

**A SYMPOSIUM ON SYNTHETIC IMMUNITY**  
July 10-14, 2017 • Hotel La Fonda at the Plaza • Santa Fe, NM • USA

## PROGRAM

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### Monday, July 10, 2017

1:00 – 5:00 pm      Registration

5:00 – 5:10 pm      Welcome and Opening Remarks

**Opening Session**      Chair: David Corry, Baylor College of Medicine

5:10 – 5:50 pm      Goutam Gupta, LANL  
*“Synthetic Immunity: scopes and applications”*

5:50 – 6:30 pm      Farrah Kheradmand, Baylor College of Medicine  
*“Cigarette Smoke Induced Activation of Innate and Acquired Immunity”*

6:30 – 7:00 pm      **Refreshments & Break**

**Evening Lecture**      Chair: Andrew Bradbury, LANL

7:00 – 7:45 pm      Speaker: Roy Curtiss, University of Florida, Gainesville  
*“Vaccine design to safely induce protective immunity of long duration”*

7:45 – 9:00 pm      **Reception and Dinner**

9:00 – 10:00 pm      **Drinks and mixing**

### Tuesday, July 11, 2017

7:00 – 8:30 am      **Breakfast**

**I: Viral Immunity**

Chair: Alan Perelson, LANL

8:30 – 9:15 am      Michael Gale, University of Washington  
*“Targeted Immune programming by RIG-I like receptor agonists”*

9:15 – 9:45 am Warner C Greene, University of California, San Francisco  
*“Caspase-1 as a Target to Block Pathogenic Responses Elicited by Multiple Viruses”*

9:45 - 10:15 am Sun Hur, Harvard Medical School  
*“RIPLET, an unusual E3 ligase in antiviral innate immunity”*

10:15 – 10:35 am **Refreshments & Break**

## **II: Immune System Modeling**

Chair: Phil Hodgkin, Walter+Eliza Hall Institute of Medical Research

10:35 – 11:20 am Alan Perelson, LANL  
*“Modeling Effector Cell Responses to Viral Infections”*

11:20 – 11:50 am Carmen Molina-Paris, University of Leeds  
*“CTLA-4 mediated trans-endocytosis: a stochastic story of two receptors and two ligands”*

11:50 – 12:20 pm Becca Asquith, Imperial College  
*“KIRs, CD8+ T cell dynamics & Control of Chronic Viral Infection”*

12:20 – 1:30 pm **Lunch**

## **III: Immune Signaling and Neurological Disorders**

Chair: Warner C Greene, University of California, San Francisco

1:30 – 2:15 pm Thomas Wisniewski, New York University  
*“Novel Approaches to Understand the Pathogenesis and Treat Alzheimer’s Disease”*

2:15 – 2:45 pm Linda J. Van Eldik, University of Kentucky  
*“Targeting Inflammatory Cytokine Dysregulation in Neurological Disorders”*

2:45 – 3:15 pm Peter Davies, Feinstein Institute, Northwell Health  
*“Immunotherapy for tau pathology in Alzheimer’s disease”*

3:15 – 3:45 pm Tika Benveniste, University of Alabama at Birmingham  
*“The function of protein kinase CK2 in CD4+ T cell differentiation and autoimmunity”*

4:00 - 6:30 pm **Poster Session with drinks & hors d'oeuvres**

## Evening Lecture

Chair: Joseph Petrosino, Baylor College of Medicine

6:30 – 7:15 pm      Speaker: Janelle Ayres, Salk Institute

7:15 – 10:00 pm      **Dinner, drinks, and mixing**

## Wednesday, July 12, 2017

7:00 – 8:45 am      **Breakfast**

### Session IV: Immunopathogenic mechanisms in *Mycobacterium tuberculosis* infection

Chair: Alan Sher, National Institute of Allergy & Infectious Diseases

8:45 – 9:20 am      Christina Stallings, Washington University  
*“Dissecting Innate Immune Responses to *Mycobacterium tuberculosis*”*

9:20 – 9:55 am      Josephine Clark-Curtiss, University of Florida, Gainesville  
*“Recombinant Attenuated *Salmonella* Vaccines Against *Mycobacterium tuberculosis*”*

9:55 – 10:30 am      Philana Lin, University of Pittsburgh School of Medicine  
*“The Sum of All Parts: Redefining Tuberculosis”*

10:30 – 10:50 am      Bryan Bryson, Harvard School of Public Health  
*“Dissecting the complexity of macrophage infection with *Mycobacterium tuberculosis* with single cell RNA sequencing”*

11:00 – 12:30 pm      **Lunch**

### V: Mitochondrial Function

Chair: Sunny Shin, University of Pennsylvania

12:30 – 1:00 pm      Doug Green, St. Jude Children's Research Hospital

1:00 – 1:30 pm      Navdeep Chandel, Northwestern University  
*“Mitochondria as signaling organelles”*

1:30 – 1:50 pm      **Refreshments & Break**

### VI: Human Diseases, Aging, and Immune Cell Regulation

Chair: Farrah Kheradmand, Baylor College of Medicine

1:50 – 2:25 pm      Peter Murray, St. Jude Children's Research Hospital/Max Planck Institute for Biochemistry  
*“Genetic dissection of macrophage-centric pro-tumor pathways”*

- 2:25 – 3:00 pm Heather Christofk, University of California at Los Angeles  
*“Metabolic Transitions in Cancer: Lessons from Viral Infection”*
- 3:00 – 3:35 pm David Corry, Baylor College of Medicine  
*“Fibrinogen Signaling and the Initiation of Allergic Airway Disease”*
- 3:35 – 4:10 pm Paul Thomas, St. Jude Children's Research Hospital  
*“TCR Repertoire Features that Define Specificity in Pathogens and Tumors”*
- 4:10 – 4:40 pm **Refreshments & Break**
- VII: Advanced Technologies**
- Chair: Rick Maizels, University of Glasgow, UK
- 4:40 – 5:10 pm Andrew Bradbury, LANL  
*“At the crossroads - getting to recombinant antibodies that guarantee reproducible research”*
- 5:10 – 5:40 pm Joseph Petrosino, Baylor College of Medicine  
*“Novel informatics and wet-bench tools to identify and model host-microbe interactions”*
- 5:40 – 6:10 pm Philip Hodgkin, Walter+Eliza Hall Institute of Medical Research  
*“Modular cellular machinery underlies the evolution and control of adaptive immune responses”*
- 6:10 – 6:25 pm **Refreshments & Break**
- Evening Lecture**
- Chair: Gabriel Nunez, University of Michigan
- 6:25– 7:10 pm Speaker: Vishva Dixit, Genentech  
*“Interplay Between Regulators of Apoptosis and Necroptosis”*
- 8:30 pm **Night at the Santa Fe Opera at 8:30 pm**

## Thursday, July 13, 2017

7:00 – 8:30 am **Breakfast**

**VIII: Vaccines and Antibodies** Chair: Roy Curtiss III, University of Florida, Gainesville

- 8:30 – 9:00 am Dan Barouch, Harvard Medical School  
*“Development of an Ad26/Env Mosaic HIV-1 Vaccine”*
- 9:00 – 9:30 am Nancy Sullivan, NIH/VRC

*“Protective Monotherapy Against Lethal Ebola Virus Infection: Structural and Molecular Basis of Potent Neutralization”*

9:30 – 10:00 am Ted Ross, University of Georgia  
*“Broadly Protective Influenza Vaccines: Protection Against Mismatch – Bettering Standard of Care”*

10:00 – 10:20 am **Refreshments & Break**

### **IX: Immunology of Viral Diseases**

Chair: Bette Korber, LANL

10:20 – 11:00 am Catherine Blish, Stanford University  
*“Modeling protective natural killer cell responses”*

11:00 – 11:30 am Daryl Lau, Beth Israel Deaconess Medical Center, Harvard  
*“Novel Therapy For Chronic Hepatitis B”*

11:30 – 12:00 pm Silke Paust, Baylor College of Medicine  
*“Novel Treatment Concepts for Influenza A Virus Infection via Checkpoint Immunotherapy”*

12:00 – 1: 00 pm **Lunch**

### **X: Nod-like Receptor and Inflammasome Signaling**

Chair: Vishva Dixit, Genentech

1:00 – 1:30 pm Gabriel Nunez, University of Michigan  
*“How does the immune system discriminate virulent vs commensal Staphylococcus aureus at the skin barrier?”*

1:30 – 2:00 pm Marcelo Bozza, Federal University of Rio de Janeiro, Brazil  
*“Redox signalling and TLR4 contribute to heme-induced macrophage activation and lethality due to hemolysis”*

2:00 – 2:30 pm Edward Miao, University of North Carolina at Chapel Hill  
*“Pyroptosis triggers pore-induced intracellular traps (PITs) that capture bacteria and lead to their clearance by efferocytosis”*

2:30 – 3:00 pm Sunny Shin, University of Pennsylvania  
*“Detection of bacterial ligands by the human NAIP/NLRC4 inflammasome”*

3:00 – 3:20 pm Liman Zhang, Harvard University  
*“Structural studies of NAIP/NLRC4 inflammasome in innate immunity”*

3:20 – 3:40 pm            **Refreshments & Break**

### **XI: Bacterial Pathogenesis**

Chair: Marcelo Bozza, Federal University of Rio de Janeiro, Brazil

3:50 – 4:20 pm            Igor Brodsky, University of Pennsylvania  
*“RIPK1 Kinase-dependent apoptosis promotes antibacterial host defense”*

4:20 – 4:50 pm            Victor Torres, New York University  
*“Staphylococcus aureus leukocidins: from receptor identification to unraveling their role in pathogenesis”*

4:50 – 5:10 pm            Brooke Napier, Stanford University  
*“Immunologically defining susceptibility to sepsis”*

5:10 – 5:30 pm            **Refreshments & Break**

### **XII: Understanding Parasitic Infection and Signaling**

Chair: Janelle Ayres, Salk Institute

5:30 – 6:00 pm            Alan Sher, National Institute of Allergy & Infectious Diseases  
*“Innate initiation signals of the immune response to Toxoplasma gondii: a tale of mice and men”*

6:00 – 6:30 pm            Rick Maizels, University of Glasgow, UK  
*“Helminth Parasites - Master Regulators of the Immune System”*

6:30 – 7:00 pm            David Sacks, NIAID/NIH

7:00 – 7:30 pm            **Drinks & hors d'oeuvres**

### **Evening Lecture**

Chair: Dan Barouch, Harvard Medical School

7:30 – 8:15 pm            Speaker: Bette Korber, LANL  
*“Vaccine antigen design strategies for dealing with viral diversity”*

8:15 – 10:30 pm            **Dinner, drinks and mixing**

**Friday, July 14, 2017**

Departure