



4th HIV Mucosal Systems Meeting

Northwestern University

Chicago, IL

May 11–13, 2026

Monday, May 11

Check-In (1 – 2 PM): Simpson Querrey Auditorium

Welcoming Remarks

2 – 2:15 PM: **Rich D'Aquila**: Welcoming Remarks and Introduction

Session 1: Viral Microenvironments, Molecular Mimicry, and the Reservoir of Persistence

Chairs: Rich D'Aquila, Michael McRaven

2:15 – 2:45 PM: **Thomas Hope**: A Unified Field Theory for HIV/SIV: SIV infection-induced cellular stress drives the formation of a unique viral microenvironment that functions as a sanctuary, facilitating persistence

2:45 – 3:15 PM: **Kathleen Boris-Lawrie**: Thriving under stress: HIV-1 adaptation of specialized translation from hosts

Session 2: Mucosal Immunity and HIV Target Cells in the Anogenital Tract

Chairs: Florian Hladik, S. Abigal Smith

3:15 – 3:45 PM: **Rupert Kaul**: Impact of sex on genital immunology and microbiota

3:45 – 4:15 PM: **Andrew Harman**: Defining the role of human anogenital APCs in HIV transmission

4:15 – 4:45 PM: Discussion

4:45 – 5:15 PM: Break

Session 3: Antibody Function and Engineering in Mucosal HIV Immunity

Chairs: Jeff Schneider, Amit Sharma

5:15 – 5:45 PM: **Francois Villinger**: Mucosally targeted immune defenses to HIV infection

5:45 – 6 PM: **Katelyn Freebern**: Glycoengineering anti-HIV antibodies enhances accumulation in gastrointestinal mucosal tissues antibodies

6 – 6:15 PM: **Claudia Stroupe**: Fc-engineering alters in vivo trafficking and pharmacokinetics of VRC07-523LS

6:15 – 6:30 PM: Discussion

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Tuesday, May 12

Breakfast/Check-In (8 – 9 AM): Simpson Querrey Auditorium

Session 4: Early Determinants of HIV Infection and Control

Chairs: Yanique Thomas, Francois Villinger

9 – 9:30 AM: **Sunnie Yoh**: Pathway-selective control of cGAS-STING signaling during HIV-1 infection

9:30 – 10 AM: **Donald Sodora**: Acute transient ART lowers SIV set point viral load in blood and tissues and preserves lymph node architecture

10 – 10:15 AM: Break

10:15 – 10:30 AM: **Serena del Banco**: A self-amplifying RNA vaccine induces HIV-specific systemic and mucosal immune responses in mice and nonhuman primates

10:30 – 10:45 AM: **Shivali Vashisht**: Interrogation of mucosal HIV vaccine responses using rectal proteomic and metagenomic profiling

10:45 – 11 AM: **Ryan Moriarty**: Generation of a vervet-derived SHIV to model mucosal HIV transmission in natural hosts

11 – 11:30 AM: Discussion

Lunch and Networking (11:30 AM – 1:30 PM): Lurie Ryan Family Atrium

1:30 – 1:45 PM: Gather for a Group Photo

Session 5 (1:45 – 3:00 PM): Hormonal and Device-Based Modulation of Mucosal Immunity

Chairs: Ann Marie Carias, Gilda Tachedjian

1:45 – 2:15 PM: **S. Abigail Smith**: Estradiol supplementation results in sex-specific patterns of inflammation after HIV challenge in the rectal explant model

2:15 – 2:30 PM: **Kim Woodrow**: Intrauterine mucosal systems compromising anti-infectives for steady-state accumulation to distal extrauterine targets

2:30 – 3 PM: Discussion

3 – 3:30 PM: Break

Session 6 (3:30 – 4:30 PM): Systems Immunology and Immune Reprogramming (Public Session)

Chair: Elena Martinelli

3:30 – 4 PM: **Ujjwal Neogi**: Reprogramming Immunometabolic Memory to Target Viral Persistence

4 – 4:15 PPM: **Iva Filipovic**: Defining the Natural Killer Cell Landscape in Viral Infections Using Systems Immunology

4:15 – 4:30 PM: Discussion

4:30 – 5 PM: Poster Setup

Poster Session/Reception (5 – 7 PM): Lurie Ryan Family Atrium

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Wednesday, May 13

Breakfast/Check-In (8 – 9 am): Simpson Querrey Auditorium

Session 7: Persistence, Aging, and Microbiome Disruption

Chairs: Andrew Harman, Supriya Mehta

9 – 9:30 AM: **Mohamed Abdel-Mohsen**: Senescence-mediated depletion of host-intrinsic prebiotic glycans promotes dysbiosis

9:30 – 10 AM: **Florian Hladik**: The contribution of ART to inflammaging

10 - 10:15 AM: Break

10:15 – 10:30 AM: **Isabelle Clerc**: Development of a viral immuno-capture assay to assess the cellular origin and genetic diversity of HIV-1 viruses

10:30 – 10:45 AM: **Kameron Walker**: HIV-induced senescence of mast cells

10:45 – 11:15 AM: Discussion

Lunch and Young Investigators Workshop (11:30 AM – 1:45 PM): Potocsnak Family Atrium

12:00-1:00 PM: HMSM attendees are welcome to attend CDB Experts in the Field – Marc Kirschner, PhD, Professor of Systems Biology, Harvard Medical School: “The size and shape of cells”

Session 8: Microbiome and Mucosal Protection

Chairs: Alexandra Ortiz O’Sick, Thatiane Russo

1:30 – 1:45 PM: **Babafemi Taiwo**: ViiV Healthcare

1:45 – 2:15 PM: **Gilda Tachedjian**: Lactic acid selectively kills *Lactobacillus iners* and BV-associated bacteria to enable optimal *L. crispatus* colonisation to prevent HIV

2:15 – 2:45 PM: **Supriya Mehta**: Menstrual cups to prevent transition from optimal to not optimal vaginal microbiome community state types

2:45 - 3:15 PM: Break

3:15 – 3:45 PM: **Adam Burgener**: Studies of vaginal microbiome diversity and mucosal immunity underlying health disparities in HPV infection from Cleveland, Ohio

3:45 – 4 PM: **Adit Chaudhary**: Characterizing the bacterial surface profiling of menstrual cups and their association with user characteristics and vaginal microbiomes in an adolescent cohort from western Kenya

4 – 4:15 PM: **Daniel Buffa**: Utilizing unique human tissue samples to classify HIV target APCs within stratified squamous epithelium

4:15 – 4:45 PM: Discussion

Session 9: Synthesis and Future Directions

Panel Participants: Thomas Hope*, Adam Burgener, Gilda Tachedjian, Florian Hladik, Francois Villinger

Chair*: Thomas Hope

4:45 – 5:30 PM: Panel discussion and audience Q&A: Key unanswered questions and future directions in HIV mucosal biology