



3rd Annual
Immune Modulation & Engineering
Symposium

December 9-10, 2021

Drexel University, Philadelphia, PA



3rd Annual Immune Modulation & Engineering Symposium

The mission of the Immune Modulation & Engineering Symposium is to bring together researchers in biomedical engineering and basic and translational immunology to advance the rapidly emerging field of immune engineering. The speakers and attendees represent leaders in this field, with expertise in collaborating across disciplines to generate innovative solutions to treat disease and injury by modulating the immune system.



More at biomed.drexel.edu/immunesymposium/

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Day 1: Thursday, December 9th

8:55 AM **Opening Remarks**

9:00 AM **Session 1: Immunoregulation of Cancer**

Moderator: Kara Spiller | Drexel University

David J. Mooney | Wyss Institute

"Biomaterials to promote T cell immunity"

Wayne Hancock | Children's Hospital of Philadelphia

"Targeting tregs to promote antitumor immunity"

Sara Meyer | Thomas Jefferson University

"MicroRNA antagonism of Toll-like receptor signaling in myeloid leukemogenesis"

10:00 AM **Panel Discussion**

10:20 AM **Break**

10:40 AM **Session 2: Cell Therapy**



Moderator: Adam Snook | Thomas Jefferson University

Bruce Levine | University of Pennsylvania

"Engineering genetically enhanced T cells for clinical applications"

Suzie Pun | University of Washington

"Traceless aptamer-mediated isolation of CD8+ T cells for chimeric antigen receptor T-cell therapy"

Minglin Ma | Cornell University

"Developing advanced biomaterials and devices for type 1 diabetes cell replacement therapies"

11:40 AM **Panel Discussion**

12:00 Noon **Lunch Break**

1:30 PM **Session 3: Nanomedicine for Immune Cell Control I**

Moderator: Jake Brenner | University of Pennsylvania

Vladimir Muzykantov | University of Pennsylvania

"Drug delivery by red blood cells: the host defense entanglements"

Willem Mulder | Eindhoven University of Technology

"Clinical translation of nanomaterial immunotherapeutics"

Jamie Spangler | Johns Hopkins University

"Engineered multispecific antibodies for cancer immunotherapy"

2:30 PM Panel Discussion

2:50 PM Break

3:10 PM Session 4: Nanomedicine for Immune Cell Control II

Moderator: Hao Cheng | Drexel University

Liangfang Zhang | University of California San Diego

"Biomimetic nanoparticles for multi-antigenic vaccine delivery"

Nichole Daringer | Rowan University

"Synthetic engineering for immune therapy"

Takashi Kei Kishimoto | Selecta Biosciences

"Development of ImmTOR nanoparticles for the induction of antigen-specific immune tolerance and mitigation of anti-drug antibodies"

Kandace Gollomp | Children's Hospital of Philadelphia

"Synthetic antibodies for the treatment of sepsis"

4:30 PM Panel Discussion

5:00-7:00 PM Poster Session

Day 2: Friday, December 10th

8:55 AM **Opening Remarks**

9:00 AM **Session 5: Infectious Diseases and Vaccines**

Moderator: Michele Kutzler | Drexel University

Gregg Duncan | University of Maryland

"Engineering host-pathogen interactions using synthetic mucus biomaterials"

Ebony Gary | Wistar Institute

"Molecular adjuvants to enhance age-associated immune impairment in response to SARS-CoV-2 synDNA vaccine antigens"

Annaliesa Anderson | Pfizer Inc

"A novel approach to generate a recombinant toxoid vaccine against Clostridium difficile"

10:00 AM **Panel Discussion**

10:20 AM **Break**

10:40 AM **Session 6: Personalized Medicine in Immune Engineering**

Moderator: Mike Mitchell | University of Pennsylvania

Brian Aguado | University of California San Diego

"Patient and sex-specific in vitro models of aortic valve stenosis"

James Moon | University of Michigan

"Engineered nanomaterials for personalized cancer immunotherapy"

Peter Gaskill | Drexel University

"Effects of drug use on HIV infection of macrophages"

11:40 AM **Panel Discussion**

12:00 Noon **Poster Session**

1:30 PM **Session 7: Immune Regulation of Tissue Repair**

Moderator: Yinghui Zhong | Drexel University

De'Broski R. Herbert | University of Pennsylvania

"Perforin-2 pokes its way into Type 2 immunity"

Tatiana Segura | Duke University

"Biomaterials that modulate innate-adaptive immune crosstalk in wound healing"

Hong Wang | Temple University

"Immune regulation in cardiovascular injury and disease"

2:30 PM Panel Discussion

2:50 PM Break

3:10 PM Session 8: Engineering Systems for Fundamental Understanding
Moderator: Chris Rodell | Drexel University

Daniel Hammer | University of Pennsylvania
"The Diversity of Immune Cell Motility and the Curious Case of Upstream Migration"

Rebecca Pompano | University of Virginia
"Ex vivo models to study lymph node function in vaccination and tumor immunity"

Ankur Singh | Georgia Institute of Technology
"Multiscale Engineering of Immunity in Infectious Disease, Aging, and Gut Microbiome Disorders"

4:10 PM Panel Discussion

4:30-4:45 PM Awards Ceremony and Closing Remarks