 11:45 – 12:10 **Persistent antibody clonotypes dominate the serum response to influenza following repeated vaccination over multiple years .....27**  
Jiwon Lee, University of Texas at Austin, USA
- 12:10 – 12:35 **Pan-HA antibodies confer protection in mice against influenza .....28**  
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. ....N/A**  
Francis DiGennaro, Merck & Co., Inc., USA
- CRISPR-dCAS9 for controlling Baculovirus replication and increasing production of Virus-Like particles .....N/A**  
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. ....N/A**

Maya Yovcheva, Thermo Fischer Scientific Inc., USA

**Fully automated high-throughput process development for the novel purification of Rotavirus Vaccines. ....N/A**

Shaleem I. Jacob, University College London, UK

**Influenza virus capture using membrane chromatography: Improving selectivity by matrix design and pseudo-affinity ligand interactions ....N/A**

Stefan Fischer-Frühholtz, Sartorius Stedim Biotech, Germany

**A scalable adenovirus production process, from cell culture to purified bulk ....N/A**

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 ....29**

Manon Cox, NextWaveBio, USA

16:40 – 17:05

**Accelerating bioprocess development by analysis of all available data: A USP case study ....30**

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 ....31**

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 ....32**

Nicolas Sève, Sanofi Pasteur, France

17:55 – 18:20

**Bioprocess intensification for production of a Peste des petits ruminants virus (PPRV) vaccine ....33**

Manuel J.T. Carrondo, iBET, Portugal

18:30 – 20:00

Dinner

20:00 – 22:00

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(Sponsored by Takeda Vaccines, Inc.)  
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Manon Cox, NextWaveBio, USA
- 08:30 – 09:10 *Lead talk:*  
**Developing vaccines for low resource settings through product development partnerships (PDPs) .....34**  
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 .....35**  
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 .....36**  
J. Christopher Love, Koch Institute at MIT, USA
- 09:50 – 10:10 **Low-cost cell-based production platform for seasonal and pandemic influenza vaccines .....37**  
Alan Yung-Chih Hu, NIIDV/NHRI, Taiwan
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Patricia Pereira Aguilar, University of Natural Resources and Life Sciences Vienna, Austria
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- 11:00 – 11:20 **Virus-like particles (VLPs) as a platform for the development of yellow fever and Zika virus vaccine candidate .....39**  
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 .....40**  
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 .....41**  
Daniel Loewe, University of Applied Sciences Mittelhessen, Germany
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- 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 .....N/A**  
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 .....N/A**  
Amine Kamen, McGill University, Canada

**Tuesday, June 19, 2018 (continued)**

**FluChip-8G: Influenza Genotyping Assay for Enhanced Surveillance and Pandemic Preparedness .....N/A**

Kathy Rowlen, InDevR, USA

**Molecular quality engineering for low cost vaccine production .....N/A**

Kerry Love, Massachusetts Institute of Technology, USA

**High-resolution systems biology modeling of human-virus interactions .....N/A**

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 .....42**  
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.....43**  
Jean D. Boyer, Inovio Pharmaceuticals Inc., USA
- 09:30 – 09:50 **Thermostabilization of adenovirus-vectored vaccines, removing the need for continual cold-chain storage .....44**  
Alexander Douglas, Jenner Institute, University of Oxford, United Kingdom
- 09:50 – 10:10 **Safety and biodistribution of sulfated archaeal glycolipid archaeosomes as vaccine adjuvants .....45**  
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- 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 .....47**  
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Xiangguo Qiu, Public Health Agency of Canada, Canada
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José Castillo, Univercells, Belgium
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Manon Cox, NextWaveBio, USA
- Short presentations:
- Structure-based vaccine design by electron microscopy.....N/A**  
Bridget Carragher, Nanolmaging Services Inc., USA
- Strategies to overcome the age-old problem of immunosenescence .....N/A**  
Brian Schanen, Sanofi, USA
- VaxArray NA reagent kit**  
Kathy Rowlen, InDevR, USA
- Laser force cytology for rapid quantification of viral infectivity .....N/A**  
Sean J. Hart, LumaCyte, USA
- Panel Discussion (all speakers)**
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Session Chairs: Amadou A. Sall, Institute Pasteur Dakar, Senegal;  
Erin Sparrow, WHO, Geneva;  
Simone Blayer, CEPI
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Tao Zhu, Cansino Biologics, China
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- 07:00 – 08:30 Breakfast
- 08:30 – 10:30 **Session 7: Therapeutic Vaccines**  
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Paula Alves, IBET, Portugal
- 08:30 – 09:10 *Lead talk:*  
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(*Sponsored by Thermo Fisher Scientific*)  
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Ernesto Chico, CIM, Cuba;  
Marc Aucoin, University of Waterloo, Canada;  
Amine Kamen, McGill University, Canada
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**Poster session 3**

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14:30 – 15:00

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

Richard Peluso, Merck and Co., USA

15:00 – 15:20

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20:00 – 22:00

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