



HIV Mucosal Systems Meeting

Meharry Medical College, Nashville

April 9 - 11, 2024

Tuesday, April 9th, 2024 (9:00am-5:15pm):

Breakfast/Check-In (8:00-9:00am):

The Cal Turner Family Center Auditorium

Welcoming Remarks (9:00-9:15am):

Tom Hope: Welcoming Remarks and Introduction

Dr. James Hildreth, President and CEO of Meharry Medical College



Session 1 (9:15-10:30am): *Microbiome and Mucosal Immunology*

Lyle McKinnon: Microbiome Background (30 mins)

Rachel Liu: Microbe-binding antibodies in the female genital tract: associations with the vaginal microbiome and genital immune correlates of HIV acquisition (15 mins)

Marcio de Carvalho: Impact of Penile-Vaginal Sex on the Microbiome and Immunology of the Penile Urethra (15 mins)

Fabiola Castello Casta: SIV infection and ARV usage Induce Minimal Change in the Gut Microbiome of Non-Human Primates (15 mins)

Break 1 (10:30-11:00am)

Session 2 (11:00am-12:30pm): *Microbiome and Mucosal Immunology (cont.)*

Brianna Jesaveluk: A key Lactobacillus metabolite reduces HIV internalization and migration through the cervicovaginal epithelial barrier (15 min)

Lane Buchanan: Bacteria Associated with HIV Seroconversion and Immune Cells Alter Epithelial Junctions and Increase Keratinocyte Proliferation (15 min)

Gilda Tachedjian: Optimizing the vaginal microbiome to improve women's health (30 mins)

Session 1 and 2 Discussion (30 mins)

Lunch (12:30-1:30pm)

Session 3 (1:30-3:00pm): *NK Cells (immune cells) and Mucosal Biology*

Keith Reeves: Why is everyone talking about NK cells? (30 mins)

Ronald J. Bouch: Immunoglobulin A Fc receptor (CD89) expressed by natural killer cells may restrict innate signaling and cytotoxicity within the mucosal interface (15 mins)



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Jeffrey Schneider: Inverse Correlation of NK cells and Viral Levels in Vaginal Tissue 48hrs After Intravaginal Challenge With SHIV-SF162P3 In Rhesus Macaques with Suboptimal PGT121 Delivery (15 mins)

Shirley Constable: Organotypic foreskin-microbiome co-culture recapitulates penile microbiome composition in vitro (15 mins)

Ryan Moriarty: CD8 α ⁺ cells suppress SIV replication without selecting for viral immune escape variants within MHC-restricted CD8⁺ T cell epitopes in an MCM model of PTC (15 mins)

Break 2 (3:00-3:30pm)

Session 4 (3:30-4:30pm): *NK Cells (immune cells) and Mucosal Biology (cont.)*

Yanique Thomas: Defining the dynamics of SIV infection and the viral reservoir from early ART initiation to Rebound using PET/CT analysis and a multi-scale imaging approach (15 mins)

Rena Astronomo: Development of an *Ex Vivo* Dual Virus Challenge Assay for Cervicovaginal Tissues to Assess HIV-1 Antibody-mediated Protection (15 mins)

Session 3-4 Discussion (30 mins)

Session 5 (4:30-5:30pm): *Basic Virology*

CV Dash: The HIV-1 capsid ended up in the nucleus. Now what? (30 mins)

Joao Mamede: The perilous journey of HIV through the cytoplasm (30 mins)

Poster Session and Welcome Reception (5:00-7:00pm)

DINNER ON YOUR OWN

Wednesday, April 10th, 2024 (9:00am-5:00pm):

Breakfast/Check-In (8:00-9:00am)

Session 6 (9:00-10:30am): *Interventions: Antibodies, Circumcision, PrEP, and Vaccines*

Jeffrey Schneider: IgG Glycosylation: implications for mucosal localization, effector function and beyond (30 mins)



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Jessica Prodger: How does male medical circumcision decrease HIV acquisition? (30 mins)

Ann Marie Carias: Unexpected anatomic cycles, distributions, and localization of antibodies in the *in vivo* rhesus macaque model (30 mins)

Break 1 (10:30-11:00am)

Session 7 (11:00am-12:30pm): *Interventions: Antibodies, Circumcision, PrEP, and Vaccines (cont.)*

Sunnie Yoh: Role of cGAS-STING pathway in shaping mucosal lymphoid environment and viral transmission (30 mins)

Lyle McKinnon: Genital type I interferon expression and the risk of HIV infection in women (30 mins)

Florian Hladik: Mucosal effects of tenofovir 1% gel wane over longer-term use but retain pro-proliferative and type I/III interferon pathway signatures (30 mins)

Lunch (12:30-1:30pm)

Session 8 (1:30-3:15pm): *Interventions: Antibodies, Circumcision, PrEP, and Vaccines (cont.)*

Marianne Mureithi: Advancing HIV Vaccine Discoveries through Mucosal Immunology: Integrative Approaches for Enhanced Protection (30 min)

Omar Almomani: Investigating the effects of physical maturation on CD4 T cell subsets and epithelial junction proteins in foreskin tissue (15 mins)

Claudia Stroupe: Assessing changes to target cell population densities in high progesterone states as a mechanism for increased HIV acquisition risk (15 mins)

Vanessa E. Van Doren: Rectal mucosal injury and healing among HIV-negative men who have sex with men (MSM) (15 mins)

Session 6-8 Discussion (30 mins)

Break 2 (3:15-3:45pm)

Young Investigator Workshop: (3:45-5:00pm)

Group Dinner (5:00-7:00pm)



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Thursday, April 11th, 2024 (9:00am -1:15pm):

Breakfast/Check-In (8:00-9:00am)

Session 9 (9:00-10:30am): Advances in Technology

Tom Hope: The power of PET/CT to elucidate the role of anatomy and physiology and advance HIV science (30 mins)

S. Abigail Smith: Single-cell transcriptomic analysis of rectal mucosal immune cells from cisgender and transgender women and men (15 mins)

Teresia Muhomah: Biodistribution of PGDM1400 following intravenous administration of mRNA encapsulated nanoparticle in AGM model (15 mins)

Xinhong Dong: Host factors in late stages of the HIV-1 life cycle (15 mins)

Ramon Lorenzo Redondo: Spatial transcriptomic evaluation of the sites of SIV infection and rebound in NHP models reveals transcriptional patterns of host responses (15 mins)

Break 1 (10:30-11:00am)

Session 10 (11:00-12:15pm): Advances in Technology (cont.)

Francois Villinger: Durable barrier to virus infection at the mucosa via mRNA transduction (30 mins)

Session 9-10 Discussion (45 mins)

Lunch (12:15-1:15pm)

Ajourn : Homeward Bound