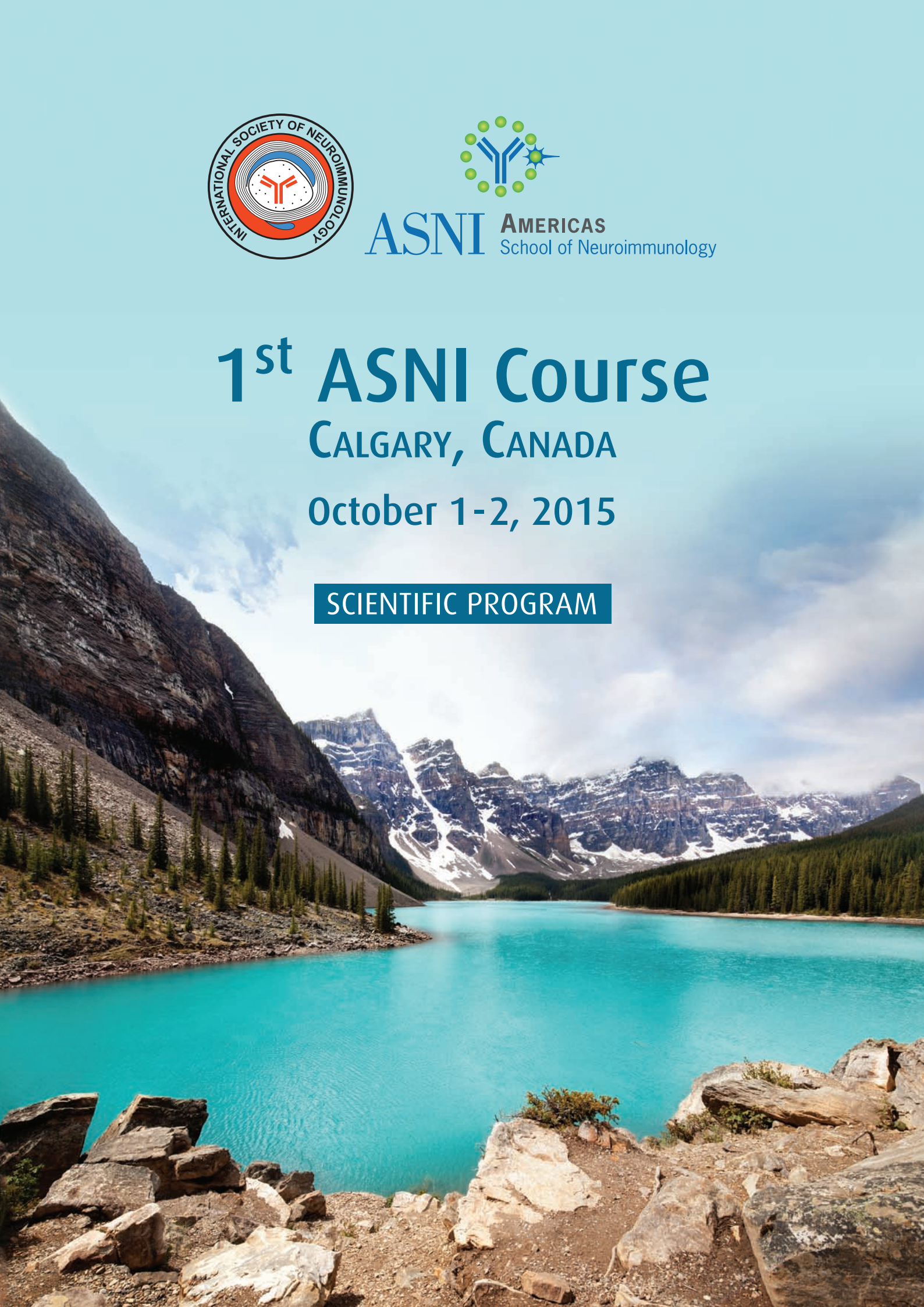
ASNI AMERICAS
School of Neuroimmunology

1st ASNI Course

CALGARY, CANADA

October 1-2, 2015

SCIENTIFIC PROGRAM



Message from the Organisers

Welcome to the inaugural Americas School of Neuroimmunology (ASNI).
I hope you have a wonderful educational experience here, that you meet new colleagues and future collaborators, and that you will continue to keep the skills of neuroimmunology in your research activities.

During the Mainz Congress of the International Society of Neuroimmunology (ISNI) last year, the International Advisory Board of ISNI suggested that schools of neuroimmunology be initiated elsewhere to complement the successful European School of Neuroimmunology (ESNI) that has been running since 2000. Accordingly, we initiated the Asia-Pacific School of Neuroimmunology (APSNI) in collaboration with the Japanese Society of Neuroimmunology and that inaugural school was successfully held on August 30, 2015 in Tokyo. With you, we are now very pleased to launch the inaugural ASNI here in Calgary, Canada, on October 1-2, 2015. It is hoped that ASNI will take place somewhere in the Americas once every two years, and that every other year, ASNI will congregate with ESNI and APSNI under the umbrella of the Global Schools of Neuroimmunology (GSNI) on the first day of ISNI's biennial congress. Accordingly, the first GSNI will take place on September 26, 2016 in Jerusalem (coordinated by Gianvito Martino and V. Wee Yong).

I hope you have a wonderful two days at this inaugural ASNI. I thank the lecturers for their willingness to participate in this. I thank the various sponsors whose generous funding has provided the means to conduct this school. Indeed, we have been able to provide 27 travel awards at this meeting. I wish to acknowledge the tremendous organization provided by Jessie Trufyn (University of Calgary) and Stine Overdal (EEM Services, the Secretariat of ISNI). Immune cells are now known to be involved in all neurological conditions and I wish you a very pleasant journey in the field of Neuroimmunology.

Sincerely,

V. Wee Yong, PhD, FCAHS, FRSC
Professor, University of Calgary
President, ISNI
On behalf of Co-organizers, Phil Popovich and Jessie Trufyn

Organizing Committee

V.Wee Yong PhD
University of Calgary
Cumming School of Medicine
Calgary | Canada

Phillip Popovich PhD
Center for Brain and Spinal Cord Repair
Department of Neuroscience
Wexner Medical Center
at the Ohio State University
Columbus, OH | U.S.A

Jessie Trufyn MSc
Cumming School of Medicine
University of Calgary
Calgary | Canada

Speakers

Bar-Or, Amit, FRCPC
McGill University - Montreal | Canada

Dr. Bar-Or is a Neurologist and Professor, Department of Neurology and Neurosurgery, Director of the Experimental Therapeutics Program and Scientific Director of the Clinical Research Unit at the Montreal Neurological Institute and Hospital, McGill University. He presently serves as President of the Canadian Network of MS Clinics (CNMSC). Dr. Bar-Or's Neuroimmunology lab examines mechanisms of immune regulation, immune-neural interaction, injury and repair in central nervous system (CNS) inflammatory disorders. His main clinical focus is on inflammatory CNS demyelinating diseases in both adults and children. Of particular basic interest are studies of distinct immune cell subsets and their interactions with glial cells and neurons, and how such interactions contribute to multiple sclerosis. An overall emphasis is on translational and biomarker development work in humans, including deep immune-monitoring of well-characterized patient cohorts participating in experimental therapeutic trials. The overarching theme of Dr. Bar-Or's clinical and research program is the translation of basic lab discoveries to understanding and development of novel experimental therapies for patients with autoimmune and neurological diseases.

Becker, Kyra MD
University of Washington - Seattle, WA | U.S.A

Dr. Becker obtained her MD degree at Duke University. Following training in neurology and neurocritical care medicine at Johns Hopkins, she did a research fellowship at NINDS. After leaving the

NINDS, she joined the faculty at the University of Washington School of Medicine where she is now a Professor of Neurology and Neurological Surgery and co-director of the Stroke Program. Dr. Becker is clinically active in stroke research and maintains a laboratory that studies the role of inflammation in post-ischemic brain injury and investigates ways to modulate the post-ischemic inflammatory response to improve stroke outcome. She has served on numerous study sections at NINDS, has been a member of the Neurological Devices Panel of the FDA, and is currently the Chair of the International Stroke Conference.

Cardona, Astrid PhD
University of Texas at San Antonio
San Antonio, TX | U.S.A

Dr. Astrid Cardona is an associate professor of immunology at the University of Texas at San Antonio. After receiving her Ph.D in Microbiology and Immunology in 2002 at the University of Texas Health Science Center at San Antonio she continued her post-postdoctoral training at the Cleveland Clinic in the Department of Neurosciences at the Lerner Research Institute. During her trajectory at the Cleveland Clinic she received a post-doctoral fellowship from the National Multiple Sclerosis Society and then she became a Research Associate and also held a Project Staff Position. In 2009 she joined The University of Texas at San Antonio, where she is currently a faculty of the Department of Biology and a member of the South Texas Center for Emerging Infectious Diseases. She has participated in numerous NIH study sections and is currently associate editor for the Journal Frontiers in Neuroscience. She has mentored Ph.D, Master's and undergraduate students, as well as postdoctoral fellow and junior faculty. She has been an organizer of national meetings including the Tykeson fellow's research conference by the National Multiple Sclerosis Society and has earned several awards, such as the Young Investigator Award: National Mission in Science, Education and Development in Colombia, she also she received the Barbara Stanford memorial teaching award at the UTHSCSA, the F. Merlin Bumpus Junior Investigator Award for excellence in basic science research at the Cleveland Clinic, the Women of Distinction Award by the Texas Association of Mexican American Chamber of Commerce in Austin Texas, and the Richard S. Howe Outstanding Undergraduate Teaching Award and Research Achievement recognition by the College of Science at UTSA. Community Service is also an integral part of Dr. Cardona's life at an institutional, national and international level. She actively volunteers with her expertise as a judge, and as reviewer for multiple scientific journals and funding agencies. Dr. Cardona's research laboratory is focused in neuroinflammation and she is the principal investigator in research projects aimed to understand the damage that occurs to the brain during chronic diseases such as Multiple Sclerosis. Dr. Cardona discovered a key neuronal-microglial communication signal mediated by the chemokine fractalkine and has developed several new models to confirm the neuroprotective effects of fractalkine and its mechanisms of action. Her research has been supported by the National Institutes of Health, the National Multiple Sclerosis Society and the San Antonio Area Foundation. She is author of over 40 scientific contributions and member of the American Association for the Advancement of Science, American Association of Immunologist, and Society for Neuroscience and the American Society for Neurochemistry.

Correale, Jorge MD
Raul Carrea Institute for Neurological Research
Buenos Aires | Argentina

Jorge Correale M.D. graduated with honors from Buenos Aires University School of Medicine in 1981. Between 1983 and 1988 he completed his Neurology Residency training at the José María Ramos Mejía Hospital in Buenos Aires and was appointed Chief Resident. During 1989 he was visiting physician at the Department of Neuropathology at the same center. Dr. Correale continued his training as Fellow in Neuroimmunology at the Karolinska Institute in Stockholm, Sweden between 1989 and 1990. In 1990 he moved to the United States where he completed a second fellowship between 1990 and 1993 in Neuroimmunology at the University of Southern California, receiving a postgraduate fellowship from the National MS Society of New York. In 1993 he was appointed Assistant Professor of Neurology at the University of Southern of California, and in 1995 Assistant Professor of Microbiology and Molecular Immunology. In 1997 Dr. Correale returned to Buenos Aires as Head of Neuroimmunology and Demyelinataing Diseases at the Institute for Neurological Research Dr. Raúl Carrea, position he holds to this day. Between 1999 and 2001 Dr. Correale was Head of the Department of Neurology at the same Institution. Between 1998 and 2010 he was Associate Professor at the Austral University in Buenos Aires where he teaches: Clinical Neurophysiology, Pain Physiopathology and Treatment, and Neurology. He is member of the Argentine Medical Advisory Board for Multiple Sclerosis and member of the Medical and Scientific Board of the International Federation of Multiple Sclerosis Societies (IFMSS). Dr Correale is author of more than 140 papers published in Neurology and Immunology peer-review journals, and author of more than 45 chapters in books on MS and Neuroimmunology.

Heimberger, Amy MD
University of Texas - M.D. Anderson Cancer Center
Houston, TX | U.S.A

A graduate of Washington University, Dr. Amy B. Heimberger completed her surgical internship, neurosurgical residency, and neuro-oncology fellowship at Duke University Medical Center and is board certified in neurosurgery. Presently, she is a Professor of Neurosurgery at The University of Texas MD Anderson Cancer Center (MDACC) and Adjunct Professor, Department of Neurosurgery, Baylor College of Medicine (BCM). She was previously awarded the United States Presidential Early Career Award for Scientists and Engineers (PECASE) and currently holds a NIH RO1 evaluating the interaction of T cells and microglia within the glioma environment and is a Project Leader in the MDACC Brain and Melanoma SPOREs. In the last decade her laboratory has: 1) co-developed from bench to bedside a peptide (PEP-3-KLH/CDX-110) vaccine strategy that targets the epidermal growth factor receptor (EGFRvIII) that has demonstrated doubling of median survival of glioblastoma multiforme patients that is now in final registration clinical trials (licensed to Celldex Therapeutics); 2) clarified that the signal transducer and activator of transcription 3 (STAT3) pathway is a key molecular hub of gliomagenesis and tumor-mediated immune suppression; 3) conducted the pre-clinical development a novel small molecule inhibitor of STAT3, WP1066, which will be introduced into clinical trials in the next 18 months for melanoma patients with CNS metastasis and primary glioma patients; 4) showed that glioma-associated microglia/macrophages do not participate in anti-tumor immune responses but rather assist in potentiating gliomagenesis via STAT3; and 5) established that the glioma-associated cancer stem cells exerts immune suppressive properties on both the adaptive and innate arms of the immune system and showed this could be reversed with inhibitors of the STAT3 pathway. Her program

is actively involved in studying the mechanisms of glioblastoma-mediated immune suppression and devising therapeutics that can counter these effects to benefit malignant glioma patients.

Kaspar, Brian PhD
Nationwide Children's Hospital
Columbus, OH | U.S.A

The Kaspar Laboratory focuses on basic and translational studies related to neurological and neuromuscular disorders. The laboratory has strengths in animal models of neurodegenerative and neuromuscular disease, gene delivery, and stem cell biology. A main focus of the Kaspar laboratory is centered on the mechanism(s) of neurodegeneration in Amyotrophic Lateral Sclerosis (ALS). We employ rodent models of this disease to investigate various cell type involvements in disease onset and progression. Furthermore, we are actively developing novel methods to deliver genes and therapies more efficiently to the nervous system and testing of embryonic and adult derived stem cells. Our current studies with stem cells are evaluating cell cycle regulation along with developing methods for intricate control of differentiation to defined cellular phenotypes, such as complex motor neurons. Finally, our laboratory works on muscle enhancing strategies in order to combat musculoskeletal disorders. We have identified that follistatin is a potent antagonist of myostatin, and when delivered by a one-time gene delivery to skeletal muscle, enhances muscle size and mass. Interestingly, our work has demonstrated that follistatin reduces the inflammatory environment in dystrophic muscles and induces improvements in functional strength in rodent models of Duchene Muscular Dystrophy. We are currently involved with developing a human clinical trial for Inclusion Body Myositis with Dr. Jerry Mendell.

Landreth, Gary PhD
Case Western Reserve University
Cleveland, OH | U.S.A

My principal scientific interests are investigation of the biology of Alzheimer's disease and development of new therapeutics for AD. These basic science studies have identified new therapeutic targets, most prominently agonists of the nuclear receptors PPARĐ, LXR and RXR. We were the first to suggest and then validate the efficacy of PPARγ agonist in models of AD and participate in the translation of these findings into clinical trials. The first clinical trial of a PPARγ agonist in AD patients was carried out in Cleveland and I was a Co-PI of that trial. I have subsequently worked with GlaxoSmithKline in analysis of the outcome larger Phase III trials of the PPARγ agonist rosiglitazone in AD patients. We were the first to document the capacity of LXR and RXR agonists to ameliorate AD-related pathology and establish that this was due principally to the previously unappreciated ability of ApoE (an LXR target gene) to promote the proteolytic degradation of Aβ. The significance of this work is that it provided a new conceptual understanding of the biology of ApoE in the brain and argues that drugs that result in elevation of Brain ApoE levels will be of therapeutic benefit. Over the past 20 years we have investigated the microglia-mediated inflammatory response in the AD brain. The recent discovery that plaque associated macrophages are not microglia, but are derived from blood borne monocytes that infiltrate the AD brain, has substantially changed our thinking and experimental approach to this problem. The recent recognition that the activation status of microglia is governed by nuclear receptors allows new therapeutic approaches that regulate myeloid cell biology in the brain. These studies represent an important intellectual focus in the lab. I am committed to translating our studies of the basic biology of these processes into new therapeutic approaches to the disease.

Ousman, Shalina PhD
University of Calgary - Calgary | Canada

Dr. Shalina Ousman is an Associate Professor in the Departments of Clinical Neurosciences and, Cell Biology & Anatomy at the Hotchkiss Brain Institute, University of Calgary. Dr. Ousman completed her PhD in Neurosciences in 2001 with Dr. Samuel David at McGill University. She then completed two postdoctoral fellowships, the first with Dr. Iain Campbell in the Department of Neuropharmacology at The Scripps Research Institute (2001-2004) and the second with Dr. Lawrence Steinman in the Department of Neurology and Neurological Sciences at Stanford University (2007-2008). She is an AHFMR Scholar (2009-2016) and held a Dr. Donald Paty Career Development award from the Multiple Sclerosis Society of Canada from 2009-2015. Dr. Ousman is interested in identifying endogenous protective mechanisms in multiple sclerosis and peripheral nerve regeneration. Her research is funded by the Canadian Institute of Health Research, Multiple Sclerosis Society of Canada and Alberta Innovates-Health Solutions.

Popovich, Phillip PhD
Ohio State University - Columbus, OH | U.S.A

I received my PhD in Physiology with an emphasis on understanding the neuro-immune consequences of traumatic spinal cord injury (SCI). My postdoc training emphasized didactic and experimental training in Immunology. As such, my research training is interdisciplinary and all research programs in my laboratory approach the problem of SCI from a "systems" or whole-body perspective. I have a long history working in the field of SCI research and have established numerous collaborations throughout the world that have incorporated my neuroimmunology expertise. At Ohio State, I serve as Director for the Center for Brain and Spinal Cord Repair (CBSCR). The CBSCR is a large group of scientists with research and clinical expertise in the areas of traumatic brain or SCI. AT OSU, we have a strong and diverse technical infrastructure for SCI and TBI research and an extensive surgical, animal care and behavioral core facility that serves this research group. I have been continuously funded by the NIH since the inception of my laboratory and currently serve as PI or co-Investigator on multiple NIH- and DoD-funded grants focused on areas related to neuroimmunology and SCI.

Power, Christopher MD
University of Alberta - Edmonton | Canada

Christopher Power, B.Sc., M.D., F.R.C.P.C is a Professor of Neurology at the University of Alberta, holds a Canada Research Chair in Neurologic Infection and Immunity and is a Fellow of the Canadian Academy of Health Sciences. He received a B.Sc. (Hons.) from the University of Toronto and an M.D. from the University of Ottawa and subsequent training in medicine and neurology at McMaster University and the University of Western Ontario, respectively, with a postdoctoral fellowship at Johns Hopkins University and the National Institutes of Health in neurovirology and neuroimmunology. Dr. Power is an internationally recognized clinician-scientist, focused on the causes and potential treatments of neuroinflammatory diseases including Multiple Sclerosis and NeuroAIDS. Aside from leading the Laboratory for Neurologic Infection and Immunity, he is also an attending consultant in the University of Alberta HIV and MS Clinics together with Co-Director of the University of Alberta MS Centre. He is the author of over 160 peer-reviewed publications, 20 book chapters with an h index of 50.

Soliven, Betty MD

University of Chicago - Chicago, IL | USA

Dr. Betty Soliven graduated from neurology residency at the University of Chicago. She then completed an EMG-neuromuscular fellowship at Columbia University and joined the University of Chicago as a staff neurologist and clinician-scientist in 1989. Dr. Soliven has a broad background in neuroscience research including ion channels, glial biology and neuroimmunology, and animal models of neurologic diseases. Her long-standing clinical and research interest is peripheral neuropathy, particularly inflammatory neuropathy. That interest led to publications on Schwann cell biology, NGF trial in diabetic neuropathy, neuropathy associated with impaired glucose tolerance, and recent studies on a spontaneous immune polyneuropathy (SAP) in mice. She has identified myelin P0 as one of the auto-antigens causing SAP in that model, which may be relevant to chronic autoimmune neuropathies. She has also worked on sphingolipid mediated signaling and S1P receptor biology in oligodendrocytes and has found these receptors to be important therapeutic targets for glio-protection. Dr. Soliven is currently a Professor in the Department of Neurology at the University of Chicago.

Yong, V.Wee PhD

University of Calgary - Calgary | 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 regeneration, and his projects are guided by MS, spinal cord injury and brain tumors. Dr. Yong has published 250 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 14,500 times by other authors in scientific publications. Dr. Yong is the immediate past chair of the Medical Advisory Committee of the MS Society of Canada; this and other volunteer activities resulted in him receiving the Queen's Golden Jubilee Year Medallion. Dr. Yong is on the editorial board of 7 international journals. He is the current 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), which represent top honors for those working in the medical and academic sciences, respectively.

Scientific Program

DAY 1 OCTOBER 1, 2015

MORNING SESSION | 8.30 - 12.00
GENERAL THEMES

CHAIR: PHILLIP POPOVICH

	SPEAKERS AND TOPICS
8.30-9.20	**Shalina Ousman** **University of Calgary | Canada** Principles of Neuroimmunology
9.20-10.10	**Astrid Cardona** **University of Texas at San Antonio | USA** The microglia in health and pathology
10.40-11.30	**Betty Soliven** **University of Chicago | USA** Neuroimmunology of the PNS
11.30-12.00	**Morning Session Discussion**

AFTERNOON SESSION | 1.00 - 4.30
GENERAL THEMES

CHAIR: SHALINA OUSMAN

	SPEAKERS AND TOPICS
1.00-1.50	**Jorge Correale, Raul Carrea Institute for Neurological Research | Argentina** Environmental and lifestyle modulators of neuroimmunology
1.50-2.40	**Christopher Power** **University of Alberta | Canada** Immune responses to viral infections of the CNS
3.10-4.00	**Phillip Popovich** **Ohio State University | USA** Neuroimmunology in spinal cord injury
4.00-4.30	**Afternoon Session Discussion**

DAY 2 OCTOBER 2, 2015

MORNING SESSION | 8.30-12.00
DISEASES

CHAIR: V.WEE YONG

	SPEAKERS AND TOPICS
8.30-9.20	**Amit Bar-Or** **McGill University | Canada** Neuroimmunology in multiple sclerosis
9.20-10.10	**Amy Heimberger, University of Texas M.D. Anderson Cancer Center | USA** Neuroimmunology in brain tumors
10.40-11.30	**Kyra Becker** **University of Washington | USA** Neuroimmunology in stroke
11.30-12.00	**Morning Session Discussion**

AFTERNOON SESSION | 1.00-4.30
DISEASES

CHAIR: ASTRID CARDONA

	SPEAKERS AND TOPICS
1.00-1.50	**Brian Kaspar, Nationwide Children's Hospital, Columbus | USA** Neuroimmunology in ALS
1.50-2.40	**Gary Landreth,** **Case Western Reserve University | USA** Neuroimmunology in neurodegenerative disorders
3.10-4.00	**V. Wee Yong,** **University of Calgary | Canada** Neuroimmunology in repair of the nervous system
4.00-4.30	**Afternoon Discussion** **Wrap up**

Acknowledgements

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Calgary, Canada | October 1-2, 2015

Official website

www.asni.isniweb.org