

*Program*

# Vaccine Technology V

June 8 - 13, 2014

Paradisus Playa del Carmen, Mexico

Program Co-Chairs

Laura A. Palomares  
UNAM, Mexico

John G. Auniņš  
Janis Biologics, Inc., USA

Manon Cox  
Protein Sciences Corporation, USA



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Michael Washabaugh, Medimmune, USA  
David Weiner, University of Pennsylvania, USA

***The conference chairs would like to acknowledge the following people for the logistical support they provided in planning the conference:***

Ana Ruth Pastor  
Karin Levy  
Larisa Campos  
Instituto de Biotecnología- UNAM

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## **Sunday, June 8, 2014**

16:00 – 19:00	Conference check-in (Conference Center Foyer)
18:00 – 18:30	Welcome Conference Chairs: John Aunins, Manon Cox, and Laura A. Palomares ECI Technical Liaison: John Aunins
18:30 – 19:30	<b><u>KEYNOTE I</u></b> Albertus Osterhaus, Erasmus University, Netherlands Vaccination: The silent victory
19:30 – 21:00	Welcome Reception and Dinner (Poolside)

### ***Notes***

- Technical and Poster Sessions will be held in the Cypress Ballroom.
- Lunch on Monday will be in The Grill and lunch on Wednesday will be in The Market.
- Breakfasts will be in the Naos Restaurant.
- Sign-up sheets will be available for the Dine-Around dinners at the hotel on Monday, Tuesday, and Wednesday.
- Audiotaping, videotaping and photography of presentations are prohibited.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Please do not smoke at any conference functions.
- Turn your cellular telephones to vibrate or off during technical sessions.
- Be sure to check your contact information on the Participant List in this program and make any corrections to your name/contact information online. A corrected copy will be sent to all participants after the conference.

## **Monday, June 9, 2014**

- 07:00 – 08:30 Breakfast buffet
- 08:30 – 10:30 **Session 1: Break through developments in vaccinology**  
Session Chairs: Clotilde Thiriart, Sanofi, USA  
Ulrich von Andrian, Harvard University, USA
- 08:30 – 08:54 Behazine Combadière (INSERM, France)  
Cutaneous routes of vaccination
- 08:54 – 09:18 Bill Warren (Vaxdesign, USA)  
It is all about you... the biomimetic human
- 09:18 – 09:42 Kei Kishimoto (Selecta Biosciences, USA)  
Synthetic nanoparticle vaccines for the induction of antigen-specific immunological tolerance
- 09:42 – 10:06 Matteo Iannacone (San Raffaele Scientific Institute, Milan, Italy): Bisphosphonates target B cells to enhance humoral immune responses
- 10:06 – 10:30 Ulrich von Andrian (Harvard, USA)  
Mucosal immunization with conjugates of inactivated *Chlamydia Trachomatis* and adjuvanted nanoparticles generates two discrete waves of memory T cells conferring long-lived immunity
- 10:30 – 11:00 Coffee break (*sponsored by AERAS*)
- 11:00 – 13:00 **Session 2: Issues and case studies in process development**  
Session Chairs: Udo Reichl, Max Planck Institute, Germany  
Charles Lutsch, Shantha Biologics, India
- 11:00 – 11:24 Reiner Luttmann (Hamburg University of Applied Sciences, Germany)  
Quasi-continuous production of potential malaria vaccines with optimal QbD compliant conditions
- 11:24 – 11:48 Barry Buckland (Protein Sciences, USA)  
Development and scale-up of an insect cell culture based process for making Flublok, the first FDA licensed recombinant influenza vaccine
- 11:48 – 12:12 Anne Marie de Villiers (University College London, UK)  
Impact of high cell density processes on virus purification
- 12:12 – 12:36 Francesc Gòdia (Universitat Autònoma de Barcelona, Spain)  
Gag VLP production by HEK 293 cells is improved by extended gene expression
- 12:36 – 13:00 Aaron Noyes (Pfizer R&D Global Biologics/ University College London, UK)  
Laboratory scale platforms to accelerate the development of particle conditioning steps for prokaryotically expressed polysaccharide vaccines
- 13:00 – 14:30 Lunch (The Grill)
- 14:30 – 16:00 *Ad hoc* sessions, relaxation, recreation

## **Monday, June 9, 2014 (continued)**

- 14:30 – 15:30 *Optional workshop*  
**Immunoinformatics Workshop: Vaccine Design and Evaluation Using the iVAX Toolkit**  
Coordinated by EpiVax and the Institute for Immunology and Informatics at URI

- 16:00 – 18:00      **Session 3: Formulating and delivering vaccines**  
Session Chairs: Mark Kendall, University of Queensland, Australia  
Nathalie Garçon, GSK, USA
- 16:00 – 16:24      David Muller (Vaxxas, Australia)  
Targeted delivery of candidate dengue virus subunit vaccine to the skin using the Nanopatch
- 16:24 – 16:48      Ryan M. Kramer (Infectious Disease Research Institute, USA)  
Development of a lyophilized nanoemulsion adjuvanted vaccine against tuberculosis
- 16:48 – 17:12      Bobby Singh (Corium Technology, USA)  
MICROCOR®: An integrated solution to address unmet needs in vaccine delivery
- 17:12 – 17:36      William J. Smith (Merck, USA)  
Controlling routine manufacturing and shipping stress-induced physical instability of a complex vaccine drug product
- 17:36 – 18:00      Amardeep S. Bhalla (Pfizer, USA)  
Challenges in formulation and process development of multicomponent vaccines
- 18:00 – 20:00      Dine around at the hotel restaurants
- 20:00 – 22:00      **POSTER SESSION and Social Hour** (*sponsored by Pall Life Sciences*)  
(Authors of even-numbered posters are asked to stay by their presentations)  
Poster Chairs:  
Cuitláhuac Chávez-Peña, Protein Sciences Corporation, USA  
Héla Kallel, Pasteur Institute, Tunisia  
Ruth Pastor, UNAM, Mexico



**Tuesday, June 10, 2014**

- 07:00 – 08:30 Breakfast buffet
- 08:30 – 10:30 **Session 4: Therapeutic Vaccines**  
Session Chairs: Margaret Liu, Karolinska Institute, Sweden  
John Aunins, Janis Biologics, USA
- 08:30 – 08:54 John Hennessey (NovaDigm Therapeutics, USA)  
Preclinical and clinical development of a recombinant glycoprotein vaccine (NDV-3) for treatment of candidal infections in healthy adults
- 08:54 – 09:18 Matti Salberg, (Karolinska Institute, Sweden)  
HCV, HBV, and HDV vaccines: Which ones do we need?
- 09:18 – 09:42 Matthias von Hereth, (La Jolla Institute for Allergy and Immunology, USA)  
Vaccination to induce regulatory cells and tolerance - a clinical possibility?
- 10:09 – 10:30 Adolfo Castillo-Vitloch (Center of Molecular Immunology, Cuba)  
Early stage development of cancer vaccine based on HER-1 extracellular domain
- 10:30 – 11:00 Coffee break (*sponsored by EMD Millipore*)
- 11:00 – 12:00 **KEYNOTE II**  
Robin Robinson, BARDA, USA,  
BARDA approaches to vaccine development, manufacturing and stockpiling
- 12:30 – 18:00 Excursion to Tulum  
Boxed lunches to be provided
- 18:30 – 20:30 Dine around at the hotel restaurants
- 20:30 – 22:00 **POSTER SESSION and Social Hour**  
(Authors of odd-numbered posters are asked to stay by their presentations)  
Poster Chairs:  
Cuitláhuac Chávez-Peña, Protein Sciences Corporation, USA  
Héla Kallel, Pasteur Institute, Tunisia  
Ruth Pastor, UNAM, Mexico

## **Wednesday, June 11, 2014**

- 07:00 – 08:30 Breakfast buffet
- 08:30 – 10:30 **Session 5: Veterinary Vaccines**  
Session Chairs: Guus Rimmelzwaan, Erasmus University, Netherlands  
Robert Nordgren, Merial, USA
- 08:30 – 08:54 Bibiana Law (University of Arizona, USA)  
Making food safer: Campylobacter prevention and control measures
- 08:54 – 09:18 Bryan Bird (CDC, USA)  
Breaking the chain: one-health approaches to preventing rift valley fever epidemics
- 09:10 – 09:42 Andres H. Gutierrez (University of Rhode Island, USA)  
One health genome-derived epitope-driven vaccine development for public health and global food security
- 09:42 – 10:06 Colin Russell (University of Cambridge, UK)  
Improving pandemic influenza risk assessment
- 10:06 – 10:30 David Suarez (USDA, USA)  
Control of avian influenza viruses: Role of recombinant viral vectored vaccines
- 10:30 – 11:00 Coffee break (*sponsored by Merck*)
- 11:00 – 13:00 **Session 6: New challenges, new technologies in vaccine development**  
Session Chairs: Fred Cassels, NIH, USA  
Christian Mandl, Novartis, USA
- 11:00 – 11:25 Ted Ross, (VGTIFL, USA)  
Computationally optimized broadly reactive antigens (COBRA): Developing broadly reactive vaccines against emerging and seasonal influenza.
- 11:25 – 11:50 Brandon DeKosky, (University of Texas, USA)  
High-throughput Single B-cell sequencing for molecular analysis of adaptive immunity and vaccine responses
- 11:50 – 12:15 Natalie Connors (AIBN, University of Queensland, Australia)  
Computational design for large antigen display on a virus-like particle
- 12:15 – 12:40 Jean-Luc Bodmer, (Genocea Biosciences, USA)  
Does ATLAS have broad shoulders? Identifying and developing tractable vaccine antigens for seemingly intractable diseases
- 12:40 – 13:00 Suh-Chin Wu (Institute of Biotechnology, National Tsing Hua University, Taiwan)  
Glycan masking of hemagglutinin elicits broadly neutralizing antibodies against H5N1 Avian influenza viruses
- 13:00 – 14:00 Lunch (The Market)
- 14:00 – 16:00 *Ad hoc* sessions, relaxation, recreation

## **Wednesday, June 11, 2014 (continued)**

- 16:00 – 17:00 **Session 6: New challenges, new technologies in vaccine development (continued)**  
Session Chairs: Fred Cassels, NIH, USA  
Christian Mandl, Novartis, USA
- 16:00 – 16:20 Lidija Urbas (BIA Separations, Slovenia)

Purification, in-process and final control of adenoviruses using monolithic columns

16:20 – 16:40

Tarik Khan (ETH Zürich, Switzerland)

Novel experimental and bioinformatic methods for accurate characterization of humoral response landscapes based on next-generation sequencing

16:40 – 17:00

Bolyn Hubby (Synthetic Genomics Vaccines, USA)

Synthetic genomics to address emerging threats

17:00 - 18:00

**KEYNOTE III**

Myron Levine (University of Maryland, USA)

Environmental enteropathy impacting oral vaccine performance in developing countries

18:00 – 20:00

Dine around at the hotel restaurants

20:00 – 22:00

**POSTER SESSION and Social Hour** (*sponsored by Takeda*)

(Authors of even-numbered posters are asked to stay by their presentations)

Poster Chairs:

Cuitláhuac Chávez-Peña, Protein Sciences Corporation, USA

Héla Kallel, Pasteur Institute, Tunisia

Ruth Pastor, UNAM, Mexico

**Thursday, June 12, 2014**

- 07:00 – 08:30 Breakfast buffet
- 08:30 - 10:30 **Session 7: Vaccine characterization**  
Session Chairs: Qinjian Zhao, Xiamen University, China  
John Hennessey, NovaDigm Therapeutics, USA
- 08:30 – 08:54 David Volkin (University of Kansas, USA)  
Characterizing vaccines as well-defined pharmaceutical dosage forms: Challenges and opportunities.
- 08:54 – 09:18 Bridget Carragher (Nanoimaging Services, USA)  
Structural characterization of vaccines using TEM
- 09:10 – 09:42 Richard Schwartz (NIH, USA)  
Characterization and lot release of a Phase I/II trivalent enveloped virus-like particle vaccine
- 09:42 – 10:06 Neil Ravenscroft (University of Cape Town, South Africa)  
Using physicochemical methods to facilitate the development and licensure of glycoconjugate vaccines
- 10:06 – 10:30 Linda Lua (The University of Queensland, Australia)  
Characterization of molecularly-designed modular vaccines
- 10:30 – 11:00 Coffee break (*sponsored by Novartis*)
- 11:00 - 13:00 **Session 8: Going to the market: Getting Approval and Beyond**  
Session Chairs: Rebecca Sheets, USA  
Manon Cox, Protein Sciences Corporation, USA
- 11:00 – 11:24 Mireli Fino (Protein Sciences, USA)  
Flublok - Moving forward after approval
- 11:24 – 11:48 Parag Nagarkar (Shantha Biotechnics, India)  
Post-approval process changes and challenges for vaccines
- 11:48 – 12:12 Michael Washabaugh (MedImmune, USA)  
Applying quality by design to vaccines and viral biopharmaceuticals: Highlights, lessons learned and observations involving a seasonal vaccine
- 12:12 – 12:36 Katherine Owen (Bill & Melinda Gates Foundation, USA)  
Process, analytical, and formulation development and manufacturing challenges in vaccines for global health
- 12:36 – 13:00 Ruth Velázquez-Fernández (Birmex, Mexico)  
Technology transference for partial influenza vaccine production
- 13:00 – 15:00 **POSTER SESSION – With Grazing Lunch**  
(Authors of odd-numbered posters are asked to stay by their presentations)  
Poster Chairs:  
Cuitláhuac Chávez-Peña, Protein Sciences Corporation, USA  
Héla Kallel, Pasteur Institute, Tunisia  
Ruth Pastor, UNAM, Mexico  
(*Please remove your posters after this poster session*)

**Thursday, June 12, 2014 (continued)**

- 16:30 – 18:30 **Session 9: Unsolved challenges in key regions**  
Session Chairs: Amine Kamen, McGill University, Canada  
Mauricio Rodriguez, BIRMEX, Mexico

- 16:30 – 17:00 Li Xiuling (National Vaccine & Serum Institute, China)  
The development of enterovirus 71 vaccine
- 17:00 – 17:30 Miriam Tendler (Oswaldo Cruz Institute, Brazil)  
Development of a vaccine against schistosomiasis based on the recombinant fatty acid binding protein sm14: controlling transmission of a disease of poverty
- 17:30 – 18:00 Fred Cassels (NIAID, NIH, USA)  
Development and testing of enteric and hepatic vaccines for global health
- 18:00 – 18:30 Amine Kamen (McGill University, Canada)  
Large-scale production of monoclonal antibodies for post-exposure treatment of Ebola virus infection
- 18:30 – 19:30 **CLOSING KEYNOTE**  
Penny Heaton, (Bill & Melinda Gates Foundation, USA)  
Reducing childhood mortality through vaccination: Progress, challenges, and the future
- 20:00 – 22:00 Conference Banquet (Gabi Club)  
  
Announcement of Liomont Best Poster Awards
- 22:00 – 23:00 Social hour

**Friday, June 13, 2014**

07:00 – 10:00            Breakfast followed by departures

## Vaccine Technology V Poster Presentations

- 1. Improved rotavirus-like particle production in *Saccharomyces cerevisiae* by improving the feeding strategy in fed-batch cultures**  
Martha Alicia Contreras, Instituto de Biotecnología UNAM, Mexico
- 2. Development of immunogenic virus-like particles as a rabies vaccine candidate**  
Diego Fontana, Universidad Nacional del Litoral, Argentina
- 3. Characterization and neutralization studies of a monoclonal antibody against rabies virus glycoprotein**  
Claudio Prieto, Universidad Nacional del Litoral, Argentina
- 4. Parameters for MDBK cell growth on microcarriers**  
Ronaldo Mendonça, Instituto Butantan, Brazil
- 5. Universal H1n1 influenza vaccine development: identification of consensus class ii hemagglutinin and neuraminidase epitopes derived from strains circulating between 1980 and 2011**  
Frances Terry, EpiVax, Inc., USA
- 6. Synthetic DNA immunoadjuvant IL-33 or CCR10 Chemokine adjuvants drive in vivo CD8 T cell and antibody responses that are protective in vivo**  
David Weiner, University of Pennsylvania, USA
- 7. Formulation development for a new virosome-based flu vaccine: paving the way towards a temperature resistant liquid product.**  
Francesco Doro, Crucell Hollan BV, Netherlands
- 8. Lessons learned for formulation development for live virus vaccines**  
Lynne A. Isopi, Merck & Co, USA
- 9. Formulation development and stabilization of a trivalent equine encephalitis virus virus-like particle vaccine candidate**  
Lisa A. Kuelzto, Vaccine Production Program Laboratory, VRC/NIAID/NIH, USA
- 10. Nanopatches: For the eradication of poliovirus**  
David Muller, AIBN, University of Queensland, Australia
- 11. Development of chemically-defined MDCK and vero culture media for cell-based vaccine development and manufacturing**  
Jenny Bang, Irvine Scientific, USA
- 12. Preserving the structural integrity of virus like particles**  
Cuitláhuac Chavez-Peña, Protein Sciences Corporation, USA
- 13. Disposable hollow fiber bioreactors for high cell density virus production in continuous mode**  
Yvonne Genzel, Max Planck Institute for Dynamic of Complex Technical Systems, Germany
- 14. Case study of influenza H7N9 manufacturing process development in Taiwan**

Alan Yung-Chih Hu, National Health Research Institutes, Taiwan

15. **Manufacturing challenges of adding a preservative containing presentation to a commercial vaccine**  
Li Li, Pfizer, USA
16. **High yield expression of leptospirosis vaccine candidate LigA in bioreactor using experimental design**  
Marco Medeiros, Oswaldo Cruz Foundation/Bio-Manguinhos, Brazil
17. **Tweaking insect cell platforms for the production of multivalent VLPs: Metabolic profiling, pathway analysis and bioprocess optimization**  
Francisca Monteiro, iBET/ITQB-UNL, Portugal
18. **Preparation of pure, high titer, pseudoinfectious flavivirus particles by hollow fiber tangential flow filtration and anion exchange chromatography**  
Sophia T. Mundle, Sanofi Pasteur, USA
19. **Evaluation of chromatographic stationary phase for capture of a HIV-1-derived lentiviral vector**  
Sara M. Nilsson, University College London, United Kingdom
20. **A tiered methodology to selecting a microcarrier substrate for bioprocess development**  
Roberto I. Ortiz, Merck & Co, USA
21. **Enveloped VLPs process development**  
Hugo Soares, IBET, Portugal
22. **Development of a phase I/II transient gene expression platform process for production of an enveloped virus-like particle vaccine**  
Richard M. Schwartz, Vaccine Production Program Laboratory, VRC/NIAID/NIH, USA
23. **Development of a robust, defined, animal-free virus production medium optimized for microcarrier culture**  
Steve Pettit, InVitria, USA
24. **A flow cytometry-based assay for quantification of infectious influenza and vaccinia virions**  
Felipe Tapia, Max Planck Institute for Dynamic of Complex Technical Systems, Germany
25. **The comparison of downstream purification process of cell derived influenza vaccine production**  
Yu-Fen Tseng, National Health Research Institutes, Taiwan
26. **Assessment of cultivation strategies for the production of Modified Vaccinia Ankara (MVA) at high cell-densities**  
Daniel Vázquez, Max Planck Institute for Dynamic of Complex Technical Systems, Germany
27. **In silico prediction of leishmania braziliensis T cell epitope candidates: Towards the development of epitope-based vaccines with protective immunity against cutaneous leishmaniasis**  
Vanessa Adai, Universidad Peruana Cayetano Heredia, Peru



28. **Targeting of rotavirus antigen to skin dendritic cells induces protection against the infection in mice**  
Oscar Badillo-Godínez, Universidad Autonoma Del Estado De Morelos, Mexico
29. **Influenza reverse genetics system for use in production platforms of all species**  
Bahareh Ramezani, Erasmus MC, Netherlands
30. **Manufacture and needle-free intradermal delivery of antibiotic-free NTC RNA-OUT LAMP plasmids**  
Aaron E. Carnes, Nature Technology Corporation, USA
31. **Rapid assay for expression and conformational screening of engineered Influenza hemagglutinins for a universal vaccine**  
Guadalupe Cortes-Garcia, Sanofi Pasteur, USA
32. **Biological and immunological characterizations of the receptor binding domain of C. difficile toxin A**  
Pele Chong, National Health Research Institutes, Taiwan
33. **Improvement of yellow fever virus production in stirred-tank bioreactors using serum-free medium**  
Diogo A. Mattos, Bio-Manguinhos/Fiocruz, Brazil
34. **Expression, purification and immunogenicity evaluation of hepatitis A virus recombinant proteins**  
Haroldo Cid da Silva Junior, Fundação Oswaldo Cruz / Bio-Manguinhos, Brazil
35. **Continuous influenza vaccine production**  
Yvonne Genzel, Max Planck Institute for Dynamic of Complex Technical Systems, Germany
36. **New technologies for detection of viral adventitious agents: challenges and opportunities in vaccine development**  
Lucy Gisonni-Lex, Sanofi Pasteur, Canada
37. **Effect of synonymous codon usage bias and co-expression of folding assistant factors on the production of rabies virus glycoprotein in the methylophilic yeast Pichia pastoris**  
Hela Kallel, Institut Pasteur de Tunis, Tunisia
38. **Development of a novel hepatitis E virus vaccine using adeno associated virus : process development and preliminary immunogenicity studies in mice**  
Hela Kallel, Institut Pasteur de Tunis, Tunisia
39. **A dose-sparing strategy for pandemic influenza A H7N9 preparedness: One-shot insect cell-derived low-dose H7 virus-like particle preparation protects mice against lethal challenge**  
Miriam Klausberger, Vienna Institute of BioTechnology, Austria
40. **Impact of MDCK cell line adaptation to suspension growth on proteome level and virus replication dynamics**  
Sabine Kluge, Otto-von-Guericke university, Germany
41. **MVA-based influenza vaccines: bringing these viral vectors from bench to bedside**  
Joost Kreijtz, Virosciencelab, Netherlands

42. **Rapid response vaccine technology for the influenza A/H7N9 virus with pandemic potential**  
Joost Kreijtz, Virosciencelab, Netherlands
43. **Virus production with the integrity® ICELLIS® single-use bioreactor**  
Matthew Kremer, Pall Life Sciences, USA
44. **Vero/CHOK1, a novel mixture of cell lines that is optimal for the rescue of influenza a vaccine seeds**  
Isabelle Legastelois, Sanofi Pasteur, France
45. **Characterization and immunogenicity in mice of recombinant influenza haemagglutinins produced in leishmania tarentolae**  
Isabelle Legastelois, Sanofi Pasteur, France
46. **Novel ETEC vaccine by intranasal immunization**  
Yolanda López Vidal, Universidad Nacional Autónoma De México, Mexico
47. **Microbially-produced capsomere: Extending the potential of broadly cross-protecting influenza antigen**  
Linda Lua, The University of Queensland, Australia
48. **Monolithic columns for the downstream processing of gene therapy vectors and vaccines**  
Daniela Marc, BIA Separations, Slovenia
49. **Insect cell derived vaccines: Addressing the issue of glycosylation**  
Dieter Palmberger, Vienna Institute of BioTechnology, Austria
50. **A viral vector for RNA immunization against rabies. Synthesis, titration and protection studies.**  
Carlos Pereira, Instituto Butantan, Brazil
51. **Analysis of the humoral immune response in mice of an inactivated yellow fever 17DD vaccine cultivated in microcarrier-based vero cell cultures**  
Diogo Mattos, Bio-Manguinhos/Fiocruz, Brazil
52. **Development of a candidate vaccine for hepatitis C virus**  
Hugo Soares, IBET, Portugal
53. **Virus purification via a pseudo-affinity membrane adsorber**  
Udo Reichl, Max Planck Institute for Dynamic of Complex Technical Systems, Germany
54. **Vaccine design and evaluation using the iVAX toolkit**  
Frances Terry, Brown University School of Public Health, USA
55. **CIMac analytical columns for in-process control of adenoviruses**  
Lidija Urbas, BIA Separations, Slovenia
56. **Different immunity elicited by recombinant H5N1 hemagglutinin glycoproteins containing pauci-mannose, high-mannose, or complex type N-glycans**  
Suh-Chin Wu, National Tsing Hua University, Taiwan
57. **The two-faced T cell epitope: Judicious antigen selection for optimal vaccine**

**efficacy**

Anne S. De Groot, EpiVax, Inc., USA

58. **One health genome-derived epitope-driven vaccine development for public health and global food security**  
Andres H. Gutierrez, University of Rhode Island, USA
59. **Catching a moving target: Universal influenza virus vaccine constructs based on the conserved hemagglutinin stalk domain**  
Florian Krammer, Icahn School of Medicine at Mount Sinai, USA
60. **Assessment of the impact of manufacturing changes during the product development on DEC-Her1 physical-chemical and biological characteristics**  
Adolfo Castillo Vitloch, Center of Molecular Immunology, Cuba
61. **CIMAvax-EGF®: Scientific and technological challenges for cancer vaccine manufacturing**  
Gryssell Rodriguez, Centro de Inmunologia Molecular, Cuba
62. **Characterization of the Anti-Idiotipic vaccine formulation Racotumumab: Interaction forces with aluminium hydroxide adjuvant and immunogenicity in chickens modifying adsorption and the mAb/adjuvant ratio**  
Julio Felipe Santo Tomás, Center of Molecular Immunology, Cuba
63. **Anti-idiotypic monoclonal antibody racotumomab: Impact of glycosylation in biological activity of vaxira vaccine**  
Julio F. Santo Tomás, Center of Molecular Immunology, Cuba
64. **Safety and immunogenicity of inactivated poliovirus vaccine based on Sabin-strains with and without aluminium hydroxide adjuvant: clinical trials in adults and infants**  
Wilfried A.M. Bakker, Intravacc, Netherlands
65. **Immune history shapes specificity of pandemic h1n1 influenza antibody responses**  
Donald M. Carter, Vaccine and Gene Therapy Institute of Florida, USA
66. **Adjuvant manufacturing technology transfer to developing countries**  
Christopher B. Fox, IDRI, USA
67. **Pharmaceuticals and security: The role of cross-sectoral collaborations in strengthening global health security**  
Anne Roemer-Mahler, University of Sussex, United Kingdom
68. **Sequential seasonal H1N1 influenza virus infections protect ferrets against novel 2009 H1N1 influenza. implications for vaccine design**  
Donald M. Carter, Vaccine and Gene Therapy Institute of Florida, USA
69. **Effect of metal catalyzed oxidation in recombinant viral protein assemblies**  
Ricardo M. Castro-Acosta, IBT-UNAM, Mexico
70. **Brazilian meningococcal C conjugate vaccine: Scaling up studies**  
Renata Chagas Bastos, Bio-Manguinhos/Fiocruz, Brazil

71. **An H7N1 influenza virus vaccine induces broadly reactive antibody responses against H7N9 in humans**  
Florian Krammer, Icahn School of Medicine at Mount Sinai, USA
72. **Characterization and quantitative analysis of enterovirus-like particle**  
Linda Lua, The University of Queensland, Australia
73. **Development of a universal antibody against multiple strains of influenza virus**  
Aziza Manceur, National Research Council, Canada
74. **TEM for characterization of vaccines: Proteins to adjuvants**  
Clint Potter, Nanolmaging Services, Inc., USA
75. **Conservation of HIV-1 T cell epitopes across time and clades: Validation of immunogenic HLA-A2 and -A3 epitopes selected for the GAIA HIV vaccine**  
Oumar Kone, University of Sciences, Technique of Technologies of Bamako, Mali