Meeting Agenda

17th International Symposium on NeuroVirology

Held jointly with the

2021 Conference on HIV in the Nervous System

June 2-4, 2021

ISNV Meetings Committee

Lynn Pulliam (Co-Chair)
Chris Power

Lena Al-Harthi
Bruce Brew
Michael Nonnemacher

Brian Wigdahl (Co-Chair)
Valerie Wojna

Agenda for the 17th International Symposium on NeuroVirology and 2021 Conference on HIV in the Nervous System

The 17th International Symposium on NeuroVirology and 2021 Conference on HIV in the Central Nervous System will be held virtually on June 2-4, 2021. Offered as an abbreviated version of our traditional symposium, this year's virtual symposium will showcase leaders in the field of neurovirology as well as top investigators and clinicians from around the world who are on the leading edges of basic, translational, and clinical research. For more information, visit the meeting pages on the ISNV web site (https://isnv.org/virtual21/).

Presentations in each daily session, as well as the Diversity/Mentorship Event, will be accessible through Zoom. The Poster Session and associated Reception will take place in a virtual space created using the Gather online interactive platform. Details necessary to access all events will be provided before and during the meeting.

All presentation and event start times are shown as Eastern Time (ET). ET is currently five hours behind Coordinated Universal Time (UTC - 5). Go to time.is to view the current time in other time zones relative to your local time. ET is equivalent to the time in Philadelphia and New York.

Tuesday, June 1st

Venue and Poster Preview

All day — Enter Gather to learn how to use the Gather platform, tour the venue, and preview posters before the beginning of the meeting.

Wednesday, June 2nd

Meeting Check-In and Pre-Session Reception

11:00 am (ET) — Enter Gather to check-in with meeting organizers, tour the venue, and interact with friends and colleagues before the beginning of the first session.

Welcome and Opening Remarks

12:00 pm (ET) — Bruce Brew, President, International Society for NeuroVirology (ISNV)
Lynn Pulliam, Co-Chair, ISNV Meetings Committee

Session I: COVID and the Brain

Session Chairs: Avindra Nath and Christopher Power

12:15 pm — **Plenary – Basic Overview**

Stanley Perlman (University of Iowa Health Care)
Neuropathogenesis in human and mice infected with SARS-CoV-2

12:45 pm — Rosemarie Booze (University of South Carolina)
Post-acute SARS-CoV-2 infection in non-human primate olfactory system and extended amygdala

1:00 pm **Plenary – Neuroclinical Overview and Issues**

Tom Solomon (University of Liverpool)
Neurological COVID – Causes, complications, and conundrums

1:30 pm Cristian Achim (University of California San Diego)
Brain immunophilin response to SARS-CoV-2

1:45 pm Lucette Cysique (University of New South Wales)
Neurocognitive impairment in recovering COVID-19 patients is related to abnormal kynurenine pathway metabolites and anosmia but not disease/anxiety severity

2:00 pm Break (talks resume in 15 minutes)

Special Event: ***Mentorship/Diversity Event***

2:15 pm **Featured Speaker**

LaMisha Hill (Director of Multicultural Affairs, Office of Diversity and Outreach, University of California, San Francisco, San Francisco, CA)
Unconscious bias

Introduction by Lynn Pulliam

3:00 pm Break (talks resume in 15 minutes)

Session II: ***Emerging Pathogens***
Session Chair: Bruce Brew

3:15 pm **Plenary**

Christopher Broder (Uniformed Services University of the Health Sciences)
One-Health vaccines for neurotropic pathogenic henipaviruses - nipah and hendra

3:45 pm **Plenary**

Brian C. Schaefer (Uniformed Services University of the Health Sciences)
mAb therapy for CNS-resident lyssavirus infection: Biological activity well beyond simple neutralization

4:15 pm **Plenary**

Eddie Holmes (Sydney Medical School)
Tracking emerging viruses in the 21st century

Thursday, June 3rd

Meeting Check-In and Pre-Session Reception

11:00 am (ET) — Enter Gather to interact with friends and colleagues before the beginning of the first session and preview the Poster Session.

Session III: Human Immunodeficiency Virus

Session Chairs: Jeymohan Joseph (Cure/Eradication) and Eliezer Masliah (Aging/Co-Morbidities)

12:00 pm (ET) — **Plenary – Cure / Eradication**

Deborah Persaud (Johns Hopkins University School of Medicine, Baltimore, MD)
HIV cure research in 2021 and beyond

12:30 pm — Tricia Burdo (Lewis Katz School of Medicine at Temple University)
Transmitted/founder SHIV.D replicates in the brain, causes neuropathogenesis, and persists on ART

12:45 pm — Seung Wan Yoo (Johns Hopkins University School of Medicine)
Inhibition of neutral sphingomyelinase 2 disrupts the late stages of HIV biogenesis

1:00 pm — **Plenary – Aging and Co-Morbidities**

Kristine Erlandson (University of Colorado School of Medicine)
Impact of aging on people with HIV: Moving beyond the nervous system

1:30 pm — Johnny He (Rosalind Franklin University Chicago Medical School)
Activation of α7 nicotinic acetylcholine receptor ameliorated HIV-associated neurology and neuropathology

1:45 pm — Norman Haughey (Johns Hopkins University School of Medicine)
Intranasal insulin improves attention and memory in virally-suppressed people with HIV

2:00 pm — Jeymohan Joseph and Eliezer Masliah (National Institutes of Health)
Brief overview of funding opportunities for neuroAIDS- and aging-related research

2:15 pm — Break (Please join the Reception in Gather at your convenience)

Special Event: *Reception and Poster Session*
Gather platform

2:15 pm — Please join us in Gather for a Reception prior to the Poster Session. Talk with friends and network with colleagues in the different rooms within the virtual meeting space. Due to its virtual nature, the event is BYOR (Bring Your Own Refreshments).

3:00 pm — Posters and poster presenters will be available through Gather. Poster numbers and maps of the poster rooms will be available in the virtual lobby.

Presenters of even numbered posters will be available by their posters from 3 pm through 4 pm. Presenters of odd numbered posters will be available by their posters from 4 pm through 5 pm.

Friday, June 4th

Meeting Check-In and Pre-Session Reception

11:00 am (ET) — Enter Gather to interact with friends and colleagues before the beginning of the first session.

Session IV: *Investigators-In-Training*

Session Chairs: Jay Rappaport and Ruth Brack-Werner

12:00 pm (ET) — Joshua Frost (University of Colorado School of Medicine)
Telaprevir as an enterovirus D68 antiviral to treat acute flaccid myelitis in mice

Mentor: Ken Tyler

12:15 pm — Nazanin Mohammadzadeh (University of Alberta)
Lentivirus persistence in brain: Interactions between antiretroviral therapy, viral quantities and host variables

Mentor: Christopher Power

12:30 pm — Benjamin Bell (Johns Hopkins University School of Medicine)
Characterization of a novel inhibitor of exosome biogenesis in murine models of HIV infection and AD

Mentor: Barb Slusher

12:45 pm — Amber Virdi (Rush University Medical Center)
HIV downregulates β-catenin in colonic epithelial cells: Implications for gut-brain axis in neuroHIV

Mentor: Lena Al-Harthi

1:00 pm — Jake Robinson (Lewis Katz School of Medicine at Temple University)
Cardiac fibrosis and immune activation in SIV-infected rhesus macaques

Mentor: Tricia Burdo

1:15 pm — Cynthia McMahan (National Institutes of Health)
CSF, MRI, and cognitive outcomes in PLWH on long-duration ART

Mentor: Bryan Smith

1:30 pm — Sujata Prasad (University of Minnesota)
Dysregulated microglial cell activation and proliferation following repeated antigen stimulation

Mentor: James Lokensgard

1:45 pm — Marianna Spatola (Ragan Institute of MGH, MIT, and Harvard)
Unique brain-specific antibody signatures in chronic HIV infection

Mentor: Galit Alter

2:00 pm — Break (talks resume in 15 minutes)

Session V: ***Topics in NeuroVirology***
Session Chairs: Maria Nagel and Ken Tyler

2:15 pm **Plenary**

Keith Jerome (University of Washington Seattle)
Gene editing for cure of latent herpes simplex virus infection

2:45 pm Kimberly Christian (University of Pennsylvania)
Modeling the effects of dolutegravir on early cortical development using human forebrain organoids

3:00 pm Randall Cohrs (University of Colorado School of Medicine)
Single-cell RNA transcriptome of VZV infected human sensory neurons

3:15 pm Maria Nagel (University of Colorado School of Medicine)
Postherpetic neuralgia - A new amyloid disease?

3:30 pm C. Sabrina Tan (Beth Israel Deaconess Medical Center)
Human NK cells target JC polyomavirus

Closing Remarks and Meeting Adjournment

3:45 pm Bruce Brew, President, International Society for NeuroVirology (ISNV)

Current as of May 30th, 2021

Plenary Speaker:

Stanley Perlman, MD, PhD
Department of Microbiology and Immunology
Carver College of Medicine
University of Iowa Health Care

Neuropathogenesis in human and mice infected with SARS-CoV-2

Session I: COVID and the Brain
12:15 pm, Wednesday, June 2nd

Dr. Perlman received his Ph.D. in Biophysics from M.I.T., Cambridge, Massachusetts and his M.D. from the University of Miami, Miami, Florida. He was trained in Pediatrics and Pediatric Infectious Diseases at Boston Children's Hospital, Boston, Massachusetts. His current research efforts are focused on coronavirus pathogenesis, including virus-induced demyelination and the Severe Acute Respiratory Syndrome (SARS), the Middle East Respiratory Syndrome (MERS) and COVID-19.

His laboratory has developed several novel animal models useful for studying pathogenesis and evaluating vaccines and anti-viral therapies. His studies are directed at understanding why aged patients and mice developed more severe disease than younger individuals after infection with SARS-CoV or SARS-CoV-2 and also on why there is a male predominance in patients with more severe disease after infection with SARS-CoV, MERS-CoV or SARS-CoV-2. He and his colleagues demonstrated that transduction of mice with an adenovirus expressing the human receptor for MERS-CoV, DPP4, rendered them sensitive to infection, providing the first rodent model useful for studying MERS. Similar approaches have been used to develop a mouse model for COVID-19. He has also developed models for the loss of sense of smell (anosmia) observed in patients with COVID-19.

https://medicine.uiowa.edu/microbiology/profile/stanley-perlman

Plenary Speaker:

Tom Solomon, BA BM BCh MRCP DCH DTMH PhD FRCP
Institute of Infection, Veterinary and Ecological Sciences
University of Liverpool

Neurological COVID – Causes, complications, and conundrums

Session I: COVID and the Brain
1:00 pm, Wednesday, June 2nd

Professor Tom Solomon is Director of the National Institute for Health Research (NIHR) Health Protection Research Unit in Emerging and Zoonotic Infections, and Chair of Neurological Science at the University of Liverpool and the Walton Centre NHS Foundation Trust. After qualifying in Medicine at Oxford, his research training included 3 years at the Oxford University Clinical Research Unit in Vietnam, and 2 at the University of Texas Medical Brain, Galveston, USA.

He works on emerging pathogens, particularly those that affect the brain, heading the multi-disciplinary Liverpool Brain Infections Group. His group works to reduce the UK and global burden of emerging neurological infections in adults and children, including major UK and international programmes on COVID-19.

Tom is a keen teacher, leading the annual Neurological Infectious Diseases course in Liverpool, and an enthusiastic science communicator; his popular science book Roald Dahl's Marvellous Medicine was published in 2016, and followed by a sell-out show of the same name at Edinburgh Fringe Festival 2017. He won a Guinness World Record in 2010 for the fastest marathon dressed as a doctor, and another in 2014 for his Sci-Art project The World's Biggest Brain. He hosts the Scouse Science Podcast, and tweets @RunningMadProf.

https://www.liverpool.ac.uk/infection-veterinary-and-ecological-sciences/staff/tom-solomon/

Special Event Speaker:

LaMisha Hill, PhD
Director of Multicultural Affairs
Office of Diversity and Outreach
University of California, San Francisco

Unconscious bias

Mentorship/Diversity Event
2:15 pm, Wednesday, June 2nd

Dr. Hill oversees the program functions of the Multicultural Resource Center, which focuses on diversity, social justice, and mentorship for historically underrepresented learners. She also leads its diversity educational efforts, facilitating workshops and presentations across the UCSF community on equity and inclusion themes. Dr. Hill is a licensed counseling psychologist and serves on the Board of the Alameda County Psychological Association.

https://womenofucsfhealth.ucsf.edu/blog/lamisha-hill-phd

Plenary Speaker:

Christopher Broder, PhD
Department of Microbiology and Immunology
School of Medicine
Uniformed Services University of the Health Sciences

One-Health vaccines for neurotropic pathogenic henipaviruses - nipah and Hendra

Session II: Emerging Pathogens
3:15 pm, Wednesday, June 2nd

Christopher C. Broder, PhD., BS (83') and MS (85'), Florida Institute of Technology, and PhD, University of Florida (89'). Postdoctoral training in the Laboratory of Viral Diseases, NIAID, NIH, Bethesda, Maryland. Joined the Department of Microbiology at Uniformed Services University (USU), Bethesda, in 1996. Director of the Emerging Infectious Diseases Graduate Program at USU from 2006-2018. Currently, Professor and Chair, Department of Microbiology. Current research focus is on pathogenic henipavirus (Nipah and Hendra) and surveillance of zoonotic viruses including henipaviruses, filoviruses, and bat coronaviruses with a number of national and international collaborations supported by the US, NIH/HHS and DTRA/DoD. Major collaborative contributions include the discoveries of the CXCR4 and the CCR5 HIV-1 coreceptors; development of the first oligomeric, HIV-1 soluble gp140 glycoprotein vaccine candidate; discovery of the entry receptors used by Nipah and Hendra (ephrin ligands); development of the Hendra/Nipah recombinant, soluble G glycoprotein subunit vaccine; one formulation (HeV-sG) known as Equivac® HeV (Zoetis, Inc); another formulation in Phase I clinical trial as a human vaccine against Nipah and Hendra and supported by CEPI. Developed antiviral human monoclonal antibodies, including the anti-Hendra/Nipah mAb m102.4 currently used by emergency protocol in people. Coauthored more than 190 scientific articles and chapters; Inventor on 25 US and foreign patents. Awards include: 1997 AAAS Newcomb Cleveland Prize; 2013 CSIRO Chairman's Medal, Australia; 2013 and 2019 Federal Laboratory Consortium (FLC) Awards for Excellence in Technology Transfer; Inaugural 2020 FLC Impact Award; 2020 Military Health System Research Symposium (MHSRS) 2020 Outstanding Individual Research Accomplishment.

https://www.usuhs.edu/profile/christopher-broder-phd

Plenary Speaker:

Brian C. Schaefer, PhD
Department of Microbiology and Immunology
School of Medicine
Uniformed Services University of the Health Sciences

mAb therapy for CNS-resident lyssavirus infection: Biological activity well beyond simple neutralization

Session II: Emerging Pathogens
3:45 pm, Wednesday, June 2nd

Brian C. Schaefer, PhD, is Professor of Microbiology and Immunology at Uniformed Services University (USU) in Bethesda, MD, USA. He obtained his PhD in Immunology from Harvard University in 1995, working in the labs of Samuel H. Speck and Jack Strominger. From 1996 - 2002, Dr. Schaefer performed postdoctoral training with Philippa Marrack and John Kappler at the National Jewish Health in Denver, CO, USA. In 2002, he joined USU as Faculty in the Department of Microbiology and Immunology. The Schaefer lab is focused on defining mechanisms by which the immune system is activated to combat infections, with a particular focus on viral infections. We investigate this problem in several ways, including defining molecular signaling mechanisms in purified immune cells, particularly T cells and macrophages. We also study immune responses at the whole organism level to better understand relationships between pathogen infection and initiation of immune responses. Our experimental approach combines cutting-edge imaging technologies with biochemistry, molecular biology, cell biology, and animal models.

https://www.usuhs.edu/profile/brian-schaefer-phd

Plenary Speaker:

Edward Holmes, FAA, FRS
School of Life and Environmental Sciences
Sydney Medical School
University of Sydney

Tracking emerging viruses in the 21st century

Session II: Emerging Pathogens
4:15 pm, Wednesday, June 2nd

Edward (Eddie) Holmes is an ARC Australian Laureate Fellow at the University of Sydney, with concurrent Professorial appointments in the School of Life & Environmental Sciences and the School of Medical Sciences. Prior to joining the University of Sydney, Eddie was the Verne M. Willaman Chair in the Life Sciences at The Pennsylvania State University, USA. Eddie received his undergraduate degree from the University of London (1986) and his Ph.D. from the University of Cambridge (1990). Following that, he performed postdoctoral research at the Universities of California (Davis), Edinburgh and Oxford. Between 1993-2004 he held various positions at the University of Oxford, including University Lecturer in Evolutionary Biology and Fellow of New College. His research focuses on the emergence, evolution and spread of RNA viruses, with special emphasis on revealing the genetic and epidemiological processes that underpin viral emergence, the molecular epidemiology of important human and animal pathogens, understanding the nature of global virus diversity, and the major mechanisms of virus evolution. He played a key role in the initial discovery of SARS-CoV-2 (the causative agent of COVID-19) and was the first person globally to release the genome sequence of virus. In 2003 he was awarded the Scientific Medal by the Zoological Society of London. In 2008 he became a Kavli Fellow of the National Academy of Sciences, USA. He was elected a Fellow of the Australian Academy of Science (FAA) in 2015 and a Fellow of the Royal Society (FRS) in 2017. He has published over 640 peer-reviewed papers that have been cited more than 91,000 times (h-index = 145).

https://www.sydney.edu.au/science/about/our-people/academic-staff/edward-holmes.html

Plenary Speaker:

Deborah Persaud, MD
School of Medicine
Johns Hopkins University

HIV cure research in 2021 and beyond

Session III: Human Immunodeficiency Virus
12:00 pm, Thursday, June 3rd

Deborah Persaud, MD is Professor in the Department of Pediatrics at the Johns Hopkins University School of Medicine and in the Department of Molecular Microbiology and Immunology and International Health at the Johns Hopkins Bloomberg School of Public Health. Her research focuses on the pathogenesis of HIV persistence, latency and control in pediatric and adolescent infections. She is the Scientific Chair of the HIV Cure Committee for the NIH-sponsored- International Maternal Pediatric Adolescent AIDS Clinical Trials (IMPAACT) Network, where she oversees the development of clinical trials targeting HIV remission and cure therapeutics for infants, children and adolescents. Her report on the “Mississippi Baby” was the first well-documented case of HIV remission from very early ART that formed the basis for several clinical trials of very early treatment of infants to achieve HIV remission and cure.

https://www.hopkinsmedicine.org/profiles/details/deborah-persaud
http://persaudlab.jhmi.edu/faculty-staff/deborah-persaud-md

Plenary Speaker:

Kristine Erlandson, MD
School of Medicine
University of Colorado Anschutz Medical Campus

Impact of aging on people with HIV: Moving beyond the nervous system

Session III: Human Immunodeficiency Virus
1:00 pm, Thursday, June 3rd

Dr. Erlandson is an Associate Professor in the Division of Infectious Diseases, with secondary appointments in the Division of Geriatrics and Department of Epidemiology at the University of Colorado Denver- Anschutz Medical Campus. Her research is recognized internationally and focused on the understanding complications of aging and implementing interventions to ensure successful aging among persons living with HIV.

https://som.ucdenver.edu/Profiles/Faculty/Profile/6113

Plenary Speaker:

Keith Jerome, MD, PhD
Department of Laboratory Medicine & Pathology
University of Washington

Gene editing for cure of latent herpes simplex virus infection

Session V: Topics in NeuroVirology
2:15 pm, Friday, June 4th

Dr. Keith R. Jerome is a physician and medical researcher on the faculty at the University of Washington and the Fred Hutchinson Cancer Research Center. Dr. Jerome leads the Virology Division within the Department of Laboratory Medicine and Pathology at the University of Washington (UW Virology). Under his guidance UW Virology designed and implemented molecular testing assays for a wide variety of human viruses, including SARS-CoV-2, hepatitis B and C, enterovirus, BK virus, and cytomegalovirus. The program provides diagnostic support for stem cell transplant and other patients in the Pacific Northwest, and throughout the country through its reference testing services. UW Virology has been a leader in the national response to COVID-19, providing clinical testing and support for research studies evaluating new therapies and vaccine candidates.

In addition to his clinical efforts, at Fred Hutch Dr. Jerome leads a research group focused on the biology of chronic viral infections. He has pioneered the use of gene editing and gene therapy as potentially curative therapies for HIV, hepatitis B, human papillomavirus, and herpesvirus infections. He currently serves as co-principal investigator and NIH contact investigator for defeatHIV, Fred Hutch's Martin Delaney Collaboratory working toward a cure for HIV disease.

Dr. Jerome earned a Bachelor of Science from Georgetown College before earning a Ph.D. in Microbiology and Immunology and his M.D. from Duke University.

https://depts.washington.edu/labweb/Faculty/jerome_keith.htm

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