Announcing Keystone Symposia’s 2015 conference on:

Granulomas in Infectious and Non-Infectious Diseases

joint with the meeting on: Host Response in Tuberculosis

January 22–27, 2015
Santa Fe Community Convention Center
Santa Fe, New Mexico, USA

Scientific Organizers:
Thomas A. Wynn, Paul Kaye and Vishva M. Dixit

This meeting addresses the basic mechanisms of granulomatous inflammation and focuses on several chronic inflammatory diseases in which persistent granuloma formation is the central pathogenic mechanism of disease. It runs in parallel with the meeting on “Host Response in Tuberculosis” and brings together researchers, clinicians and members of the pharmaceutical industry to discuss the basic mechanics of granuloma formation, elucidate common pathogenic mechanisms and identify novel areas of therapeutic intervention for the large number of chronic granulomatous diseases.

Session Topics:
• Granulomas Associated with Type-1 Immunity
• Infectious and Non-Infectious Granulomatous Disease
• Pathogenic Mechanisms in Chronic Granulomatous Disease (Joint)
• Role of Myeloid Cells in Granuloma Formation
• Computational Modeling, Imaging and Treatment
• TB and Co-Morbidities (Joint)
• Workshop 1: Basic Biology
• Workshop 2: Clinical and Translational

Discounted Abstract/Scholarship Deadline: Sep 29, 2014
Abstract Deadline: Oct 22, 2014
Discounted Registration Deadline: Nov 20, 2014

To see the full program and for additional details, visit www.keystonesymposia.org/15J4.
THURSDAY, JANUARY 22
Arrival and Registration

FRIDAY, JANUARY 23
Keynote Address (J4)
*Thomas A. Wynn, Pfizer, USA
Alberto Mantovani, Humanitas University, Italy
Macrophage Plasticity and Polarization in Granulomatous Inflammation

Keynote Address (J3)
*JoAnne L. Flynn, University of Pittsburgh School of Medicine, USA
Clifton E. Barry III, NIAID, National Institutes of Health, USA
Human Tuberculosis: The Movie

Granulomas Associated with Type-1 Immunity (J4)
Paul Kaye, University of York, UK
Understanding Granuloma Heterogeneity in Visceral Leishmaniasis
Martin Rottenberg, Karolinska Institutet, Sweden
SOCS3 in either Myeloid or T Cells Conveys Resistance to Infection with Mycobacterium tuberculosis

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

Evelina Guirado, Ohio State University, USA
Short Talk: Characterization of Host and Microbial Determinants in Individuals with Latent Tuberculosis Infection Using a Human Granuloma Model

Immunity in the Lung (J3)
*Alan Sher, NIAID, National Institutes of Health, USA
David M. Lewinsohn, Oregon Health & Science University, USA
MAITs and Protection Against TB

Henry Charles Mwandumba, Liverpool School of Tropical Medicine, UK
TB/HIV Interactions in the Airways

Gerhard Walzl, Stellenbosch University, South Africa
Human TB Treatment Response Studies Using PET/CT Imaging: Inconvenient Observations

Wendy A. Burgers, University of Cape Town, South Africa
Short Talk: Defects in Multiple Mycobacterial T Helper Subsets in Blood and Lungs in Early HIV Infection

Poster Session 1
Workshop 1: Basic Biology (J4)
*Matyas Sandor, University of Wisconsin-Madison, USA
Matthew McPeek, East Carolina University, USA
MicroRNAs Targeting PPAR? Pathways Are Elevated in Bronchoalveolar Lavage (BAL) Cells from Sarcoidosis Patients and from Mice Bearing Carbon Nanotube Induced Granulomas

Marie Lipoldova, Institute of Molecular Genetics, Czech Republic
Analysis of Granuloma Formation and Characteristics Using Defined Genomic Constructs

Deepak Kaushal, Tulane National Primate Research Center, USA
Role of Sensor Kinase DosS in Virulence of Mycobacterium tuberculosis in C3HeB/FeJ Mice with Classical Granulomatous Lesions

Teresa A. Hudock, Tulane National Primate Research Center, USA
Transcriptome Analysis of Mycobacterium tuberculosis in Primate Lung Granulomas

Albert Byungyun Jeon, Colorado State University, USA
Reversal of Phenotypic and Genotypic Antimicrobial Drug Resistance in Mycobacterium tuberculosis with 2 Aminomadazole-Based Small Molecule Adjuvants

Workshop: Novel Approaches to Treatment of Tuberculosis (J3)
*Christopher M. Sassetti, University of Massachusetts Medical School, USA
*Brian C. VanderVen, Cornell University, USA
Chemical Screening against Mycobacterium tuberculosis in Macrophages Identifies Inhibitors of Cholesterol Utilization

Frederick K. Balagaddé, K-RITH KwaZulu-Natal Research Institute for TB & HIV, South Africa
Confinement-Induced Drug-Tolerance in Microfluidic Bioreactors

Robert Blomgran, Linköping University, Sweden
Pharmacological Inhibition of mTORC1 Is Not the Treatment for HIV Mycobacterium tuberculosis Co-Infection

Meenal Datta, Massachusetts General Hospital, USA
Anti-VEGF Treatment Normalizes Tuberculosis Granuloma Vasculature and Improves Small Molecule Delivery

Scott M. Irwin, Colorado State University, USA
Bedaquiline and its Metabolite Display Reduced Penetration into Caseous Necrotic Pulmonary Lesions in C3HeB/FeJ Mice

EIkta Lachmandas, Radboud University Medical Center, Netherlands
Rewiring of Cellular Metabolism via the AKT/mTOR Pathway Forms the Basis of Host Defense against Mycobacterium tuberculosis

Tige R. Rustad, Seattle BioMed, USA
The Wiring Diagram of Mycobacterium tuberculosis: Generating and Using an Experimentally-Derived Transcriptional Regulatory Map

Suraj P. Parihar, University of Cape Town, South Africa
Role of Statins against Mycobacterium tuberculosis Infection

Infectious and Non-Infectious Granulomatous Disease (J4)
*Paul Kaye, University of York, UK
Margherita T. Cantorna, Pennsylvania State University, USA
The Implications of Vitamin D Status on T Cells, the Microbiome and Crohn’s Disease
Granulomas in Infectious and Non-Infectious Diseases (J4)
Scientific Organizers: Thomas A. Wynn, Paul Kaye and Vishva M. Dixit
Sponsored by Genentech, Inc.

Host Response in Tuberculosis (J3)
Scientific Organizers: JoAnne L. Flynn and Willem A. Hanekom

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R. Balfour Sartor, University of North Carolina at Chapel Hill, USA
Granulomatous Enterocolitis and Inflammation in Crohn's Disease: Intersection of Functionally Abnormal Bacteria and Defective Innate and Adaptive Immune Responses

Andreea Geamanu, Wayne State University, USA
Short Talk: Metabolomics Links Alterations in Fatty Acid Metabolism, Inflammation and Gut Microbiota in Sarcoidosis

Damien J.C. Montamat-Sicotte, McGill Research Institute RI-MUHC, Canada
Short Talk: NOD2: Innate Immunity, Bacterial Infection and Chronic Inflammation

Early Events after TB Infection (J3)

*Henry Charles Mwandumba, Liverpool School of Tropical Medicine, UK
Thomas R. Hawn, University of Washington, USA
Innate Immunogenetics of TB in Humans
Vojo Deretic, University of New Mexico Health Sciences Center, USA
Autophagy in Tuberculosis
Sabine Ehr, Weill Cornell Medical College, USA
Survival in the Phagosome: Resist to Persist
Ludovic P. Desvignes, New York University School of Medicine, USA
Short Talk: Dynamics of Early Growth and Spread of Mycobacterium tuberculosis in vivo Reveal Sequential Infection of Myeloid Cell Populations

SATURDAY, JANUARY 24

Pathogenic Mechanisms in Chronic Granulomatous Disease (Joint)

*Vishva M. Dixit, Genentech, Inc., USA
JoAnne L. Flynn, University of Pittsburgh School of Medicine, USA
Heterogeneity: Global and Local
Gilla Kaplan, Bill & Melinda Gates Foundation, USA
Lesion-Specific Immune Activation in Granulomas of Patients with Pulmonary Tuberculosis
Thomas A. Wynn, Pfizer, USA
Mechanisms of Fibrosis
Lalita Ramakrishnan, University of Cambridge, UK
Mechanisms and Consequences of Tuberculous Granuloma Necrosis
Shahin Shafiani, Center for Infectious Disease Research, USA
Short Talk: Foxp3+ Regulatory T Cells Are Host-Protective during Chronic Tuberculosis and Promote a Pathogen-Specific Immune Response
Philana Ling Lin, University of Pittsburgh, USA
Short Talk: Spatial Patterns of Granuloma Development Differ between Infection and Reactivation
Igor B. Kramnik, Boston University, USA
Short Talk: Necrosis in Granulomas: Mechanism and Therapeutic Approaches

Role of Myeloid Cells in Granuloma Formation (J4)

*P’ng Loke, New York University School of Medicine, USA
Peter J. Murray, St. Jude Children's Research Hospital, USA
Amino Acid Metabolism by Innate Immune Cells in Granulomatous Inflammation
Frederic Geissmann, Memorial Sloan Kettering Cancer Center, USA
Langerhans Cell Histiocytosis, a Pediatric Granulomatous Disease
Vishva M. Dixit, Genentech, Inc., USA
Necroptosis - Role in Inflammation
Keke C. Fairfax, University of Utah, USA
Short Talk: Schistosoma mansoni Infection Induces Anti-Atherogenic Transcriptional Changes in Hepatic Macrophages

Bacterial Interactions with Host Cells (J3)

*Jennifer Philips, Washington University School of Medicine, USA
Sarah M. Fortune, Harvard TH Chan School of Public Health, USA
Dissecting Bacterial Survival, Replication and Mutation in the Host Environment
W. Henry Boom, Case Western Reserve University, USA
Evasion of T Cell Immunity by Mycobacterium tuberculosis
Christopher M. Sassetti, University of Massachusetts Medical School, USA
Systematic Genetic Approaches to Understand TB Pathogenesis
Jordi B. Torrelles, Ohio State University, USA
Short Talk: Lung Mucosa Lining Fluid Modifies Mycobacterium tuberculosis to Reprogram Neutrophil Killing Mechanisms to Preserve the Anti-Inflammatory Integrity of the Lung

Poster Session 2

SUNDAY, JANUARY 25

Granulomas Associated with Type-2 Immunity (J4)

*Padmini Salgame, Rutgers University, USA
Edward J. Pearce, Max Planck Institute of Immunobiology and Epigenetics, Germany
Metabolic Reprogramming of Myeloid Cells during Granuloma Formation
William C. Gause, Rutgers New Jersey Medical School, USA
Regulation of Type-2 Inflammation and Pathology in the Lung and Gut during Nematode Infection
P’ng Loke, New York University School of Medicine, USA
Alternatively Activated Macrophages during Granuloma Formation in Schistosomiasis
Michael H. Hsieh, Children's National Medical Center, USA
Type-2 Granulomas and Bladder Cancer
Jessica C. Jang, University of California, Riverside, USA
Short Talk: Human Resistin Is Induced in Multiple Helminth Infections and Promotes Proinflammatory Cytokines and Monocyte-Rich Lung Granulomas
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Risk of TB Disease (J3)
*Tom H. M. Ottenhoff*, Leiden University Medical Center, Netherlands

**Thomas J. Scriba**, University of Cape Town, South Africa
Prospective Correlates of Risk of TB Disease

**Katrin D. Mayer-Barber**, NIAID, National Institutes of Health, USA
Inflammatory Cytokine Networks during TB

**January Weiner**, Max Planck Institute of Infection Biology, Germany
TB Biomarkers Across Cohorts and Sample Types

**Joel D. Ernst**, University of California, San Francisco, USA
Antigen Conservation and Diversity in Human Tuberculosis

**Rustin Lovewell**, University of Massachusetts Medical School, USA
Short Talk: The Role of Neutrophils in Progressive Tuberculosis

**Diane Joyce Ordway**, Colorado State University, USA
Short Talk: BCG Efficacy in Guinea Pigs Naturally Exposed to Patients with Tuberculosis

Granulomatous Diseases of the Lung (J4)

**Daniel L. Barber**, NIAID, National Institutes of Health, USA
Granuloma-Targeted Therapy in the Treatment of Tuberculosis

**Randall J. Basaraba**, Colorado State University, USA
Gene-Environment Interactions and the Development of Chronic Beryllium Disease

**Luigina Romani**, University di Perugia, Italy
Chronic Inflammation in Fungal Diseases: From Basic Science to Therapeutic Intervention

**Bryce C. Asay**, Colorado State University, USA
Short Talk: Heterogeneity in Lesion Types in C3HeB/FeJ Mice Is Modulated by Specific Characteristics of the Mycobacterium tuberculosis Strain Used

B Cells Responses to TB (J3)

**Shabaana Khader**, Washington University School of Medicine, USA

**John R. Chan**, Albert Einstein College of Medicine, USA
B Cells Promote Granulomatous Inflammation during Chronic Mycobacterium tuberculosis Infection

**Andrea M. Cooper**, University of Leicester, UK
The Role of B Cells in Defining T Cell Location in TB

**Galit Alter**, Ragon Institute of MGH, MIT, and Harvard, USA
A Case for Antibody Fc-Effecter Function in Tb Containment

**Alan Bénard**, Institut de Pharmacologie et de Biologie Structurale, France
Short Talk: B Cells Modulate Inflammation during Mycobacterium tuberculosis Infection in a MyD88- and Type I Interferon-Dependent Manner

Computation Modeling, Imaging and Treatment (J4)

**Andrew P. Fontenot**, University of Colorado Denver, USA
Computational Modeling, Imaging and Treatment (J4)

**Annemarie H. Meijer**, Leiden University, Netherlands
In vivo Study of Anti-Mycobacterial Autophagy and Granuloma Formation in the Zebrafish Model

**Ronald N. Germain**, NIAID, National Institutes of Health, USA
Live Imaging Anti-Mycobacterial Immunity

**Matyas Sandor**, University of Wisconsin-Madison, USA
Mycobacterial Granuloma Dynamics: Repopulation, Reformation and Cellular Traffic

**Steven Holland**, NIAID, National Institutes of Health, USA
Genetics and Treatment of Chronic Granulomatous Disease

**Elies Pienaar**, University of Michigan, USA
Short Talk: Interception of Host Angiogenic Signaling Limits Mycobacterial Growth

**D. Branch Moody**, Brigham and Women’s Hospital, USA
Building Technology-Based T Cell Response to Non-Polymorphic CD1 Proteins

**Robert A. Seder**, NIAID, National Institutes of Health, USA
What Is Needed to Protect Against TB?

**Denise Kirschner**, University of Michigan, USA
A Novel Two-Pronged Approach to Biomarker Discovery in Tuberculosis

**Willem A. Hanekom**, Bill & Melinda Gates Foundation, USA
Vaccines against TB: Where Are We Going?

**Guangwu Xu**, Vaccine and Gene Therapy Institute, and the Oregon National Primate Research Center, Oregon Health & Science University, USA
Short Talk: Cytoomegalovirus Vector-Based Tuberculosis Vaccines Provide Superior Protection to BCG after Intra-Bronchial mTb Challenge of Indian-Origin Rhesus macaques

Workshop 2: Clinical and Translational (J4)

**David M. Tobin**, Duke University School of Medicine, USA

* Session Chair † Invited but not yet accepted Program current as of June 6, 2019 Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/15J4 and www.keystonesymposia.org/15J3.
Delia Goletti, National Institute for Infectious Diseases, Italy
Can Blood or Urine IP-10 Discriminate between Active and Non Active Tuberculosis in Children from High Endemic Areas?

Lobelia Samavati, Wayne State University School of Medicine, USA
Development of a Sarcoidosis Library to Detect Sarcoidosis and Tuberculosis by a Panel of Novel Biomarkers

Daniel Torocsik, University of Debrecen, Hungary
Immunohistochemical Characterization of FXIII-A+ Cells in Non-Infectious Granulomatous Skin Lesions

Javeed Ali Shah, University of Washington, USA
TOLLIP Variants Are Associated with Susceptibility to Leprosy and Dermal Expression of TOLLIP and IL-1Ra in Nepal

Ho Namkoong, Keio University School of Medicine, Japan
Clarithromycin Expands CD11b+Gr-1+Cells to Ameliorate Post-Influenza Pneumococcal Pneumonia

TB and Co-Morbidities (Joint)
*Willem A. Hanekom, Bill & Melinda Gates Foundation, USA
Padmini Salgame, Rutgers University, USA
TB and Worms

Hardy Kornfeld, University of Massachusetts Medical School, USA
TB and Diabetes

Jovvian George Parakkal, New York Blood Center-LFKRI, USA
Short Talk: Influence of Helminth Infections on the Innate and Adaptive Immune Responses to Pulmonary Tuberculosis

Robert J. Wilkinson, University of Cape Town, South Africa
Talk Title to be Announced

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

TUESDAY, JANUARY 27

Departure