

Transforming Vaccinology (L2)

March 15-19, 2020 • Firenze Fiera - Fortezza da Basso • Florence, Italy

Scientific Organizers: Rino Rappuoli, Lynda M. Stuart and Federica Sallusto

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

Organized in collaboration with Menarini International Foundation

Sponsored by Moderna

Global Health Travel Award Deadline: October 15, 2019 / Discounted Abstract & Scholarship Deadline: November 12, 2019 / Abstract Deadline: December 10, 2019 / Discounted Registration Deadline: January 14, 2020

SUNDAY, MARCH 15

Arrival and Registration

MONDAY, MARCH 16

Welcome and Keynote Address

Anthony S. Fauci, NIAID, National Institutes of Health, USA
Transforming Vaccinology: Considerations for the Next Decade

Structure-Based Antigen Design

Neil P. King, University of Washington, USA
Structure-Based Design of Novel Nanoparticle Vaccine Platforms

Barney S. Graham, NIAID, National Institutes of Health, USA
Immunogen Design Strategies for RSV, Influenza and Other Enveloped Viruses

William Schief, International AIDS Vaccine Initiative and The Scripps Research Institute, USA
Germline Immunization

Peter D. Kwong, NIAID, National Institutes of Health, USA
Short Talk: Interprotomer Disulfide-Based Stabilization of the Fusion Glycoprotein of Human Metapneumovirus Induces High Titer Neutralization

Yusuke Iwabuchi, Tokyo Medical and Dental University, Japan
Short Talk: Intranasal Delivery of Bacterial Membrane Vesicles Carrying Exogenous Capsular Polysaccharides: A Proposed Next-Generation Vaccine Platform against a Wide Diversity of Pathogens

Poster Session 1

Molecular Dynamics of Germinal Centers

Gabriel D. Vitoria, Rockefeller University, USA
How the Germinal Center Works

Robert A. Seder, NIAID, National Institutes of Health, USA
Immunity After Intravenous Delivery of Antigens

Shane Crotty, La Jolla Institute for Immunology, USA
Probing the Human Naive B Cell Repertoire, and Developing Immunization Strategies That Enhance Antibody and Germinal Center Responses via Modulation of Immunodominance

Yinan Zhang, University of Toronto, Canada
Short Talk: Nanoparticle Size Influences Antigen Retention and Presentation in Lymph Node Follicles for Humoral Immunity

Maria Vono, University of Geneva, Switzerland
Short Talk: Adjuvants including C-Type Lectin Receptor Agonists Elicit Fully Functional GC-Tfh Cells in Neonates via IL-6 and IL-21 Signaling

Gillie Agmon Roth, Stanford University, USA
Short Talk: Sustained Release Hydrogel Prolongs Germinal Center Response and Enhances Humoral Immunity

TUESDAY, MARCH 17

The Increasing Role of Delivery, Adjuvants, Genetics and Microbiome

Yasmine Belkaid, NIAID, National Institutes of Health, USA
Microbiome and Immunity

Steven Reed, Infectious Disease Research Institute, USA
Comparison of Adjuvants, TLR Agonists

Federica Sallusto, Università della Svizzera Italiana & ETH Zurich, Switzerland
Antigen Specific T Cell Diversity

Jean-Laurent Casanova, Rockefeller University, USA
Toward a Genetic Theory of Childhood Infectious Diseases

Brittany Hartwell, Massachusetts Institute of Technology, USA
Short Talk: Engineering Vaccine Immunity through the Use of Albumin as an Endogenous Chaperone to Promote Uptake at Mucosal Surfaces

Matteo Iannacone, Fondazione Centro San Raffaele, Italy
Short Talk: Spatiotemporal Dynamics and Genomic Landscape of CD8+ T Cells Undergoing Intrahepatic Priming

Alexander J. Mentzer, University of Oxford, UK
Short Talk: Multiplex Serology Testing for 20 Infections in 10,000 UK Biobank Participants; Opportunities for Vaccine Research

Panel 1: New Technologies and Impact on Vaccines

***Lynda M. Stuart**, Bill & Melinda Gates Foundation, USA

***Mariagrazia Pizza**, GSK Vaccines, Italy

Sergio Abrignani, Fondazione INGM - University of Milan, Italy
Precision Medicine Based on Tissutal Immunology

Claudia Sala, Toscana Life Sciences Foundation, Italy
New Imaging Technologies for New Assays (High Throughput, High Content Assays for Adhesion Invasion, Neutralization, Opsonization and Killing of Bacterial Pathogens)

Emanuele Andreano, Fondazione Toscana Life Sciences, Italy
New Imaging Technologies for New Assays (High Throughput, High Content Assays for Adhesion Invasion, Neutralization, Opsonization and Killing of Bacterial Pathogens)

Carolyn M. Boudreau, Ragon Institute of MGH, MIT, and Harvard, USA
Influenza Susceptibility in Infants Can Be Predicted by Maternal Antibodies

Ambra Natalini, Consiglio Nazionale delle Ricerche, Italy
Antigen-Specific CD8 T Cells in Cell Cycle Circulate in the Blood after Vaccination

Christopher A. Cottrell, The Scripps Research Institute, USA
Coupling Cryo-Electron Microscopy Polyclonal Epitope Mapping (cryoEMPEM) with BCR Next-Gen Sequencing Provides the Molecular Details Necessary to Guide Iterative Structure-Based Immunogen Design

Synthetic (Nucleic Acid) Vaccines

Christine Shaw, Moderna, USA
mRNA Vaccines against Viruses

Alfredo Nicosia, Nouscom, S.R.L., Italy
The Renaissance of Cancer Vaccines

Ugur Sahin, BioNTech AG, Germany
mRNA Vaccines against Tumors

Alec Freyn, Mount Sinai School of Medicine, USA
Short Talk: A Multi-Targeting, Nucleoside-Modified mRNA Influenza Virus Vaccine Provides Broad Protection in Mice

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Poster Session 2

WEDNESDAY, MARCH 18

Antibody Repertoire and Passive Immunization

Hedda Wardemann, German Cancer Research Center, Germany
Dissecting Antibody Responses to Plasmodium Falciparum Circumsporozoite Protein for the Development of a Malaria Vaccine

Galit Alter, Ragon Institute of MGH, MIT, and Harvard, USA
System Serology

Antonio Lanzavecchia, Institute for Research in Biomedicine, Switzerland
Human Monoclonals for Passive Immunization and Antigen Discovery

James E. Crowe, Jr., Vanderbilt University Medical Center, USA
The Human Immunome

Jacob Archer, Infectious Disease Research Institute, USA
Short Talk: Passive Immunization Utilizing Non-Viral Delivery of Replicating Viral RNA as a Gene-Expression Platform

Megan DeMouth, Vaccine Research Center, NIAID, NIH, USA
Short Talk: Potent Anti-Viral Activity of Trispecific Broadly Neutralizing HIV Antibodies

Elisabetta Frigimelica†, GlaxoSmithKline Vaccines S.r.l., Italy
Short Talk: Interrogation of Human Monoclonal Antibodies Induced by Bexsero to Identify Protective Antigens Contained in the OMV Component

Poster Session 3

Vaccines for Chronic Infections and Cancer I

Ann M. Ginsberg, Bill & Melinda Gates Foundation, USA
New Vaccines Against Tuberculosis

John T. Schiller, NCI, National Institutes of Health, USA
Progress on Preventative and Therapeutic HPV Vaccines

Catherine Ju-Ying Wu, Dana-Farber Cancer Institute, USA
Vaccines Against Tumor Neoantigens

David Zeigler, Tria Bioscience, USA
Short Talk: Tailoring CD4 T Cell Activity of a Synthetic Peptide Nicotine Vaccine to Primates

Alessandro Sette, La Jolla Institute for Allergy & Immunology, USA
Short Talk: Limited T Cell Cross-Reactivity amongst Different Flaviviruses

THURSDAY, MARCH 19

Vaccines for Chronic Infections and Cancer II

Laurence Zitvogel, Institut Gustave Roussy, France
Cancer Immunity and Microbiota

Ulrike Protzer, Technische Universität München, Germany
Therapeutic HBV Vaccines

Anne O'Garra, Francis Crick Institute, UK
Transcriptomics Reveal the Immune Response in Tuberculosis

Sven Even F. Borgos, SINTEF, Norway

Short Talk: EXPERT – Bringing Immune Activating mRNA to the Clinic: The Case of Intratumoral Nanoparticle-Delivered Treatment of Triple-Negative Breast Cancer

Luigi Calzolari†, European Commission- DG Joint Research Centre, Italy

Short Talk: Analytical Characterization of Nanoparticle Vaccine Platforms

Youra Kim, Dalhousie University, Canada

Short Talk: Discovery of Oncolytic Virus-Induced Tumor MHC Ligands for Cancer Immunotherapy

Leyuan Ma†, Massachusetts Institute of Technology, USA
Short Talk: An HLA-Independent Booster Vaccine for Chimeric Antigen Receptor T Cells

Panel 2: Innovation and Sustainability for Emerging and Neglected Diseases

***Rino Rappuoli**, GlaxoSmithKline Vaccines, Italy

***Lynda M. Stuart**, Bill & Melinda Gates Foundation, USA

Richard Hatchett, Coalition for Epidemic Preparedness Innovations, CEPI, UK

Lindsay Keir†, Wellcome Trust, UK

Rick Arthur Bright, Biomedical Advanced Research and Development Authority, USA

Jerome H. Kim, International Vaccine Institute, South Korea

Jaap Goudsmit, Human Vaccines Program / Harvard T.H. Chan School of Public Health, USA

Understanding the Molecular Mechanisms by Systems Biology

Bali Pulendran, Stanford University School of Medicine, USA
Emerging Mechanism of Vaccine Modulation Detected by Systems Biology

Stefan H. E. Kaufmann, Max Planck Institute for Infection Biology, Berlin, Germany
Biosignatures for Infection and Protection

Rino Rappuoli, GlaxoSmithKline Vaccines, Italy
Transforming Vaccinology

Denise L. Doolan, James Cook University, Australia
Short Talk: Predicting Host Response to Malaria Infection Using Integrated Omics and Controlled Human Infection Models

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

FRIDAY, MARCH 20

Departure