ASNI Americas School of Neuroimmunology

2nd Americas School of Neuroimmunology

Charlottesville (VA) - USA
October 3 - 6 | 2017

SCIENTIFIC PROGRAM

www.asni2017.com

MESSAGE FROM THE ORGANIZERS

Welcome to the 2nd Americas School of Neuroimmunology (ASNI) at the University of Virginia in Charlottesville. We hope you have a great and wonderful educational experience here, that you continue to be motivated by the teachings and discoveries in the field of neuroimmunology, and that you will meet new colleagues and future collaborators.

ASNI is a school of the International Society of Neuroimmunology (ISNI) for the Americas. We hope to be able to host a school somewhere in the Americas every other year. Thus, we had our inaugural ASNI School in Calgary, Canada, in 2015 and this is our second launch. Every other year, at the first day of the congress of ISNI, the Americas School will congregate with other Schools of ISNI (European and Asia-Pacific Schools) to constitute the Global Schools of neuroimmunology. We had our first Global School in Jerusalem in September 2016 and will have our next at the ISNI Congress in Brisbane in August 2018. We hope that you will continue to keep track of these Schools and encourage your colleagues, trainees and yourself to attend.

We hope you will have a wonderful three days at this second ASNI. We thank the lecturers for their willingness to participate. We thank the various sponsors whose generous funding has provided the means to help host this School. We wish to acknowledge the tremendous organizational efforts provided by Sharon Heyka (University of Virginia) and Stine Overdal (EEM Services, the secretariat of ISNI). We wish you a very successful journey in the field of neuroimmunology.

Sincerely,

V. Wee Yong (University of Calgary) and Jonathan Kipnis (University of Virginia)

Co-directors, 2nd ASNI

ORGANIZING COMMITEE

Jonathan Kipnis
Department of Neuroscience
Center for Brain Immunology and Glia (BIG)
University of Virginia
Charlottesville (VA) | USA

V.Wee Yong
University of Calgary
Cumming School of Medicine
Calgary (AB) | Canada

SPEAKERS -Biosketch

Luis Almaguer-Mederos PhD
CIRAH
Holguin | Cuba

Jorge Alvarez BSc, PhD
University of Pennsylvania
Pennsylvania (PA) | USA
Jorge I. Alvarez, PhD, is an assistant professor of Pathobiology at the University of Pennsylvania. His laboratory aims to understand the role of the Central Nervous System (CNS) barriers in regulating immune cell function in homeostasis and disease. These barriers selectively restrict the molecular and cellular trafficking between the periphery and the CNS, but are also a signaling interface actively regulating exchange between both compartments. Dr. Alvarez has demonstrated that these barriers and their surrounding microenvironment are fundamental in regulating barrier function and the development of inflammatory responses within the CNS as seen in Multiple Sclerosis and Schizophrenia. Currently, his studies are directed to determine the impact of glial-derived factors on the CNS barriers and on the function of immigrating and resident immune cells populations during neuroinflammation.

Jack Antel MD
McGill University
Montreal (QC) | Canada
Jack Antel is a clinical neurologist who coordinates the multiple sclerosis research and treatment program at the Montreal Neurological Institute. He served as the Scientific Director of the endMS Research and Training Network supported by the MS Society of Canada.
He has been President of the International Society of Neuroimmunology, is president of ACTRIMS, and is co-Editor of the Multiple Sclerosis Journal.
His research interests include understanding the mechanisms of tissue injury and repair that occur in MS and how these can be therapeutically targeted. He received the 2005 Dystel Award from the National Multiple Sclerosis Society and the American Academy of Neurology.

Nathalie Arbour PhD
University of Montreal
Montreal (QC) | Canada
Nathalie Arbour obtained her Ph.D. in Virology and Immunology at INRS-Armand-Frappier in Quebec, Canada. She completed post-doctoral training at the Scripps Research Institute in the laboratory of Dr. Michael B.A. Oldstone and subsequently at the Montreal Neurological Institute in the team of Dr. Jack Antel. Since 2006, she is professor at Université de Montreal and researcher at Centre de Recherche du CHUM (Université de Montreal affiliated hospital). Her research program aims at characterizing and understanding the interactions between the immune system and the central nervous system (CNS), especially the roles of T cells in the context of multiple sclerosis (MS). Her research strategy is to first identify molecules or mechanisms that are specifically altered in human samples obtained from MS patients. Then, her team investigates the mechanistic impact of such factors using primary cultures of human immune and CNS cells. Finally, using relevant animal models of MS, Nathalie Arbour and her team confirm and dissect the role played by these identified mechanisms and test in vivo strategies to correct these altered factors and thus validate them as bona fide therapeutic targets. The Arbour's team performs mechanistic studies on human cells as well as on relevant animal models using a wide array of complementary techniques including multiparametric flow cytometry, western blot, qRT-PCR, co-culture systems, and immunohistochemistry. Nathalie Arbour has published more than 56 papers building on data obtained from both human and mouse systems. Her research program is funded by the Multiple Sclerosis Society of Canada, the Canadian Institutes of Health Research and the Natural Sciences and Engineering Research Council of Canada.

Dwight Bergles PhD
John Hopkins University
Baltimore (MD) | USA
Dwight Bergles is a Professor in the Solomon H. Snyder Department of Neuroscience at The Johns Hopkins University School of Medicine in Baltimore, Maryland, USA where he also holds a joint appointment in the Department of Otolaryngology-Head and Neck Surgery. He is the Associate Director of the Kavli Neuroscience Discovery Institute, Director of the Multiphoton Imaging Center, and Co-director of the Neuroscience Training Program. He has also been a faculty member in the Neurobiology Course at the Marine Biological Laboratory in Woods Hole, Massachusetts.
Dwight received his bachelor's degree in Biology from

Boston University and Ph.D. in Molecular and Cellular Physiology from Stanford University. He completed a postdoctoral fellowship at the Vollum Institute in Portland Oregon before joining the faculty at Hopkins in 2000 as Assistant Professor. He was promoted to professor with tenure in 2011. The main goal of his research is to understand how interactions between neurons and glial cells contribute to CNS development, neuromodulation and neurodegeneration in diseases such as amyotrophic lateral sclerosis and multiple sclerosis. His studies combine genetic manipulations in mice with high resolution physiological analyses, including in vivo two photon imaging and electrophysiological recording, to define the mechanisms that regulate neuronal and glial cell activity in specific neural circuits.

Lisa Boulanger PhD
Princeton University
Princeton (NJ) | USA

Monica Carson PhD
UC Riverside
Riverside (CA) | USA

Juliana Carvalho-Tavares PhD
Universidade Federal de Minas Gerais
Belo Horizonte | Brazil

Shannon Dunn PhD
University of Toronto
Toronto (ON) | Canada
Dr. Shannon Dunn is a scientist at the Toronto General Research Institute and and is an Associate professor in the Department of Immunology at the University of Toronto. She leads a research program that focuses on how various risk factors for multiple sclerosis (MS) development impact biology to modulate autoimmune risk in an animal model of MS called experimental autoimmune encephalomyelitis (EAE). She has been exploring the roles of female sex, early onset of puberty, and obesity on EAE development.

Alban Gaultier PhD
University of Virginia
Charlottesville (VA) | USA
My laboratory is focused on studying multiple sclerosis (MS), a debilitating neurodegenerative disease. There is a critical need to broaden our understanding of the mechanisms that contribute to pathology during MS. Current clinical treatments are only able to slow down MS progression, with no cure for this devastating disease. The goal of my laboratory is to explore promising avenues aimed at discovering novel therapeutic options for multiple sclerosis patients. Since I started my laboratory in 2012, I have encouraged my trainees to pursue new projects at the forefront of MS research. My trainees have developed projects centered on understudied aspects of MS pathology with the hope of developing the next generation of MS therapeutics. We study signaling pathways that encompass microbiome function, metabolism regulation, endoplasmic reticulum (ER) function and myelin biology.

Tajie Harris PhD
University of Virginia
Charlottesville (VA) | USA

Jeff Iliff PhD
Oregon Health & Science University
Portland (OR) | USA
An Assistant Professor of Anesthesiology and Perioperative Medicine at Oregon Health & Science University, Jeffrey Iliff helped to define the brain-wide network of perivascular pathways, termed the ‘glymphatic system’, which facilitates CSF-interstitial fluid exchange. His recent studies have shown that the glymphatic system fails in the aging brain and in the young brain after traumatic brain injury. Research in his lab now focuses on identifying the molecular changes that underlie glymphatic system failure with aging and after trauma, extending these experimental studies into human subjects and clinical populations, and discovering ways to co-opt the glymphatic system to improve drug delivery throughout the brain and spinal cord.

Jonathan Kipnis PhD
University of Virginia
Charlottesville (VA) | USA
Dr. Jonathan (Jony) Kipnis’s research group focuses on the complex interactions between the immune system and the central nervous system (CNS). The goal is to elucidate

the cellular and molecular mechanisms underlying the beneficial effects of immune system in brain function in neurodegenerative, neurodevelopmental, and mental disorders as well as in healthy aging.

Dr. Kipnis's research team showed that the brain function is dependent, in part, on the function and integrity of the immune system. The fascination with immunity and its role in healthy and diseased brain is what brought the team to a breakthrough discovery of lymphatic vessels that drain the CNS into the peripheral lymph nodes and thus serve as a physical connection between the brain and the immune system. The implications of this work are broad and range from Autism to Alzheimer's disease through neuroinflammatory conditions, such as Multiple Sclerosis.

Jony Kipnis graduated from the Weizmann Institute of Science in Israel, where he was a Sir Charles Clore scholar and a recipient of distinguished prize for scientific achievements awarded by the Israeli Parliament, The Knesset.

Jony joined UVA faculty in 2007. He is now a Harrison Distinguished Professor and Chair of the Neuroscience Department. He was awarded the Robert Ader Award by the PsychoNeuroImmunology Research Society and the Jordi Folch-Pi award by the American Society for Neurochemistry. In 2015, Jony became a Gutenberg Research College Fellow at the Johannes Gutenberg University Mainz Medical Center, Germany.

Robyn Klein MD, PhD

University of Washington St. Louis

St. Louis (MO) | USA

Dr. Robyn S. Klein received her M.D. and Ph.D. degrees from Albert Einstein College of Medicine. She then completed her internship and residency in Internal Medicine at the Brigham & Women's Hospital, Harvard University and her fellowship in Infectious Diseases and post-doctoral training in Immunology at the Massachusetts General Hospital, Harvard University. Dr. Klein joined the Washington University School of Medicine in 2003, where she developed a neuroimmunology basic and translational science research program focused on the pathogenesis of neuroinflammatory diseases of the central nervous system (CNS). Studies in the Klein laboratory focus on cellular and molecular mechanisms that orchestrate inflammation during both viral and autoimmune encephalitides via endothelial-immune cell interactions. The experimental approach involves the development of in vitro models of the blood-brain barrier to study the CNS entry of WNV, mononuclear cells, and of the signaling responses that regulate vascular permeability. Studies using in vivo models for both autoimmune and WNV encephalitides focus on identifying the localizing cues that control leukocyte entry and persistent inflammation. Work over the past few years has defined novel roles for cytokines and chemokines in the regulation of blood-brain barrier permeability to protective versus pathogenic leukocytes, and to West Nile virus (WNV), a positive strand flavivirus that may enter the CNS and cause encephalitis. These inflammatory cues also regulate CNS repair by neural stem cells (NSCs) in mice with viral infection or demyelinating diseases. Aspects related to NSC-mediated repair include defining the localizing, proliferative and differentiation cues that lead to successful repair of damaged neurons and myelin. These studies will advance our understanding of normal CNS immune surveillance and its relationship to the wide range in inflammatory patterns observed in various neuroinflammatory diseases. This information will also lead to the identification of novel therapeutic targets, which is much needed in an era where there is little to offer patients with these diseases.

Maya Koronyo-Hamaoui PhD

Cedars Sinai

Los Angeles (CA) | USA

A major focus of my research is the development of immune-modulation treatments for Alzheimer's

disease (AD). My laboratory investigates the role of innate immune cells - especially peripheral monocytes and macrophages - in CNS repair and regeneration. This approach presents a paradigm shift away from the common view that any involvement of peripheral immune cells in the brain is a sign of pathology. My team recently discovered that instead of being detrimental, recruitment of a subset of bone marrow (BM)-derived monocytes into the brain can lead to marked attenuation of disease progression in transgenic murine models of AD. This effect was achieved by either adoptive transfer of young BM-derived CD115+LyC6hi monocytes to the peripheral blood of symptomatic transgenic AD mice, or immunization with altered myelin-derived antigens. This multifaceted immune modulation intervention was found to substantially regulate neuroinflammation, diminish various neuropathologies associated with AD, and remarkably rescue synapses as well as cognitive function. To enhance the capacity of innate immune cells to resist AD pathology, the lab has explored several strategies. These include stimulation of monocytes with an FDA-approved drug (glatiramer acetate) and the genetic targeting of angiotensin-converting enzyme (ACE), a peptidase capable of degrading neuro-

toxic forms of Aβ, to myelomonocytes in murine models of AD. Both the pharmacological and the genetic approaches resulted in substantial prevention of cognitive decline and attenuation of associated pathology. The immune mechanisms involved regulation of detrimental inflammation, enhanced uptake and degradation of pathological Aβ assemblies, reduced cerebral vascular and parenchymal Aβ deposits, resolution of scar tissue proteins, restoration of astrocyte phenotype, and preservation of synapses by these modified young monocytes. We have also demonstrated that replacing AD bone marrow with young wild type marrow attenuates disease progression, which was further enhanced by ACE overexpressing monocytes, while depleting these cells in the blood accelerates disease progression. Another emphasis of my research is on early diagnosis of AD through retinal imaging. My team identified the pathological hallmarks of AD, amyloid β-protein (Aβ) plaques, in the human retina. Moreover, we developed a novel approach for in vivo detection of retinal Aβ deposits in live rodent models, allowing for noninvasive, high-resolution monitoring of individual plaques during disease progression. Our imaging method has now been validated in a proof-of-concept clinical trial and is currently undergoing further testing in several large-scale cohorts.

John Lukens PhD
University of Virginia
Charlottesville (VA) | USA
For his undergraduate studies, John attended the University of Richmond, where he pursued organic chemistry research in the laboratory of Dr. John Gupton. John then completed his thesis research in the laboratory of Dr. Young Hahn at the University of Virginia. In the Hahn lab, his research was focused on identifying immunoregulatory pathways that suppress immune responses in the liver and contribute to functional exhaustion of intrahepatic T cells. For his postdoctoral training, John worked in the laboratory of Dr. Thirumala-Devi Kanneganti at St. Jude Children's Research Hospital in Memphis. His work defined novel roles for IL-1 signaling pathways in a number of autoinflammatory disorders. In Fall 2014, John returned to the University of Virginia to start his lab in the Department of Neuroscience and the Center for Brain Immunology and Glia (BIG). His laboratory investigates roles for the innate immune response and microbiota in the pathogenesis of multiple sclerosis, traumatic brain injury, neurodegenerative disease, and autism spectrum disorder.

James Mandell PhD
University of Virginia
Charlottesville (VA) | USA
I have several qualifications that make me well-suited as a co-mentor for our Neuroscience Graduate Program Ph.D. students. First, I am a board-certified neuropathologist since 1998 and am actively involved in the diagnosis of neurodegenerative disease in our active neuropathology autopsy service (~250 brain cases/year). Second, as a clinician-investigator with a major research commitment, I have focused on the roles neuronal-glial interactions in central nervous system disorders, as well as the application of phosphorylation and cleavage state-specific antibodies to investigative and diagnostic neuropathology. My lab has obtained six NIH grants since 1999 to study neuronal-glial interactions as well as to develop novel biomarkers for neuronal and muscle degeneration. My lab has developed and optimized techniques for detecting protein phosphorylation and proteolytic cleavage events, along with multi-label immunohistochemistry, which will enhance the proposed project. I am extremely excited to serve as a co-mentor for our outstanding NGP students.

Kim McAllister PhD
University of California
Davis (CA) | USA

Dorian McGavern PhD
NIH/NINDS
Bethesda (MD) | USA
Dr. McGavern received his B.S degree in microbiology from The Pennsylvania State University and his Ph.D. in molecular neuroscience from the Mayo Clinic. Following an academic appointment as an Associate Professor in the Department of Immunology and Microbial Sciences at The Scripps Research Institute, Dr. McGavern joined the NINDS in March 2009. Dr. McGavern is the recipient of the prestigious Ray Thomas Edwards Foundation Award and the Burroughs Wellcome Fund Pathogenesis of Infectious Disease Award. His laboratory at the NIH is focused on states of acute and persistent infection of the central nervous system (CNS) as well as traumatic brain injury (TBI). As Chief of the Viral Immunology and Intravital Imaging Section, Dr. McGavern investigates how the innate and adaptive immune systems participate in different neurological disorders such as meningitis, encephalitis, cerebral malaria, and TBI.

Javier Provencio MD
University of Virginia
Charlottesville (VA) | USA
Dr. Javier Provencio is the Director of the Nerancy Neurological Intensive Care Unit and a translational researcher in the Center for Brain Immunology and Glia. He received his medical degree in 1993 from the Pennsylvania State University College of Medicine in Hershey, Pennsylvania. He completed residencies in neurology and internal medicine, and clinical fellowships in Medical and Neurological Critical care at the University of Virginia in Charlottesville, Virginia. He also completed a post-doctoral fellowship in the Department of Biology at the University of Virginia under Dr. Anthony Frankfurter.

Dr. Provencio currently spends time caring for patients with neurological critical illnesses and heading a translational science laboratory. He is the medical director of the Nerancy Neuroscience Intensive Care Unit at the University of Virginia. His laboratory studies the innate immune mechanisms underlying delayed cerebral injury after subarachnoid hemorrhage. He is currently funded by the National Institutes of Health and Biomedical Industry.

Dr. Provencio started his position at the University of Virginia in 2015 after having served at the Cleveland Clinic since 2003. He is married with three children. He lives in Charlottesville, Virginia.

Kodi Ravichandran PhD
University of Virginia
Charlottesville (VA) | USA

V.Wee Yong PhD
University of Calgary
Calgary (AB) | Canada
Dr. V. Wee Yong is a Professor at the Hotchkiss Brain Institute and the Departments of Clinical Neurosciences and Oncology at The University of Calgary. He holds the Canada Research Chair in Neuroimmunology. Dr. Yong co-directs the Multiple Sclerosis (MS) NeuroTeam of the Hotchkiss Brain Institute, providing the basic science leadership, and he directs the Alberta MS Network. Dr. Yong's research interests lie in the area of neuroimmunology, neuroprotection and CNS remyelination, and his projects are guided by MS, spinal cord injury and brain tumors. Dr. Yong has published 280 peer-reviewed manuscripts and his research has been translated into Phase III clinical trials in MS and spinal cord injury. His work has been cited over 17,000 times by other authors (Web of Science, h-index of 74). Dr. Yong's volunteer activities for the MS community resulted in him receiving the Queen Elizabeth's Golden Jubilee Year Medallion. Dr. Yong is on the editorial board of 7 international journals and he is the Honorary Editor-in-Chief of Neuroimmunology and Neuroinflammation journal. He is the immediate past-President of the International Society of Neuroimmunology. Dr. Yong is an elected fellow of both the Canadian Academy of Health Sciences (2010) and the Royal Society of Canada (2014). He was recently awarded the Allyn Taylor International Prize in Medicine for his many discoveries in MS.

DAY 1 | TUESDAY, OCTOBER 3

AFTERNOON SESSION 4.00 PM – 10.00 PM
IMMUNOLOGY, NEUROSCIENCE, PHAGOCYTOSIS, AND IMAGING

Chairs: J. Kipnis and V.W. Yong

	SPEAKERS & TITLES
4.00 pm – 4:45 pm	**Immunity for neuroscientists** Nathalie Arbour *(U Montreal, Canada)*
4.45 pm – 5.00 pm	**Discussion time**
5.00 pm – 5.45 pm	**Neuropathology for immunologists** James Mandell *(UVA, USA)*
5.45 pm – 6.00 pm	**Discussion time**
6.00 pm – 7.30 pm	**Dinner**
8.00 pm – 8.45 pm	**Phagocytosis and apoptotic cell clearance - mechanisms and implication in health and disease** Kodi Ravichandran *(UVA, USA)*
8.45 pm – 9.00 pm	**Discussion time**
9.00 pm – 9.45 pm	**Neuroimaging for neuroimmunologists** Dorian McGavern *(NIH/NINDS, USA)*
9.45 pm – 10.00 pm	**Discussion time**
10.00 pm	**Social Event at the Pavilion VII**

DAY 2 | WEDNESDAY OCTOBER 4

MORNING SESSION 7:00 AM – 4.00 PM
DEVELOPMENT, MICROGLIA AND OTHER GLIA

Chairs: A. Gaultier and J. Antel

	SPEAKERS & TITLES
7.00 am – 8.30 am	**Breakfast**
8.30 am – 9.15 am	**MHCI in CNS function** Lisa Boulanger *(Princeton, USA)*
9.15 am – 9.30 am	**Discussion time**
9.30 am – 10.15 am	**Microglia in disease** Monica Carson *(UC Riverside, USA)*
10.15 am – 10.30 am	**Discussion time**
10.30 am – 11.00 am	**Coffee break**
11.00 am – 12.00 pm	**Special session sponsored by ACTRIMS (I)** **Lessons learned from MS and future endeavors** **Chairs: T. Harris and M. Carson**
11.00 am – 11.45 am	**Oligodendrocyte lineage cells in brain function and dysfunction** Dwight Bergles *(John Hopkins University, USA)*
11.45 am – 12.00 pm	**Discussion time**
12.00 pm – 1.00 pm	**Lunch**
1.00 pm – 4.00 pm	**Free time and small group discussions with faculty**

AFTERNOON SESSION 4.00 PM – 10.00 PM
BRAIN DISEASES WITH NEUROIMMUNE COMPONENT

Chairs: T. Harris and M. Carson

	SPEAKERS & TITLES
4.00 pm – 6.00 pm	**Continuation of the special session sponsored by ACTRIMS (II)**
4.00 pm – 4.45 pm	**Hormones, pregnancy and immunity** Shannon Dunn *(University of Toronto, Canada)*
4.45 pm – 5.00 pm	**Discussion time**
5.00 pm – 5.45 pm	**Multiple Sclerosis – knowns and unknowns** Jack Antel *(McGill University, Canada)*
5.45 pm – 6.00 pm	**Discussion time**
6.00 pm – 7.30 pm	**Dinner**
8.00 pm – 8.45 pm	**Maternal immunity and neurodevelopment** Kim McAllister *(UC Davis, USA)*
8.45 pm – 9.00 pm	**Discussion time**
9.00 pm – 9.45 pm	**Neuroimmunology of polyglutamine disorders** Luis Almaguer-Mederos *(CIRAH, Holguin, Cuba)*
9.45 pm – 10.00 pm	**Discussion time**

DAY 3 | THURSDAY OCTOBER 5

MORNING SESSION 7.00 AM – 4.00 PM
CNS BARRIERS AND CELL TRAFFICKING

Chairs: J. Provencio and M. Koronyo-Hamaoui

	SPEAKERS & TITLES
7.00 am – 8.30 am	**Breakfast**
8.30 am – 9.15 am	**Glymphatics and CNS fluid flow** Jeff Iliff *(OHSU, USA)*
9.15 am – 9.30 am	**Discussion time**
9.30 am – 10.15 am	**CNS barriers and cells traffick**ing Jorge Alvarez *(University of Pennsylvania, USA)*
10.15 am – 10.30 am	**Discussion time**
10.30 am – 11.00 am	**Coffee break**
11.00 am – 11.45 am	**BBB function and dysfunction** Juliana Carvalho-Tavares *(Universidade Federal de Minas Gerais, Brazil)*
11.45 am – 12.00 pm	**Discussion time**
12.00 pm – 1.00 pm	**Lunch**
1.00 pm – 4.00 pm	**Free time and small group discussions with faculty**

AFTERNOON SESSION 4.00 PM – 10.00 PM
IMMUNE MOLECULES IN CNS FUNCTION, DEVELOPMENT AND DISEASE

Chairs: J. Lukens and J. Alvarez

4.00 pm – 4.45 pm	**Neuroimmunology of Alzheimer Disease** Maya Koronyo-Hamaoui *(Cedars Sinai, USA)*
4.45 pm – 5.00 pm	**Discussion time**
5.00 pm – 5.45 pm	**Neuroimmunology of polyglutamine disorders** Luis Almaguer-Mederos *(CIRAH, Holguin, Cuba)*
5.45 pm – 6.00 pm	**Discussion time**
6.00 pm – 7.30 pm	**Dinner**
8.00 pm – 8.45 pm	**Neuroimmunology of neurovirology – concepts and mechanisms** Robyn Klein *(University of Washington St. Louis, USA)*
8.45 pm – 9.00 pm	**Discussion time**
9.00 pm – 9.45 pm	**Meningeal cytokines and their effects on the brain** Jony Kipnis *(UVA, USA)*
9.45 pm – 10.00 pm	**Discussion time**
10.00 pm	**Social event at Omni Hotel**

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