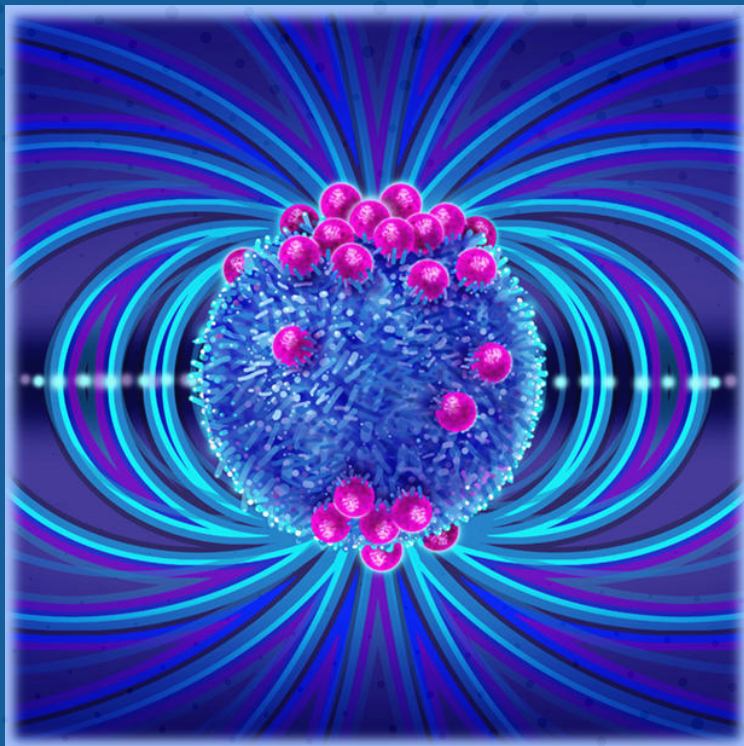


# Advances in Immunoengineering: Fundamentals and Cutting Edge Advances



**Tuesdays and Thursdays**  
January 2 - 18, 2024

**INTERNET LIVE CONFERENCE**

*Presented by*

Johns Hopkins School of Medicine

The Johns Hopkins Translational ImmunoEngineering (JH-TIE) Center

An NIBIB National Center for Biomedical Imaging and Bioengineering

The Johns Hopkins Translational Tissue Engineering Center (TTEC)

The Johns Hopkins Institute for NanoBioTechnology (INBT)

*This activity has been approved for AMA PRA Category 1 Credits™.*



**JOHNS HOPKINS**  
MEDICINE

## DESCRIPTION

The field of immunoengineering combines the diverse and complex fields of engineering and immunology and is transforming patient treatment in cancer, autoimmunity, regeneration, and transplantation.

There is a significant need for training of engineers in immunology and for training immunologists in quantitative engineering techniques.

Moreover, there is need to bridge basic immunological discoveries with advances in clinical application. This course will review the fundamentals of the immune system and its components, engineering strategies to modulate the immune system, and clinical applications to improve patient care and outcomes in the development of neoadjuvant immunotherapies, highlighting particular considerations for immunological mechanisms, clinical development, and pathologic response assessments.

## WHO SHOULD ATTEND

The course is designed for graduate students, medical students, residents, and fellows in engineering, immunology, and related fields. Engineering and clinical faculty and members of industry will benefit from the course as well.

## OBJECTIVES

After attending this activity, the learner will demonstrate the ability to:

- Review the fundamentals and recent discoveries in the function of the immune system.
- Identify engineering strategies to manipulate the immune system.
- Describe the clinical applications of immunoengineering.

## ACCREDITATION STATEMENT

The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.



## CREDIT DESIGNATION STATEMENT

The Johns Hopkins University School of Medicine designates this live activity for a maximum of 9 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



## OTHER CREDITS

American Academy of Nurse Practitioners National Certification Program accepts AMA PRA Category 1 Credit™ from organizations accredited by the ACCME.

American Nurses Credentialing Center (ANCC) accepts AMA PRA Category 1 Credit™ from organizations accredited by the ACCME.

National Commission on Certification of Physician Assistants (NCCPA) PAs may claim a maximum of 9 Category 1 credits for completing this activity. NCCPA accepts AMA PRA Category 1 Credit™ from organizations accredited by ACCME or a recognized state medical society.

The Johns Hopkins University has approved this activity for 9 contact hours for non-physicians.

## POLICY ON PRESENTER AND PROVIDER DISCLOSURE

It is the policy of the Johns Hopkins School of Medicine that the presenter and provider globally disclose conflicts of interest. The Johns Hopkins School of Medicine OCME has established policies that will identify and resolve conflicts of interest prior to this educational activity. Detailed disclosure will be made prior to presentation of the education.

## JOHNS HOPKINS STATEMENT OF RESPONSIBILITY

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## HARDWARE/SOFTWARE REQUIREMENTS

Internet connection.

# GENERAL INFORMATION

## FREE REGISTRATION

Register Online: [hopkinscme.cloud-cme.com/default.aspx?P=5&EID=50939](https://hopkinscme.cloud-cme.com/default.aspx?P=5&EID=50939)

On the day of, please log into the online platform by 3:45 p.m. ET to test your connection. Exclusive log-in details will be provided via email the week prior.

You will receive a confirmation by e-mail. If you have not received it by December 29, 2023, call (410) 502-9636 to confirm that you are registered. A transcript of attendance will be available upon attestation of your credit hours and submission of the post activity online evaluation.

The Johns Hopkins University reserves the right to cancel or postpone any activity due to unforeseen circumstances. Under such circumstances registrants will be notified as soon as possible.

Johns Hopkins Students may also choose to sign up for this workshop as a two-credit pass/fail course that will appear on their transcript. To do this, please register for the unique course number below on SIS and check Canvas regularly for course assignments.

Ugrads: EN.580.403 Independent Study: Advances in Immunoengineering  
MSE/PhD: EN.580.703 Independent Study: Advances in Immunoengineering

## SYLLABUS

The syllabus will be accessible online and via your mobile device in the CloudCME App prior to the activity.

## HOW TO OBTAIN CREDIT

Post activity, an online evaluation will be available to attendees to evaluate the activity and individual presentations and to identify future educational needs. Upon completion of the evaluation, the learner must attest to the number of hours in attendance. Credits earned will be added to the learner's transcript and immediately available for print. The last day to access the evaluation and attest to your credits is March 6, 2024.

An outcome survey will be sent to all physician attendees within two months post activity to assist us in determining what impact this activity had on the learner's practice.

## AMERICANS WITH DISABILITIES ACT

The Johns Hopkins School of Medicine fully complies with the legal requirements of the ADA and the rules and regulations thereof. Please notify us if you have any special needs.

## TO REGISTER OR FOR FURTHER INFORMATION

Register Online: [hopkinscme.cloud-cme.com/default.aspx?P=5&EID=50939](https://hopkinscme.cloud-cme.com/default.aspx?P=5&EID=50939)

Register by Phone ..... (410) 502-9636  
Register by Fax ..... (866) 510-7088  
Confirmation/Certificates/Transcripts..... (410) 502-9636  
General Information ..... (410) 955-2959  
E-mail the Office of CME..... [cmenet@jhmi.edu](mailto:cmenet@jhmi.edu)

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Check out our mobile app CloudCME.  
Organization Code: HopkinsCME

For technical assistance with website, CloudCME or credits, please visit our tech support help page:  
<https://hopkinscme.cloud-cme.com/about/help>

For general information, please visit the activity webpage at:  
<https://hopkinscme.cloud-cme.com/aph.aspx?P=5&EID=50939>

Visit our JH-TIE website:  
<https://jhtie.jhmi.edu/training/>

# PROGRAM

Tuesdays and Thursdays \* January 2 - 18, 2024 \* 4:00 - 5:30 p.m. ET

## Week 1 – Targeted Immune Interventions and Immunotherapies

Tuesday, January 2, 2024

Artificial Antigen Presenting Complexes:  
From Bench to Bedside  
Jonathan Schneck, MD, PhD

Targeting NKT Cells for Cancer  
Immunotherapy  
Tonya Webb, PhD

Thursday, January 4, 2024

Engineering IL-2 for Control of Autoimmunity  
Dan Campbell, PhD

Antigen Discovery for Development of  
Personalized Cancer Immunotherapies  
Michal Bassani, PhD

## Week 2 – Immunomodulation at the Multi-Scale

Tuesday, January 9, 2024

Reconstructing Cell Fate using Genomic  
Lineage Barcodes  
Reza Kalhor, PhD

Immunocytokines for Cancer Therapy  
Dafne Muller, PhD

Thursday, January 11, 2024

Engineering Cellular Microenvironment to  
Control Immune-vascular Responses  
Sharon Gerecht, PhD

Engineering Lipid Nanoparticles and Microgel  
Matrix to Program Th1/Th2 Immune  
Response Towards Enhanced Antitumor Activity  
Hai-Quan Mao, PhD

## Week 3 – Engineering Cells and Tissues as Living Drugs

Tuesday, January 16, 2024

Molecular Immunoengineering:  
Integrating Cellular Networks to  
Drive mRNA Vaccine Design  
David Alvarez, PhD

High-throughput and High-dimensional  
Profiling of Antigen Specific T Cells  
Ning Jenny Jiang, PhD

Thursday, January 18, 2024

Immunotherapy in Treatment of  
Genetic Disease  
Roland Herzog, PhD

Immune-mediated Tissue Restructuring:  
A Spatial Omics Perspective  
John Hickey, PhD

Presentation titles and other details can be found on the JH-TIE website: <https://jhtie.jhmi.edu/>

The Johns Hopkins School of Medicine takes responsibility for the content, quality and scientific integrity of this CME activity. This schedule is subject to change.

### ACKNOWLEDGEMENT

The Johns Hopkins School of Medicine did not solicit or receive commercial funding from any commercial entity, including pharmaceutical and medical device manufacturers, for this activity.

We would like to acknowledge financial and management support made possible through an NIBIBP4I Grant, the Johns Hopkins School of Medicine, Provost's Office and Department of Pathology.



COURSE NUMBER: 80063256/50939

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**REGISTER ONLINE:**  
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Registration Cut-Off Date: December 29, 2023 5:00 p.m. ET