

2017 International Symposium on Molecular Medicine & Infectious Disease



DREXEL UNIVERSITY

Institute for

**Molecular Medicine
& Infectious Disease**

College of Medicine

November 14-16, 2017
245 N. 15th Street
Philadelphia, PA

DAY 1

GENOMICS/BIOINFORMATICS & MICROSCOPY IN INFECTIOUS DISEASE

Presentations today will focus on topics and research related to the use of microscopy in basic and translational science and diseases caused by parasitic infections. The highlights of the day will be lectures by the recipients of the 2017 Drexel Prize in Biotechnology, the 2017 Drexel Prize in Immunology, and the 2017 Drexel Prize in Infectious Disease.

Organizers:

Garth Ehrlich, Drexel University College of Medicine
Christopher Janetopoulos, University of the Sciences
Akhil Vaidya, Drexel University College of Medicine

8:00 a.m. *Registration and Continental Breakfast*

8:45 a.m. *Introductory Remarks*

Brian Wigdahl, PhD

Professor and Chair, Department of Microbiology and Immunology
Director, Institute for Molecular Medicine and Infectious Disease
Drexel University College of Medicine, Philadelphia, PA

Daniel Schidlow, MD

Walter H. and Leonore Annenberg Dean and Senior Vice President of Medical Affairs
Drexel University College of Medicine, Philadelphia, PA

Jed Shumsky, PhD

Associate Dean of Educational and Academic Affairs
Graduate School of Biomedical Sciences and Professional Studies
Associate Professor, Department of Neurobiology and Anatomy
Drexel University College of Medicine, Philadelphia, PA

Kenny Simansky, PhD

Vice Dean for Research
Professor, Department of Pharmacology & Physiology

Drexel University College of Medicine, Philadelphia, PA

SESSION 1: ADVANCES IN MICROSCOPY

8:55 a.m. *Opening Remarks*

Garth Ehrlich, PhD

Professor, Department of Microbiology & Immunology
Professor, Department of Otolaryngology – Head and Neck Surgery
Executive Director, Center for Advanced Microbial Processing
Executive Director, Center for Genomic Sciences
Institute of Molecular Medicine and Infectious Disease
Drexel University College of Medicine, Philadelphia, PA

Co-Chairs: **Joris Beld, PhD**, and **Haley Majer**, PhD Candidate

9:00 a.m. ***Special Lecture: Drexel Prize in Biotechnology***

Ed Boyden, PhD

Associate Professor, Biological Engineering and Brain and Cognitive Sciences,
MIT Media Lab and McGovern Institute, Cambridge, MA

Optical tools for analyzing and repairing biological systems

Introduction: **Joshua Mell, PhD**, and **Kayla Socarras**, PhD Candidate

10:00 a.m. **Christopher J. Janetopoulos, PhD**

Associate Professor, Biological Sciences, University of the Sciences,
Philadelphia, PA, USA

Live cell imaging coupled with microfluidics provides insights into cell polarity and cancer

10:30 a.m. **Jyoti Jaiswal, PhD**

Associate Professor, Department of Genomics and Precision Medicine, George
Washington School of Medicine and Health Sciences, Washington, DC
Principal Investigator, Children's Research Institute, Children's National Health
System, Washington DC

Real-time imaging of sub-cellular responses required for tissue repair

11:00 a.m. **Janett Goehring, PhD**

Postdoctoral Associate, Center for Pathophysiology, Infectology and
Immunology, Institute for Hygiene and Applied Immunology, Medical University of
Vienna; and Biophysics Group, Institute of Applied Physics, Technical University
of Vienna

Visualization of mechanical forces in t-cell antigen recognition

11:30 a.m. ***Special Lecture: Drexel Prize in Immunology***

Dan Barouch, MD, PhD

Professor, Department of Medicine
Director, Center for Virology and Vaccine Research
Harvard Medical School, Boston MA

A tale of two viruses: HIV and Zika

Introduction: **Peter Gaskill, PhD**, and **Alexander Allen**, PhD Candidate

12:30 p.m. **Lunch & Poster Session A: Genomics/Bioinformatics & Microscopy in Infectious Disease**

Posters will be presented on the 18th floor of the New College Building. Box lunches will be provided for all meeting attendees.

SESSION 2: MECHANISMS, TREATMENT, AND PREVENTIONS OF PARASITIC DISEASE

2:00 p.m. *Opening Remarks*

Akhil Vaidya, PhD

Professor, Department of Microbiology & Immunology
Director, Center for Molecular Parasitology
Institute of Molecular Medicine and Infectious Disease
Drexel University College of Medicine, Philadelphia, PA

Co-Chairs: **L. William Bergman, PhD**, and **Sezin Nicklas**, PhD Candidate

2:05 p.m. **Jane M. Carlton, PhD**

Faculty Director, Center for Genomics and Systems Biology,
Program Director, NIH International Center of Excellence for Malaria Research in India
Professor, Department of Biology, New York University, New York City, NY

Malaria in India: How genomic epidemiology is changing our view of a complex disease

2:40 p.m. **Liwang Cui, PhD**

Professor, Department of Entomology, Pennsylvania State University, University Park, PA

Drug resistance in malaria parasites: field and lab perspectives

3:15 p.m. **Elizabeth Parzych**, PhD Candidate

Department of Microbiology and Immunology, Drexel University College of Medicine, Philadelphia, PA

Development and comparative immunogenicity of two Plasmodium falciparum transmission-blocking malaria vaccine candidates

3:30 p.m. **Hangjun Ke, PhD**

Assistant Professor, Department of Microbiology and Immunology, Drexel University College of Medicine, Philadelphia, PA

The type II NADH dehydrogenase of Plasmodium falciparum is not a drug target

3:45 p.m. *Break*

4:00 p.m. ***Special Lecture: Drexel Prize in Infectious Disease***

Kevin Marsh, PhD

Professor of Tropical Medicine, Nuffield Department of Medicine, University of Oxford, Oxford, UK

Senior Advisor, African Academy of Sciences

Malaria - Always with us?

Introduction: **James M. Burns Jr, PhD**, and **Jacqueline Schneider, PhD**
Candidate

DAY 2

FIBROTIC DISEASE AND CANCER

Presentations today will focus on topics and research related to cancer biology and fibrotic disease. The highlight of the day will be a lecture by the recipient of the 2017 Drexel Prize in Cancer Biology.

Organizers:

Carol Artlett, Drexel University College of Medicine

Elizabeth Blankenhorn, Drexel University College of Medicine

Alessandro Fatatis, Drexel University College of Medicine

8:00 a.m. *Registration and Continental Breakfast*

8:50 a.m. *Introductory Remarks*

Brian Wigdahl, PhD

Professor and Chair, Department of Microbiology and Immunology

Director, Institute for Molecular Medicine and Infectious Disease

Drexel University College of Medicine, Philadelphia, PA

SESSION 3: FIBROTIC DISEASE

8:55 a.m. *Opening Remarks*

Carol Artlett, PhD

Associate Professor, Department of Microbiology and Immunology

Drexel University College of Medicine, Philadelphia, PA

Co-Chairs: **Elizabeth Blankenhorn, PhD**, and **Aarti Ramanathan, PhD**
Candidate

9:00 a.m. **Rebecca Wells, MD**

Professor, Department of Medicine, Hospital of the University of Pennsylvania,
Philadelphia, PA

The effect of a complex matrix on the mechanics of liver fibrosis

9:40 a.m. **Edna Cukierman, PhD**

Associate Professor, Fox Chase Cancer Center, Philadelphia, PA

*The “nerve” of fibrous-like desmoplasia to regulate immunosuppression and
pancreatic cancer survival*

10:20 a.m. **Janusz Franco-Barraza, MD, PhD**

Postdoctoral Associate, Fox Chase Cancer Center, Philadelphia, PA

Carcinoma-associated stroma offers a means to predict patient outcomes

10:50 a.m. **Ryan Petrie, PhD**

Assistant Professor, Department of Biology, Drexel University College of Arts and
Sciences, Philadelphia, PA

Pressure-driven cell motility in three-dimensional extracellular matrix

11:30 a.m. **Special Lecture: Drexel Prize in Cancer Biology**

Richard Hynes, PhD, FRS

Investigator, Howard Hughes Medical Institute
Daniel K. Ludwig Professor for Cancer Research
Koch Institute for Integrative Cancer Research, MIT, Cambridge, MA

Cancer cells need lots of help to complete metastasis

Introduction: **Alessandro Fatatis, MD, PhD**, and **Ramanpreet Kaur**, PhD
Candidate

12:30 p.m. **Lunch & Poster Session B: Fibrotic Disease and Cancer**

Posters will be presented on the 18th floor of the New College Building. Box lunches will be provided for all meeting attendees.

SESSION 4: ROLE OF STROMA IN PRIMARY TUMORS AND METASTASIS

2:00 p.m. *Opening Remarks*

Alessandro Fatatis, MD, PhD

Professor, Department of Pharmacology and Physiology
Drexel University College of Medicine, Philadelphia, PA

Co-leader, Prostate Cancer Program, SKCC, Thomas Jefferson University,
Philadelphia, PA

Co-Chairs: **Matthew Schiewer, PhD**, and **Zachary Bacigalupa**, PhD Candidate

2:05 p.m. **Karen Bussard, PhD**

Assistant Professor, Department of Cancer Biology, Breast Cancer Program,
SKCC, Thomas Jefferson University, Philadelphia, PA

Osteoblasts are major mediators of the tumor microenvironment in bone metastatic breast cancer

2:35 p.m. **Todd Strohlic, PhD**

Assistant Professor, Department of Biochemistry and Molecular Biology, Drexel
University College of Medicine, Philadelphia, PA

A novel role for MAPKAP kinase 2 signaling in breast cancer progression

3:05 p.m. **Asurayya Worrede-Mahdi**, PhD candidate

Pharmacology and Physiology Program, Graduate School of Biomedical
Sciences and Professional Studies, Drexel University College of Medicine,
Philadelphia, PA

Cancer cell cooperativity in the bone metastatic niche

3:20 p.m. **Ayesha Shafi, PhD**

Postdoctoral Fellow, Department of Cancer Biology, SKCC, Thomas Jefferson
University, Philadelphia, PA

*Leveraging the PDE (Patient Derived Explant) model to determine the basis for
response to AR-directed therapeutics in prostate cancer*

3:40 p.m. *Break*

4:00 p.m. **Felix Kim, PhD**

Assistant Professor, Department of Pharmacology and Physiology, Drexel University College of Medicine, Philadelphia, PA

Sigma1 pharmacology in the context of cancer

4:30 p.m. **Nicole Simone, MD**

Associate Professor, Department of Radiation Oncology, Breast Cancer Program, SKCC, Thomas Jefferson University, Philadelphia, PA

Tumor progression and radiation response are miR-ly linked by metabolic processes in the extracellular matrix

DAY 3

HIV DISEASE AND NEUROAIDS

Presentations today will focus on topics and research related to HIV disease and neuroAIDS. The highlights of the day will be lectures by the recipients of the Drexel's Hilary Koprowski Prize in Neurovirology and the 2017 Drexel Prize in Translational Medicine.

Organizers:

Michael Nonnemacher, Drexel University College of Medicine

Olimpia Meucci, Drexel University College of Medicine

Peter Gaskill, Drexel University College of Medicine

Kamel Khalili, Temple University School of Medicine

8:00 a.m. *Registration and Continental Breakfast*

8:50 a.m. *Introductory Remarks*

Brian Wigdahl, PhD

Professor and Chair, Department of Microbiology & Immunology

Director, Institute for Molecular Medicine and Infectious Disease

Drexel University College of Medicine, Philadelphia, PA

SESSION 5: HIV Disease, Vaccines, and Therapeutics

8:55 a.m. *Opening Remarks*

Michael Nonnemacher, PhD

Associate Professor, Department of Microbiology and Immunology

Drexel University College of Medicine, Philadelphia, PA

Co-Chairs: **Peter Gaskill, PhD** and **Gordon Hill, MD/PhD Candidate**

9:00 a.m. **Christopher Power, MD**

Professor, Division of Neurology, Department of Medicine, University of Alberta, Edmonton, Canada

Canada Research Chair (Tier 1) in Neurological Infection and Immunity

Inflammasome activation in neuroAIDS: pathogenic and protective aspects

9:45 a.m. **Joan Berman, PhD**

Professor, Departments of Pathology and Microbiology/Immunology, Albert Einstein College of Medicine, Bronx, NY

Mechanisms of CNS viral seeding, inflammation, and toxicity: Critical roles in neuroAIDS

10:30 a.m. **Virginie Tardif-San Martin, PhD**

Postdoctoral fellow, Division of Infectious Disease/HIV Medicine, Department of Medicine, Drexel University College of Medicine, Philadelphia, PA

Adenosine Deaminase-1 (ADA-1) expression controls human follicular helper T cell function and is altered with chronic HIV infection

10:55 a.m. **Michael Root, MD, PhD**
Associate Professor, Department of Biochemistry and Molecular Biology, Thomas Jefferson University, Philadelphia, PA
Fighting HIV-1 with drug combinations that (sometimes) synergize

11:30 a.m. **Special Lecture: Drexel's Hilary Koprowski Prize in Neurovirology**

Lynn Pulliam, PhD

Professor, Department of Laboratory Medicine, UCSF School of Medicine, San Francisco CA

Tiny bubbles and neurovirology

Introduction: **Michael Nonnemacher, PhD**, and **Lindsey Festa**, PhD Candidate

12:30 p.m. **Lunch & Poster Session B: HIV Disease and NeuroAIDS**

Posters will be presented on the 18th floor of the New College Building. Box lunches will be provided for all meeting attendees.

SESSION 6: City-wide NeuroAIDS Discussion Group

These neuroAIDS-focused sessions are co-sponsored by the Institute for Molecular Medicine & Infectious Disease (IMMID) at Drexel University and the Comprehensive NeuroAIDS Center (CNAC) at Temple University

2:00 p.m. *Opening Remarks and Introductions*

Kamel Khalili, PhD

Laura H. Carnell Professor and Chair, Department of Neuroscience

Director, Center for Neurovirology

Director, Comprehensive NeuroAIDS Center (CNAC)

Lewis Katz School of Medicine, Temple University, Philadelphia, PA

2:05 p.m. **Catherine Bollard, MD, MBChB**

Director, Center for Cancer & Immunology

Director, Program for Cell Enhancement and Technologies for Immunotherapy

Director, Immunology Initiative - Sheikh Zayed Institute for Pediatric Surgical Innovation, Children's National Health System, Washington, DC

Development of HIV-specific T cell Therapy: Lessons from EBV

2:35 p.m. **Fatah Kashanchi, PhD**

Professor, Laboratory of Molecular Virology, National Center for Biodefense and Infectious Diseases, George Mason University, Manassas, VA

Effect of cART and exosome formation on CNS

3:05 p.m. **Leah Rubin, PhD, MPH**

Assistant Professor, Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD

Untangling the Gordian knot of stress and HIV on cognition

3:20 p.m. **Rolando Garza, PhD Candidate**
Department of Neurology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA
Heme oxygenase-1 promoter polymorphism as a genetic risk factor for neurocognitive impairment in HIV-infected individuals

3:35 p.m. *Break*

3:45 p.m. ***Special Lecture: Drexel Prize in Translational Medicine***

Peter Palese, PhD

Professor and Chair, Department of Microbiology
Professor, Department of Medicine, Infectious Disease
Icahn School of Medicine, Mount Sinai University, New York City, NY

Universal influenza virus vaccine

Introduction: **Alison Carey, MD** and **Ogan Kumova, PhD Candidate**

**City-Wide NeuroAIDS Discussion Group and Introduction:
Kamel Khalili, Ph.D.**

4:45 p.m. **Robert Gross, MD, MSCE**

Associate Professor of Medicine, Department of Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA

Effect of slow efavirenz metabolism on neurologic effects and clinical outcomes in Botswana

5:00 p.m. **Michael Nonnemacher, PhD**

Associate Professor, Department of Microbiology and Immunology, Drexel University College of Medicine, Philadelphia, PA

Molecular diversity of TAT relative to HIV-1-associated cognitive impairment

5:15 p.m. **Cagla Akay Espinoza, MD**

Research Assistant Professor, Department of Pathology, School of Dental Medicine, University of Pennsylvania, Philadelphia, PA

Investigating the role of ATF6b in primary HIV-associated neurocognitive disorders

5:30 p.m. **Discussion**

5:45 p.m. **Closing remarks**

Brian Wigdahl, PhD

Professor and Chair, Department of Microbiology and Immunology
Director, Institute for Molecular Medicine and Infectious Disease
Drexel University College of Medicine, Philadelphia, PA