



PsychoNeuroImmunology
Research Society



***PsychoNeuroImmunology
Research Society
22nd Annual Scientific Meeting
Seattle, Washington, USA
June 3-6, 2015***



www.pnirs.org

Frisk, H.

Message from the President of the PNIRS



On behalf of the Executive Committee and the Board of Directors, it is my pleasure to welcome you to Seattle for PNIRS 2015! Seattle is a beautiful and vibrant city, and I hope you enjoy the venue as much as the meeting itself.

The Program Committee has developed a scientific program that continues the long-standing tradition of excellent science in a single-track meeting. As in the past, the core of the meeting includes the Cousins Award Lecture, the Robert Ader New Investigator Award Lecture, the Presidential Symposium, and the Educational Short Course. We also continue this year the Frontiers in PNI lecture, which brings an outstanding scientist who is not a member of PNIRS to the meeting. The Frontiers in PNI lecture is supported by the PNIRS Excellence Fund. Finally, the George Solomon Memorial lecture, supported by a generous pledge from Susan Keran Solomon, recognizes the contributions to the development of PNI by one who was a true leader in the field.

The majority of the scientific program, however, was generated by you, members and non-members attending PNIRS 2015. Members of PNIRS proposed and submitted five symposia, of which two were selected for inclusion in the program. The 160 abstracts submitted were evaluated by the program committee and used to develop three oral sessions that highlight some new, and some old, research themes.

The PNIRS values and invests in trainees. We received 84 abstracts from trainees this year. Based on competitive review of these abstracts, 11 individuals were recognized as Trainee Scholars. New at PNIRS 2015 is an oral session entitled "Emerging PNI Investigators", which showcases research conducted by our trainees. Other opportunities for recognition of trainee's research efforts include two Poster DataBlitz sessions. These rapid-fire presentations, in which each speaker is limited to one slide and 90 seconds, are always informative and entertaining. Finally, this year, under the direction of the Chair of our Training Committee, Dr. Jonathan Godbout, we have opened our trainee program to include all trainees who attend the meeting.

At PNIRS 2015 we welcome our newly-elected officers and board members, who assume their positions at the close of the meeting. These include incoming President-elect Dr. Susan Lutgendorf, and new members of the Board of Directors, Drs. Chris Engeland, Deb Hodgson, and Ed Suarez. Dr. Annemieke Kavelaars assumes her position as President, and as such the leadership of PNIRS is in very good hands.

Societies cannot be effectively run, and scientific conferences be successfully conducted by the efforts of any single individual. I thank the Program Committee for their efforts in evaluating abstracts and developing the content of the meeting. The executive committee, composed of President-elect Annemieke Kavelaars, Past-president Rod Johnson, and Secretary-Treasurer Jan Moynihan, spent many hours on conference calls and provided critical input, feedback, and advice during this past year. As stated, societies and conferences are not successful because of the efforts of one individual, which is why PNIRS is fortunate to have two! Our Executive Director, Susan Keran Solomon, and our Administrator, Jackie Newman, are the driving know-how and energy behind the success of the PNIRS. Finally, thank you, members and non-members alike, for your continued attendance and participation in our meeting.

I look forward to personally welcoming you to the Emerald City for PNIRS 2015!

Sincerely,

Mark R. Opp
PNIRS President 2014 – 2015



Follow us on Twitter @PNIRS
#PNIRS2015

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Acknowledgements and Sponsors

We also gratefully appreciate the support of Elsevier, Inc. for sponsoring the Brain, Behavior, and Immunity Editorial Board luncheon and providing the complimentary copies of Brain, Behavior, and Immunity for non-member registrants.



ELSEVIER

About PNIRS

The PsychoNeuroImmunology Research Society is an international organization for researchers in a number of scientific and medical disciplines, including psychology, neurosciences, immunology, physiology, pharmacology, psychiatry, behavioral medicine, infectious diseases, endocrinology and rheumatology, who are interested in interactions between the nervous and immune systems, and the relationship between behavior and health. An important goal is to conduct basic research that can be translated into clinically relevant health applications.

The PsychoNeuroImmunology Research Society (PNIRS) was incorporated in the state of Pennsylvania in 1993 after a meeting in April of that year and is a nonprofit organization. During the meeting the founding members determined that the purpose of the Society is to promote the study of interrelationships among behavioral, neural, endocrine and immune processes and to encourage collaborations among immunologists, neuroscientists, clinicians, health psychologists and behavioral neuroscientists.

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Rodney Johnson (Past President)
Annemieke Kavelaars (President-Elect)
Jan Moynihan (Secretary/Treasurer)
Susan Solomon (Executive Director)

PNIRS Staff

Jackie Newman

PNIRS Trainee Scholars Program Coordinator

Jonathan Godbout

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Jason O'Connor
Staci Bilbo
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Therese Salameh (Trainee Member)
Diana Norden (Trainee Member)

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Rohan Walker
Bill Banks

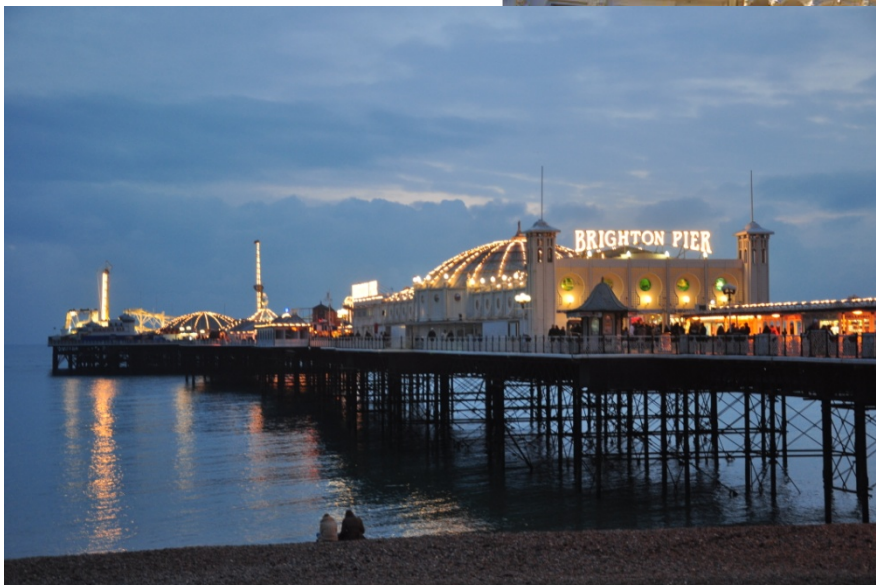
2016 Meeting



PNIRS 23rd Annual Scientific Meeting

*Brighton, UK
June 8-11, 2016*

Conference Hotel and Banquet Location: Grand Hotel, Brighton



General Information

Registration Desk

The registration desk is located in the *Ballroom Foyer area on the third floor*. Please check in to receive your name badge and conference materials. Name badges are required at all times in order to access sessions and events. The registration desk will be open during the following hours:

Wednesday, June 3: 11:00 am – 5:00 pm
Thursday, June 4: 8:00 am – 4:00 pm
Friday, June 5: 8:00 am – 4:00 pm
Saturday, June 6: 8:00 am – 4:00 pm

The registration desk will be closed Thursday, Friday, and Saturday during lunch.

Chairs/Co-Chairs

Chairs of the sessions should be in the designated room at least 10 minutes before the session starts in order to assist the speakers. Every effort should be made to keep the session on schedule.

Symposium and Oral Session Speakers

Speakers should go to the designated room a minimum of 10 minutes before the session starts. Please introduce yourself to the Chair of your session. Speakers must strictly adhere to the allocated time.

Poster Presenters

The Poster Sessions will be held in the *Ballroom and Cyan*. Push pins for mounting the posters will be provided. Look for your poster number in this Program Book. Remaining posters may be discarded if they are not taken down promptly.

Poster Session 1: Please hang your poster the morning of Thursday, June 4th, before 9:00 am. Remove your posters no later than the evening of Thursday, June 4th.

Poster Session 2: You may begin to hang your posters the morning of Friday, June 5th. Please remove your posters no later than the evening of Friday, June 5th.

Poster Data Blitz

The Poster Data Blitz talks will take place in the *Ballroom*. All Data Blitz participants will give a 1.5-minute oral presentation with a maximum of 1 slide. Given their brevity, please upload all files the day before your talk at either the registration desk or presentation table in the *Ballroom* at Data Blitz.

PNIRS Trainee Social

PNIRS Trainee Social is on **Friday, June 5** from 6-8 pm at the Club Room of the **Tap House Grill** 1506 6th Ave, Seattle, WA. Directions will be available at the registration desk. Nametag will be required for entrance.

Guests

Guests accompanying registrants are welcome to attend the Opening Reception and Banquet as long as they have registered. Guest tickets for both events can be purchased at the registration desk.

Phones

As a courtesy to presenters, speakers, and attendees, please switch cell phones to silent mode during all sessions and speakers. Please leave the session when answering calls.

Lost and Found

If you find articles left behind by other conference attendees, please bring items to the PNIRS registration desk for safe-keeping.

Certificates of Attendance and Participation

Please e-mail pnirs@pnirs.org to request a certificate. It will be e-mailed to you after the conference.

The Norman Cousins Award Lecture



The Norman Cousins Award is the highest honor given by the *PsychoNeuroImmunology Research Society* to an individual for outstanding contributions to research in psychoneuroimmunology. Norman Cousins was an articulate spokesman and advocate for psychoneuroimmunology, whose support and generosity has facilitated the career development of many investigators in this interdisciplinary field of endeavor. To contribute to the advancement of knowledge in psychoneuroimmunology, Ellen Cousins, Norman's wife, created the Norman Cousins Memorial Fund, and the California Wellness Foundation provided the endowment for the Norman Cousins Memorial Award and Lecture to be delivered as a highlight of the annual meeting of the *PsychoNeuroImmunology Research Society*.

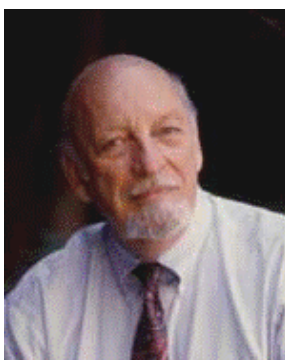
2015 Norman Cousins Award Lecture

*Neuroendocrine Immune Pathways in
Rheumatoid Arthritis*

Rainer Straub, M.D.

Professor of Experimental Medicine, Rheumatology and
Neuroendocrine-Immunology
Head, Laboratories of the Department of Internal Medicine I
Department of Internal Medicine
University Hospital, Regensburg, Germany

The Robert Ader New Investigator Award



In honor of Dr. Robert Ader, a pioneer in the field of psychoneuroimmunology, the *PsychoNeuroImmunology Research Society* presents the Robert Ader New Investigator Award. This prestigious award is presented to an outstanding new research scientist who has made exciting basic science or clinical contributions to the field of PNI. The award honors Dr. Ader's innovation and creativity as a scientist and recognizes his contributions to the instantiation of PNI as a meaningful endeavor dedicated to the betterment of health and the prevention of disease.

2015 Robert Ader New Investigator Award Lecture

*No Rest for the Weary: Chronicles of Sleep, Stress and
the Aging Immune System*

Aric Prather, Ph.D.

Assistant Professor and Associate Director
Center for Health and Community
Department of Psychiatry
University of California, San Francisco
School of Medicine

2016 COUSINS AND ADER AWARDS

The winners of the 2016 Norman Cousins Award Lecture and the Robert Ader New Investigator Award will be announced at the Closing Banquet on Saturday, June 6th.

The George Solomon Memorial Lecture



The George Solomon Memorial Lecture was newly established in 2014 and is named for a most prominent figure in the history of PNI. George Solomon was truly a visionary; very early in his career, he came to believe that certain diseases, such as autoimmune diseases, were modified by psychological factors. His formal investigations into the connections between the mind and body, as well as their implications for health and disease date back to his first published reports in the early 1960's. Throughout his illustrious career, Dr. Solomon was a strong leader of our field, an outspoken advocate for our science, and a warm and generous collaborator, mentor and friend. This lecture has been endowed by his wife, Susan Keran Solomon, to honor the history of PNI and the Society, and to provide an annual forum for discussion of the important interconnections between psychological and physical processes for health and illness.

2015 George Solomon Memorial Lecture

The Psycholmmunology of Stress and Aging

John Morley, M.D.

Professor of Internal Medicine
Director, Division of Endocrinology
Department of Internal Medicine
St. Louis University School of Medicine

The Frontiers in PNI Lecture



The *Frontiers in Psychoneuroimmunology* lecture is supported by generous donations to the PNIRS Excellence Fund. The PNIRS Excellence Fund was established in 2011 to recruit outstanding non-PNIRS member scientists to participate in our annual meetings. By supporting outstanding invited lectures, we aim to further increase the visibility of our Society and to inspire the next generation of scientists exploring brain, behavior, and immunity.

2015 Frontiers in PNI Lecture

*Twin Studies: Innovations and Opportunities
for PNI Research*

Dedra Buchwald, M.D.

Professor of Epidemiology and General Internal Medicine
Director of: Center for Clinical and Epidemiological Research
University of Washington Twin Registry;
Chronic Fatigue Clinic, Harborview Medical Center
University of Washington School of Medicine

PNIRS Trainee Scholars

Trainee Scholar	Presentation
Kuti Baruch	Oral Session 1
Larissa Dooley	Oral Session 1
Peter Grace	Data Blitz and Poster Session 1; Poster # 4
Karen Krukowski	Data Blitz and Poster Session 1 & 2; Poster # 32 & 19
Xiaoyu Liu	Data Blitz and Poster Session 2; Poster # 41
Daniel McKim	Data Blitz and Poster Session 1; Poster # 9
Diana Norden	Oral Session 1
Sarah Rosen	Oral Session 1
Hannah Thomasy	Data Blitz and Poster Session 2; Poster # 14
Elisabeth Vichaya	Data Blitz and Poster Session 1 & 2; Poster # 41 & 33
Vivek Philip	Oral Session 1

◇ Indicates a Trainee Scholar throughout the program

***Congratulations to our
2015 Trainee Scholars!***

PNIRS 2015 Schedule at a Glance

Time	Wednesday June 3	Thursday June 4	Friday June 5	Saturday June 6	Time			
8:00-8:30		Breakfast Available	Breakfast Available		8:00-8:30			
8:30-9:00	Financial Committee Meeting	Welcome Mark Opp, PhD	Symposium 3	Oral Session 3	8:30-9:00			
9:00-9:30					9:00-9:30			
9:30-10:00	Scientific Affairs Committee Meeting	Robert Ader Lecture Aric Prather, PhD	Member Sponsored Pivotal role of microglia in PNI processes	Oral Session 3	9:30-10:00			
10:00-10:30		Symposium 2			10:00-10:30			
10:30-11:00	Membership Committee Meeting	Presidential Symposium Sleep and Gliotransmission	Break	Break	10:30-11:00			
11:00-11:30				11:00-11:30				
11:30-12:00	Nominating Committee Meeting	Poster Data Blitz 1	Oral Session 2	Member Sponsored Exosomes and microRNA are modified by stressor exposure and can modulate inflammation and cancer immunity	11:30-12:00			
12:00-12:30					12:00-12:30			
12:30-1:00	Board of Directors Meeting (Lunch included)	Lunch-On Your Own Concurrently: Leader Lunch	Oral Session 2	Exosomes and microRNA are modified by stressor exposure and can modulate inflammation and cancer immunity	12:30-1:00			
1:00-1:30					1:00-1:30			
1:30-2:00					Poster Session 1	Lunch-On Your Own Concurrently: BBI Editorial Board Luncheon	Lunch-On Your Own	1:30-2:00
2:00-2:30						2:00-2:30		
2:30-3:00						Poster Data Blitz 2	Oral Session 4	2:30-3:00
3:00-3:30						Poster Session 2		3:00-3:30
3:30-4:00	Oral Session 1	Frontiers in PNI Lecture Dedra Buchwald, MD	George Solomon Memorial Lecture John Morley, MD	3:30-4:00				
4:00-4:30				4:00-4:30				
4:30-5:00	Molecular- genetic Dissection of Complex Networks	Break	Oral Session 1	PNIRS Business Meeting	4:30-5:00			
5:00-5:30					5:00-5:30			
5:30-6:00		Break		PNIRS Business Meeting	5:30-6:00			
6:00-6:30	Trainee-Mentor Colloquium (Pizza Provided)	Norman Cousins Lecture Rainer Straub, MD	Trainee Mixer Social (Tap House Grill)	Closing Banquet	6:00-6:30			
6:30-7:00					6:30-7:00			
7:00-7:30					7:00-7:30			
7:30-8:00					7:30-8:00			
8:00-8:30		Welcome Reception		Closing Banquet	8:00-8:30			
9:00-					9:00-			

Wednesday, June 3

8:30-3:00 COMMITTEE MEETINGS

Cyan Room, 3rd Floor

- 8:30 Financial Committee
- 9:30 Scientific Affairs Committee
- 10:30 Membership Committee
- 11:30 Nominating Committee
- 12:30 Board of Directors Meeting (lunch included)

3:00-5:30 EDUCATIONAL SHORT COURSE

Ballroom, Third floor

Chair: Mark Opp

Molecular-Genetic Dissection of Complex Networks

DREADDing Addiction

John Neumaier

Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle

DREADDed Microglia in Pain: Implications for Inflammatory Signaling

Peter Grace ♦

Department of Psychology and Neuroscience, University of Colorado, Boulder

Brain-wide Circuit Mapping using Genetic Approaches

Hongkui Zeng

Senior Director, Research Science
Allen Institute for Brain Science, Seattle

Deciphering Neural Circuits that Control Appetite

Richard Palmiter

Department of Biochemistry, University of Washington School of Medicine, Seattle

6:00-8:00 TRAINEE/MENTOR COLLOQUIUM (All Trainees, pizza provided)

Ballroom, Third floor

Welcome

Mark Opp, President PNIRS

Why PNIRS, a Brief History of the Society and its Impact

Annemieke Kavelaars, President-Elect, PNIRS

How to Publish in Brain Behavior and Immunity?

Keith Kelley, Editor-in-Chief, *Brain, Behavior and Immunity*
Toby Charkin, Elsevier

Tips on NRSA Grant Writing

Jonathan Godbout, PNIRS Trainee Committee Chair

Meet the Experts

Thursday, June 4

8:00-9:00 **BREAKFAST**
Ballroom Foyer, Third floor

9:00-9:30 **WELCOME**
Ballroom, Third floor
Mark Opp, President PNIRS

9:30-10:00 **ROBERT ADER LECTURE**
Ballroom, Third floor
Nominator: Anna Marsland



No Rest for the Weary: Chronicles of Sleep, Stress and the Aging Immune System

Aric Prather

Assistant Professor and Associate Director, Center for Health and Community,
Department of Psychiatry, University of California, San Francisco School of Medicine

10:00-12:00 **SYMPOSIUM 2: PRESIDENTIAL SYMPOSIUM**
Ballroom, Third floor
Chair: Mark Opp

Sleep and Gliotransmission

Glial Modulation of Sleep Homeostasis and Narcolepsy

Philip G Haydon

Department of Neuroscience, Tufts University School of Medicine

Astrocyte-mediated Synaptic Plasticity in Sleep Regulation: Role of Glial Glutamate transporter-1

Kazuo Semba

Department of Medical Neuroscience, Dalhousie University

Getting Old is a Dirty Business: Sleep, Waste, and Neurodegeneration

Jeffrey J. Illiff

Department of Anesthesiology and Perioperative Medicine, Oregon Health and Science University

12:00-12:30 **POSTER DATA BLITZ 1**
Ballroom
Chair: Anzela Niraula

Poster Number	Title
4*◇	Selective manipulation of spinal microglia by chemogenetics: implications for allodynia and inflammatory signaling. P. M. Grace, X. Wang, D. J. Urban, M. V. Baratta, E. L. Galer, K. A. Strand, Y. Zhang, H. Yin, B. L. Roth, S. F. Maier, L. R. Watkins [1532]
32*◇	Identification of CD8+ T lymphocytes as a critical step in the recovery from paclitaxel-induced peripheral neuropathy. K. Krukowski, N. Eijkelkamp, C. J. Heijnen, A. Kavelaars [1604]
9*◇	Sympathetic Release of Splenic Monocytes Promotes Recurring Anxiety Following Repeated Social Defeat. D. B. McKim, J. M. Patterson, E. S. Wohleb, B. L. Jarrett, B. Reader, J. P. Godbout, J. F. Sheridan [1545]
41*◇	Chemoradiation abrogates inflammation, induces sickness behavior, activates hypoxia signaling pathways, and causes mitochondrial dysfunction in a syngeneic murine model of head and neck cancer. E. G. Vichaya, J. M. Molckentine, D. W. Vermeer, A. K. Walker, R. Feng, G. Holder, K. Luu, R. M. Mason, L. Saligan, C. J. Heijnen, A. Kavelaars, K. A. Mason, J. H. Lee, R. Dantzer [1638]
29*	Diminished circadian rhythms in microglia may contribute to age-related neuroinflammatory sensitization. L. K. Fonken, M. M. Kitt, L. R. Watkins, R. M. Barrientos, S. F. Maier [1595]
8*	Endotoxemia-induced cytokine reactions by hippocampal astrocytes mediated by cells in the brain-immune interface. S. Hasegawa-Ishii, M. Inaba, H. Umegaki, A. Shimada [1540]
23*	Region-specific response to shortened sleep in childhood: Associations with performance and myelination. S. Kurth, D. C. Dean, P. Achermann, J. O'Muircheartaigh, R. Huber, S. C. Deoni, M. K. LeBourgeois [1583]
13*	Alpha2-adrenergic blockade emulates the enhancing effect of chronic stress on breast cancer progression. D. M. Lamkin, S. W. Cole, E. K. Sloan [1550]
10*	Repeated Social Defeat Stress Induces Neuroinflammation and Impairs Hippocampal Neurogenesis That Differentially Regulate Mood and Cognition. A. Niraula, D. B. McKim, A. J. Tarr, E. S. Wohleb, D. T. Shea, K. M. Atchenson, J. F. Sheridan, J. P. Godbout [1546]
31*	Salivary cortisol, CRP, and neutrophil/lymphocyte ratios in distressed caregivers. T. S. Sannes, S. J. Philips, P. A. Benitez, C. L. Natvig, S. K. Mikulich-Gilbertson, T. L. Simoneau, M. L. Laudenslager [1601]
18*	Good moments add up for inflammatory health: Associations of momentary positive events with inflammatory state and responsiveness. N. L. Sin, J. E. Graham-Engeland, D. M. Almeida, M. J. Sliwinski, J. M. Smyth, R. B. Lipton, M. J. Katz, C. G. Engeland [1570]
19*	Acute calorie restriction modifies cognition and anxiety-like behavior in mice by regulating IL-1 β priming and activation within the brain. A. E. Towers, M. Oelschlager, J. Patel, M. Lawson, R. McCusker, G. Freund [1571]

12:30-1:30 LUNCH (On Your Own)
Concurrently: Leader Luncheon (Invitation only)
Cobalt Room, Third Floor

1:30-3:30 POSTER SESSION 1
Ballroom and Cyan Room, Third Floor

See poster number list in back of program. The number in bracket [nnnn] indicates the abstract number in the booklet.

The abstract booklet was e-mailed to all participants. To have another copy e-mailed to you please stop by the registration desk.

3:30-5:30 ORAL SESSION 1
Ballroom, Third Floor
Chair: Jonathan Godbout

Emerging PNI Investigators

- 3:30 *Age-associated immunological dysfunction of the brain's choroid plexus negatively affects cognition and hippocampal neurogenesis*
K. Baruch, A. Deczkowska, M. Schwartz [1525] ◇
- 3:45 *Implications of stress and infection on neuroimmune function and behavior as potential risk factors for developing postpartum depression*
C. K. Posillico, J. M. Schwarz, Ph.D. [1530]
- 4:00 *BDNF Met allele as a risk factor for inflammation-induced depression in breast cancer survivors*
L. N. Dooley, P. A. Ganz, S. W. Cole, J. E. Bower [1552] ◇
- 4:15 *Age-Related Impairments in the Dynamic Regulation of Active Microglia by Astrocytes*
D. M. Norden, P. T. Trojanowski, F. R. Walker, J. P. Godbout [1567] ◇
- 4:30 *Childhood Adversity and the Maternal Psychological-Inflammatory Profile During Pregnancy*
K. J. Kotz Fishe, D. Tell, H. L. Mathews, L. Witek Janusek [1599]
- 4:45 *The Role Of Immune System Maturation in Gut-Microbiota-Brain Axis Communication*
V. Philip, J. Lu, H. J. Galipeau, E. F. Verdu, K. D. McCoy, P. Langella, A. J. Macpherson, S. Hapfelmeier, M. G. Surette, S. M. Collins, P. Bercik [1641] ◇
- 5:00 *Concordance of Serum Cytokines and Stimulated Mononuclear Cell Responses in Older Adults*
D. N. Rendina, C. D. Ryff, C. L. Coe [1649]
- 5:15 *Complete Reversal of Neuropathic and Inflammatory Mechanical Allodynia in Pregnant Mice*
S. Rosen, J. Austin, J. S. Mogil [1660] ◇

5:30-6:00 BREAK
Ballroom Foyer, Third Floor

Friday, June 5

8:00-9:00 **BREAKFAST**
Ballroom Foyer, Third floor

9:00-11:00 **MEMBER SPONSORED SYMPOSIUM**
Ballroom, Third floor
Chair: Raz Yirmiya

The Pivotal Role of Microglia in Psychoneuroimmunological Processes

Microglial Biology and Pathology

Wolfgang J. Streit

University of Florida College of Medicine, Gainesville

Innate immunity in the CNS: Redefining the relationship between the CNS and its environment

Serge Rivest

Laval University, Quebec

Microglia, Stress and Depression

Raz Yirmiya

The Hebrew University of Jerusalem, Jerusalem

Microglia in the Aged Brain

Jonathan Godbout

The Ohio State University

Discussant: Jonathan Kipnis, University of Virginia School of Medicine, Charlottesville

11:00-11:30 **BREAK**
Ballroom Foyer, Third floor

11:30-1:00 **ORAL SESSION 2**
Ballroom, Third floor
Chair: Annemieke Kavelaars

11:30 *Beta-adrenergic Activation of Epithelial-Mesenchymal Transition in Ovarian Cancer*
S. K. Lutgendorf, P. H. Thaker, G. M. Slavich, M. J. Goodheart, D. P. Bender, L. Dahmouh, D. M. Lubaroff, F. Penedo, K. DeGeest, J. Arevalo, A. K. Sood, S. W. Cole [1511]

11:45 *Exercise alters the gut microbiome and microbial metabolites: implications for colorectal cancer and inflammatory bowel disease*
J. A. Woods, J. M. Allen, M. E. Berg Miller, B. A. White, H. Gaskins, V. Nehra [1533]

12:00 *Increased Inflammation is Associated with Increased Glutamate in the Basal Ganglia of Depressed Patients*
E. Haroon, J. C. Felger, J. M. Jung, E. C. Wommack, B. J. Woolwine, X. Chen, X. P. Hu, A. H. Miller [1598]

12:15 *Altered brain perfusion and structure accompany experimental sepsis-associated encephalopathy: a combined magnetic resonance imaging and histology study*
I. Dhaya, M. Griton, G. Raffard, R. Rouland, B. Hiba, J. P. Konsman [1618]

12:30 *The gut-immune-brain interactome and microbial dysbiosis in psychiatric disorders.*
E. G. Severance, E. Prandovszky, K. L. Gressitt, C. Steinfeldt, F. Leister, F. Dickerson,
R. H. Yolken [1619]

12:45 *Functional impact of IBS-D microbiota on the gut-brain axis*
G. De Palma, M. D. Lynch, L. Jun, V. T. Dang, Y. Deng, J. Jury, G. Umeh, P. M.
Miranda, M. Pigrau, S. Sidani, P. G. McLean, G. Moreno-Hagelsieb, M. G. Surette, G. E.
Bergonzelli, E. F. Verdu, P. Britz-McKibbin, J. D. Neufeld, S. M. Collins, P. Bercik [1657]

1:00-2:30 LUNCH (On Your Own)

Concurrently: BBI BOARD MEETING (Invitation only)
Azure Room, Third Floor

2:30-3:00 POSTER DATA BLITZ 2
Ballroom, Third floor
Chair: Caroline Sawicki

Poster Number	Title
33*◇	Leucine blocks lipopolysaccharide-induced depression-like behavior by interfering with kynurenine influx into the brain. A. Walker, E. G. Vichaya, E. Wing, W. A. Banks, R. Dantzer [1639]
41*◇	Brain endothelial IL-1R1 mediates central IL-1 induced neuroinflammation and anxiety-like behavior. X. Liu, N. Belevych, N. Quan, Q. Chen, J. Zuo, D. P. Nemeth, A. J. Tarr, A. S. Ismail [1561]
14*◇	Effects of Traumatic Brain Injury (TBI) on Hypocretin Neurons and Sleep of Mice. H. E. Thomasy, H. Y. Febinger, K. M. Ringgold, C. Gemma, M. R. Opp [1573]
2*	Altered brain development in fetal and neonatal piglets following maternal porcine respiratory and reproductive syndrome virus (PRRSV) infection. B. Balakrishnan, R. W. Johnson [1624]
9*	Microglia show sex-differences in gene expression patterns over development and following immune challenge: Relevance for sex-differences in neurodevelopmental disorders. R. Hanamsagar, J. Bolton, M. Alter, S. Bilbo [1544]
15*	Effects of sleep disruption and overnutrition on inflammation and glycemic control in mice. J. M. Ho, M. R. Opp [1574]
19*◇	Prevention of chemotherapy-induced peripheral neuropathy by the small-molecule inhibitor Pifithrin-mu in a mouse model. K. Krukowski, C. H. Nijboer, X. Huo, M. Maj, A. Kavelaars, C. J. Heijnen [1603]
34*	Neuroprotection by caloric restriction is associated with a distinct state of hippocampal energy metabolism linked to PGC-1alpha and GSK3beta. S. A. Martin, T. M. DeMuth, K. N. Miller, M. A. Polewski, R. J. Colman, K. W. Eliceiri, T. M. Beasley, S. C. Johnson, R. M. Anderson [1640]
8*	CX3CR1 (fractalkine receptor)-deficient mice exhibit resilience to chronic unpredictable stress-induced depressive-like behavior and suppressed neurogenesis. N. Rimmerman, N. Schottlender, R. Yirmiya [1542]

22*	Acute and innocuous CpG-C immune stimulation potentiates host resistance to hepatic metastases of colon cancer and protects against immunosuppressive effects of surgery. L. Sorski, R. Melamed, H. Lavon, P. Matzner, E. Rosenne, S. Ben-Eliyahu [1616]
11*	Early Life Programming of Pain: Neuroimmune to Endocrine Symphony. I. Zouikr, M. H. James, E. J. Campbell, A. F. Ahmed, J. C. Horvat, P. M. Hansbro, V. L. Clifton, K. W. Beagley, R. F. Thorne, C. V. Dayas, D. M. Hodgson [1553]

3:00-5:00

POSTER SESSION 2

Ballroom and Cyan Room, Third floor

See poster number list in back of program. The number in bracket [nnnn] indicates the abstract number in the booklet.

The abstract booklet was e-mailed to all participants. To have another copy e-mailed to you please stop by the registration desk.

5:00-6:00

FRONTIERS IN PSYCHONEUROIMMUNOLOGY

Ballroom, Third floor

Chair: Mark Opp

Twin Studies: Innovations and Opportunities for PNI Research

Dedra Buchwald

Professor of Epidemiology and General Internal Medicine, Director of: Center for Clinical and Epidemiological Research; University of Washington Twin Registry; Chronic Fatigue Clinic, Harborview Medical Center, University of Washington School of Medicine, Seattle



Dedra S. Buchwald, M.D. is Professor of Epidemiology, General Internal Medicine, and Director of the Center for Clinical and Epidemiological Research (CCER) at the University of Washington, Seattle. Dr. Buchwald leads an interdisciplinary group of researchers and clinicians whose research focuses on Chronic Pain and Chronic Fatigue, and American Indian and Alaska Native Health, including research relating to cancer, aging, cardiovascular health, smoking, health promotion, trauma and PTSD, and workplace health. Dr. Buchwald also directs the University of Washington Twin Registry, the largest active twin registry in the US, which has supported studies in pain, metabolism, sleep, eating disorders, and physical activity.

Saturday, June 6

9:00-10:30 ORAL SESSION 3

Ballroom, Third floor

Chair: Ed Suarez

- 9:00 *Effects of vagus nerve stimulation on neurophysiological parameters and the cellular immune response in the rat brain during endotoxemia*
H. Schweighöfer, C. Rummel, J. Roth, B. Rosengarten [1536]
- 9:15 *Sleep disruption and high risk of sleep apnea are independent predictors of increased disease activity in rheumatoid arthritis patients*
K. Scheuermaier, R. Patel, A. Solomon, L. Dessein, P. Dessein [1543]
- 9:30 *Experimental endotoxemia induces increased functional connectivity between the thalamus and the default mode network in healthy men*
F. Labrenz, K. Wrede, H. Engler, M. Schedlowski, S. Elsenbruch, S. Benson [1554]
- 9:45 *Central Sympathetic Inhibition Ameliorates Joint Pathology and Shifts Cytokines Profiles in Spleen but Not Joint Draining Lymph Nodes in a Model of Rheumatoid Arthritis*
D. Lorton, C. Lubhan, J. Schaller, T. Osredkar, D. Bellinger [1627]
- 10:00 *Red blood cell long-chain polyunsaturated fatty acid (LC-PUFA) levels in pregnant women predict length of gestation via effects on sleep quality and inflammation*
L. M. Christian, L. M. Blair, K. Porter, M. Lower, R. M. Cole, M. A. Belury [1630]
- 10:15 *Longitudinal relationship between inflammation and poor self-rated health in elderly*
M. Lekander, F. K. Arnberg, S. C. Segerstrom [1643]

10:30-11:00 BREAK

Ballroom Foyer, Third floor

11:00-1:00 MEMBER SPONSORED SYMPOSIUM

Ballroom, Third floor

Chair: Monika Fleshner

Exosomes and microRNA are modified by Stressor Exposure and can modulate Inflammation and Cancer Immunity

Acute Stressor Exposure Modulates Plasma Exosomal miRNA and Hsp72 cargo

Monika Fleshner

University of Colorado, Boulder

Cancers Exploit Exosome-Mediated Suppression of T cell Immunity

Michael Graner

University of Colorado Anschutz Medical Campus, Aurora

Repeated Social Stressor Exposure Modulates Myeloid miRNA profiles

Seung Ho Jung

The Ohio State University, Columbus

Discussant: John Sheridan, Professor of Biosciences, The Ohio State University College of Dentistry, Columbus

1:00-2:30 **LUNCH** (On Your Own)

2:30-4:30 **ORAL SESSION 4**

Ballroom, Third floor

Chair: Rohan Walker

- 2:30 *Neuron-specific interleukin-1 receptor accessory protein (AcPb) modulates sleep- and wake-like states in vivo and in vitro*
P. Taishi, K. Jewett, A. Johnson, C. J. Davis, K. Quigley, S. Roy, J. M. Krueger [1510]
- 2:45 *Effects of chronic social defeat on splenic chemokine expression and myeloid cell infiltration into the brain*
O. Ambree, C. Ruland, P. Zwanzger, V. Arolt, J. Alferink [1512]
- 3:00 *NREM sleep is increased in high-aggressive, but not in non-aggressive rats by an immune challenge* L. Imeri,
L. Carnevali, S. Bianchi, A. Sgoifo [1523]
- 3:15 *Memory reconsolidation prevents extinction of learned immunosuppression*
M. Schedlowski, M. Hadamitzky, K. Boesche, L. Lueckemann, H. Engler [1534]
- 3:30 *Activation of the brain's reward system promotes protective immunity*
T. L. Ben Shannan, H. Azulay-Debby, T. Dubovik, E. Starosvetsky, B. Korin, F. Hakim, S. S. Shen-Orr, A. Rolls [1539]
- 3:45 *Behaviorally conditioned immunosuppression: Effects of pre-exposure to the unconditioned (US) and conditioned (CS) stimulus*
M. Hadamitzky, K. Bösche, L. Lückemann, H. Engler, M. Schedlowski [1579]
- 4:00 *β 2-adrenoceptor signal is augmented in B cells in the course of arthritis to increase IL-10*
G. Pongratz, C. Wiest, M. Melzer, R. H. Straub [1594]
- 4:15 *The perioperative use of the sedative dexmedetomidine in cancer patients may have detrimental effects*
H. Lavon, R. Krigman, E. Elbaz, L. Sorski, P. Matzner, L. Shaashua, A. Benbenishty, J. P. Cata, V. Gottumukkala, S. Ben-Eliyahu [1615]

4:30-5:30 **GEORGE SOLOMON MEMORIAL LECTURE**

Ballroom, Third floor

Chair: Bill Banks



The Psycholmmunology of Stress and Aging

John Morley

Professor of Internal Medicine, Director, Division of Endocrinology,
St. Louis University School of Medicine, St. Louis

John E. Morley, M.D., is Dammert Professor of Gerontology and Division Chief of Geriatrics in the Department of Internal Medicine at Saint Louis University, St. Louis. Dr. Morley is one of the nation's foremost authorities on geriatrics, and an internationally known expert in nutrition, aging and sexuality, Alzheimer's disease and general aging issues. An endocrinologist as well as a geriatrician, Morley is also frequently consulted about athletes who use steroids and other hormones to enhance performance. Dr. Morley is recipient of numerous national awards for his leadership in geriatrics and for his research on obesity.

5:30-6:30 **BUSINESS MEETING** (All attendees are encouraged to attend)

Ballroom, Third floor

7:00- **CLOSING BANQUET** (Included)

Chihuly Garden and Glass

Presentation of the 2016 Norman Cousins and Robert Ader New Investigator Awards

Poster Session 1, Thursday, June 4

*Indicates participation in the Data Blitz; Number in brackets is abstract number in abstract booklet.

◇ Indicates a Trainee Scholar

Posters 1 to 46 will be presented in BALLROOM	
1	A modified and cost effective method for hair cortisol analysis. L. Xiang, I. Sunesara, K. Rehm, G. D. Marshall, Jr. [1515]
2	Posttraumatic stress & Oxytocin in Women with a Premature Infant in the Neonatal Intensive Care Unit. L. Garfield, D. Holditch-Davis, C. Giurgescu, C. Carter, B. L. McFarlin, D. Schwertz, J. S. Seng, R. White-Traut [1516]
3	Anxiolytic drug, adaptol and Rg1, down-regulated inflammatory cytokines, but did not have any effect on anxiety-like behavior in mice exposed to war-field-like environment. D. Kim, C. Kim, K. Lim, Y. Heo, K. Cheon [1531]
4*◇	Selective manipulation of spinal microglia by chemogenetics: implications for allodynia and inflammatory signaling. P. M. Grace, X. Wang, D. J. Urban, M. V. Baratta, E. L. Galer, K. A. Strand, Y. Zhang, H. Yin, B. L. Roth, S. F. Maier, L. R. Watkins [1532]
5	RNA Microarray Analysis in Dried Blood Spots. A. Danese [1535]
6	Generalist Association Between Inflammation and Psychopathology. A. Danese [1537]
7	Dark chocolate consumption buffers intracellular pro-inflammatory reactivity to acute psychosocial stress in healthy men. U. Kuebler, A. Arpagaus, R. E. Meister, R. von Känel, S. Huber, U. Ehlert, P. H. Wirtz [1538]
8*	Endotoxemia-induced cytokine reactions by hippocampal astrocytes mediated by cells in the brain-immune interface. S. Hasegawa-Ishii, M. Inaba, H. Umegaki, A. Shimada [1540]
9*◇	Sympathetic Release of Splenic Monocytes Promotes Recurring Anxiety Following Repeated Social Defeat. D. B. McKim, J. M. Patterson, E. S. Wohleb, B. L. Jarrett, B. Reader, J. P. Godbout, J. F. Sheridan [1545]
10*	Repeated Social Defeat Stress Induces Neuroinflammation and Impairs Hippocampal Neurogenesis That Differentially Regulate Mood and Cognition. A. Niraula, D. B. McKim, A. J. Tarr, E. S. Wohleb, D. T. Shea, K. M. Atchenson, J. F. Sheridan, J. P. Godbout [1546]
11	Epigenetic basis for psychological stress-induced IFN γ production in women diagnosed with breast cancer. M. S. Misale, L. Janusek, H. Mathews [1547]
12	Glucocorticoid Influence on IFN γ Production and the Epigenetic Landscape. M. S. Misale, L. Janusek, H. Mathews [1565]
13*	Alpha2-adrenergic blockade emulates the enhancing effect of chronic stress on breast cancer progression. D. M. Lamkin, S. W. Cole, E. K. Sloan [1550]
14	Proinflammatory receptor switch from Gas to Gai signaling in mixed RA synovial cells caused by the interaction of PDE4 and β -arrestin. Z. Jenei-Lanzl, J. Zwingenberg, T. Lowin, S. Anders, R. H. Straub [1555]
15	Dyadic coping moderates the impact of individual coping strategies on CRP among individuals facing chronic parenting stress. J. Gouin, S. Scarcello, C. Paquin, E. T. Barker [1558]

16	PNI Dysregulation in Minority and Low-Income Postpartum Women: A Persistent Fingerprint of Disadvantage. E. J. Corwin, D. McCarthy, S. Paul [1564]
17	Glutamatergic transmission is enhanced in the amygdala in Experimental Autoimmune Encephalomyelitis. S. Acharjee, A. Benediktsson, Q. Pittman [1549]
18*	Good moments add up for inflammatory health: Associations of momentary positive events with inflammatory state and responsiveness. N. L. Sin, J. E. Graham-Engeland, D. M. Almeida, M. J. Sliwinski, J. M. Smyth, R. B. Lipton, M. J. Katz, C. G. Engeland [1570]
19*	Acute Calorie restriction modifies cognition and anxiety-like behavior in mice by regulating IL-1 β priming and activation within the brain. A. E. Towers, M. Oelschlager, J. Patel, M. Lawson, R. McCusker, G. Freund [1571]
20	The wake-promoting drug Modafinil prevents the depressive-like behavior induced by LPS in mice. A. Zager, R. O. Margatho, W. N. Brandão, J. Peron, M. L. Andersen, J. Palermo-Neto [1572]
21	Glyburide administration reduces anxiety-like behaviors and mild cognitive impairment induced by short-term high-fat diet feeding exhibiting a role for the hippocampus and amygdala. S. J. Gainey, V. L. Tir, M. M. Pillote, G. G. Freund [1578]
22	Understanding 'stress x microglial interactions' in stroke-induced secondary neurodegeneration: a major opportunity for the preservation of viable brain tissue. F. Walker, K. Jones, I. Zouikr, M. Patience, A. Clarkson, N. Spratt, S. J. Johnson, M. Nilsson [1580]
23*	Region-specific response to shortened sleep in childhood: Associations with performance and myelination. S. Kurth, D. C. Dean, P. Achermann, J. O'Muircheartaigh, R. Huber, S. C. Deoni, M. K. LeBourgeois [1583]
24	Hippocampal brain derived neurotrophic factor levels are mediated by T cells in response to stress. S. M. Clark, X. Li, L. H. Tonelli [1584]
25	Brain Kynurenines are Modulated in a Sex-Specific Manner in Periadolescent Rats Exposed to Poly I:C In Utero. C. N. Vaughn, J. A. Soroka, L. H. Tonelli [1586]
26	Subjective Social Status predicts inflammatory responses to acute stress only in non-white individuals. A. Fiksdal, M. V. Thoma, L. Hanlin, D. Gianferante, X. Chen, N. Rohleder [1587]
27	Respiratory viral infection in neonatal piglets is associated with up regulation of microglial sensome transcripts in the hippocampus and increased microglial cell activity. P. Ji, K. M. Schachtschneider, L. B. Schook, R. W. Johnson [1588]
28	Compassionate goals as a buffer against inflammation-associated social disconnection: A study in romantically involved couples. A. Keaveney, J. Crocker, K. Lewis, B. Way [1592]
29*	Diminished circadian rhythms in microglia may contribute to age-related neuroinflammatory sensitization. L. K. Fonken, M. M. Kitt, L. R. Watkins, R. M. Barrientos, S. F. Maier [1595]
30	A randomised controlled trial of resistance exercise prior to administration of influenza vaccination in older adults. K. M. Edwards, A. R. Pascoe, M. A. Fiatarone-Singh, N. A. Singh, J. Kok, R. Booy [1600]
31*	Salivary cortisol, CRP, and neutrophil/lymphocyte ratios in distressed caregivers. T. S. Sannes, S. J. Philips, P. A. Benitez, C. L. Natvig, S. K. Mikulich-Gilbertson, T. L. Simoneau, M. L. Laudenslager [1601]
32* \diamond	Identification of CD8+ T lymphocytes as a critical step in the recovery from paclitaxel-induced peripheral neuropathy. K. Krukowski, N. Eijkelkamp, C. J. Heijnen, A. Kavelaars [1604]

33◇	An HDAC6 inhibitor for treatment of chemotherapy-induced peripheral numbness and pain in a mouse model. K. Krukowski, C. J. Heijnen, O. Golonzhka, T. Gutti, M. Jarpe, A. Kavelaars [1612]
34	Childhood Adversity and Chronic Stress Influence Vagal Tone and the Proinflammatory Response to Acute Stress in Women with Breast Cancer. D. Tell, R. L. Burr, H. L. Mathews, L. Witek Janusek [1607]
35	Adrenarchal status as a moderator of a depression-inflammation relation in children M. L. Byrne, F. Delany, N. B. Allen [1608]
36	Slow-wave sleep serves psychological and immunological memory formation. T. Lange, J. Textor, J. Westermann, J. Born [1609]
37	Is Relational Early Life Stress Linked to Mood, Personality Traits and Pain Responses? M. D. Bartholomeusz, R. Callister, P. Bolton, D. Hodgson [1606]
38	An animal model that investigates the mechanisms of combined CNS injury and possible therapeutic strategies for co-morbid alcohol dependence and chronic viral infection. J. M. Loftis, J. Taylor, H. Raue, B. Fuller, P. Hauser, M. Slifka [1629]
39	Circulating Hematopoietic Progenitor Cell Number is Associated with Prefrontal Cortical Thickness, White Matter Integrity and PTSD duration in Combat-Exposed Veterans. K. Aschbacher, S. Mellon, E. Sinclair, C. R. Marmar, C. Henn-Haase, D. Abu-Amara, R. Yehuda, J. Flory, L. Bierer, O. M. Wolkowitz, S. Mueller [1632]
40	Effect of the truncal vagotomy on the secretion of IgA in Peyer's patches and lamina propria in small intestine of BALB/c mice. A. Resendiz Albor, M. Salas-Pimentel, I. Arciniega-Martinez, A. García-Fonseca, E. Martínez-Becerril, T. Cruz-Hernandez, R. Campos-Rodriguez [1634]
41*◇	Chemoradiation abrogates inflammation, induces sickness behavior, activates hypoxia signaling pathways, and causes mitochondrial dysfunction in a syngeneic murine model of head and neck cancer. E. G. Vichaya, J. M. Molkenkine, D. W. Vermeer, A. K. Walker, R. Feng, G. Holder, K. Luu, R. M. Mason, L. Saligan, C. J. Heijnen, A. Kavelaars, K. A. Mason, J. H. Lee, R. Dantzer [1638]
42	Assessment of social behavior in rats exposed to sick partners and its relation to central cytokine expression. E. K. Hamasato, D. Lovelock, J. Palermo-Neto, T. Deak [1642]
43	Environmental mold exposure, brain inflammation, and spatial memory deficits. C. F. Harding, D. Liao, R. Persaud, K. Lin, K. Page, C. Pytte [1661]
44	What Your Monocytes Say About Your Mind and Body and Why We Should Listen: Impaired β 2-ARs and GRs may explain obesity-related low-grade inflammation and depressive mood. S. Hong, S. Dimitrov, T. Cheng, C. Pruitt, F. Shaikh [1662]
45	Is health anxiety related to disease avoidance? J. Axelsson, M. Lekander, B. Karshikoff, E. Hedman [1683]
46	
Posters 47 to 66 will be presented in CYAN	
47	Impaired ability of cortisol to regulate leukocyte homeostasis in response to stress in overweight and obese individuals. C. McInnis, M. V. Thoma, D. Gianferante, L. Hanlin, X. Chen, N. Rohleder [1513]
48	Exploration of macrophage migratory inhibitory factor (MIF) profiles with sleep and outcomes during pregnancy. M. L. Okun, K. M. Edwards, K. M. Edwards [1541]
49	Early life overfeeding programs reproductive development in the female rat. L. Sominsky, I. Ziko, J. M. Barwood, S. J. Spencer [1551]
50	Dermal Wounds Alter Tumor Immunobiology in Mice. L. M. Pyter, Y. Husain, H. Calero, D. McKim, H. Lin, J. F. Sheridan, J. P. Godbout, C. G. Engeland, P. T. Marucha [1559]

51	Increased Inflammatory Markers in Late Pregnancy Depression: The Role of Progesterone and Allopregnanolone. L. M. Osborne, F. Gispen, S. Meilman, A. R. Gocke, D. M. Tosi, J. L. Payne [1591]
52	Telomere length in caregivers of allogeneic hematopoietic stem cell transplant patients: Relationship to psychological distress and aging. M. L. Laudenslager, T. S. Sannes, S. J. Philips, T. L. Simoneau, J. Lin, E. Epel, E. Blackburn [1602]
53	Plasma interleukin-6 correlates with connectivity of the default mode network in midlife adults. A. L. Marsland, S. B. Manuck, D. Kuan, P. Gianaros [1605]
54	Regional cerebral glucose metabolism in the insula during acute stress predicts increased post-stress pulmonary inflammation in asthma. M. A. Rosenkranz, W. W. Busse, B. T. Christian, A. T. Higgins, R. J. Davidson [1611]
55	Effects of nocebo on neurogenic inflammation: Does conditioning matter? H. R. Linsenbardt, S. Albu, J. M. Jones, M. W. Meagher [1625]
56	A clinically relevant model of prenatal inflammation (intrauterine lipopolysaccharide) results in offspring hyperactivity. T. Reyes, N. M. Grissom, S. McKee, R. George, M. Marini [1626]
57	Galectin-9 increases seizure incidence following acute Theiler's murine encephalomyelitis virus infection of C57BL/6 mice. A. Steelman, C. Young, J. Welsh, J. Li [1647]
58	Early-life overnutrition influences spatial memory and hippocampal microgliosis. S. N. De Luca, I. Ziko, J. Nguyen, J. M. Barwood, T. Dinan, L. Sominsky, T. A. Jenkins, S. J. Spencer [1667]
59	Sleep compared to nocturnal wakefulness reduces the number of various T cell subsets in human blood. L. Besedovsky, S. Dimitrov, J. Born, T. Lange [1670]
60	A blend of dietary prebiotics and the probiotic LGG modulate behavioral and cognitive responses to maternal separation stress. B. M. Berg, R. V. Waworuntu, K. M. Neufeld, S. M. O'Mahony, T. G. Dinan, J. F. Cryan [1671]
61	Racial Differences in Biomarkers of Stress and Cell Aging: Latent Transition Analysis of 5-Year Change Among Patients in the Heart and Soul Study. D. H. Chae, Y. Wang, T. Yip, S. Douglass, N. B. Slopen, J. Lin, E. S. Epel, E. H. Blackburn, M. A. Whooley [1677]
62	Disentangling the role of breathing in the cardiovascular response to meditation. N. F. Bernardi, M. Bordino, L. Bernardi [1684]
63	Altered multisensory temporal binding window in low-grade inflammation. M. Costantini, F. Scarpina, D. Migliorati, A. Mauro, P. Marzullo [1685]
64	An exercise intervention to reduce adverse events with HPV vaccination: A pilot study. V. Y. Lee, R. Booy, S. R. Skinner, K. M. Edwards [1688]
65	Inflammation-related Alterations in Corticostriatal Connectivity in Depression: Reversal with Levodopa? J. Felger, Z. Li, E. Haroon, B. J. Woolwine, X. Hu, A. Miller [1689]
66	Neuron-derived Insulin-like Growth Factor (IGF)-I is Necessary for Normal Cognition and Hedonic Activity of Mice. C. R. Dostal, A. E. Towers, S. J. Gainey, G. G. Freund, K. W. Kelley, R. H. McCusker [1693]

Poster Session 2, Friday, June 5

*Indicates participation in the Data Blitz; Number in brackets is abstract number in abstract booklet.

◇ Indicates a Trainee Scholar

Posters 1 to 46 will be presented in BALLROOM	
1	LPS increases pain sensitivity by decreased pain inhibition and increased insular activation. B. Karshikoff, K. B. Jensen, M. Ingvar, E. Kosek, C. Olgart Höglund, M. Lekander, J. Axelsson [1508]
2	Mild Sleep Disturbance as a Vulnerability Factor for Inflammation-Induced Depressed Mood in Women: an Experimental Study. H. Cho, N. I. Eisenberger, S. W. Cole, R. Olmstead, A. Avidan, M. R. Irwin [1519]
3	Pro-inflammatory cytokines up-regulate and sensitize metabotropic and ionotropic cannabinoid receptors in rheumatoid arthritis and osteoarthritis synovial fibroblasts. T. Lowin, T. Späth, R. H. Straub [1520]
4	Expression And Function Of Ghrelin in Rheumatoid Arthritis. T. Lowin, C. Mickler, R. H. Straub [1521]
5	Catecholaminergic-to-cholinergic transition of sympathetic nerve fibers is stimulated under healthy but not under inflammatory arthritic conditions. H. Stangl, H. Springorum, D. Muschter, S. Grässel, T. Lowin, R. H. Straub [1522]
6	Moderate In Utero Alcohol Exposure Results in Sex-Dependent Inflammation in the Developing Rat Brain. L. S. Terasaki, A. L. Blades, J. M. Schwarz, Ph.D. [1526]
7	Sex (always) matters: inflammatory, neuroendocrine, and psychological responses to endotoxin. H. Engler, A. Wegner, M. Schedlowski, S. Elsenbruch, S. Benson [1527]
8*	CX3CR1 (fractalkine receptor)-deficient mice exhibit resilience to chronic unpredictable stress-induced depressive-like behavior and suppressed neurogenesis. N. Rimmerman, N. Schottlender, R. Yirmiya [1542]
9*	Microglia show sex-differences in gene expression patterns over development and following immune challenge: Relevance for sex-differences in neurodevelopmental disorders. R. Hanamsagar, J. Bolton, M. Alter, S. Bilbo [1544]
10	Association of stress-induced increases of inhibitory kappaB gene expression with depressive symptoms. D. Goldblatt, C. McInnis, M. V. Thoma, D. Gianferante, L. Hanlin, X. Chen, D. Wang, N. Rohleder [1548]
11*	Early Life Programming of Pain: Neuroimmune to Endocrine Symphony. I. Zouikr, M. H. James, E. J. Campbell, A. F. Ahmed, J. C. Horvat, P. M. Hansbro, V. L. Clifton, K. W. Beagley, R. F. Thorne, C. V. Dayas, D. M. Hodgson [1553]
12	The differential impact of TH+ neuronal cell therapy in models of experimental arthritis. M. Ebbinghaus, Z. Jenei-Lanzl, R. H. Straub, H. Schaible [1556]
13	Repeated exposure to sleep restriction followed by recovery sleep – Effects on IL-6 expression and glucocorticoid (GC) sensitivity of monocytes. M. Haack, V. Bhatt, M. DiIombi, S. Gautam, J. Mullington [1655]
14*◇	Effects of Traumatic Brain Injury (TBI) on Hypocretin Neurons and Sleep of Mice. H. E. Thomasy, H. Y. Febinger, K. M. Ringgold, C. Gemma, M. R. Opp [1573]
15*	Effects of sleep disruption and overnutrition on inflammation and glycemic control in mice. J. M. Ho, M. R. Opp [1574]
16	Fasting reduces Plasma Interleukin-6 Responses to the Trier Social Stress Test. L. C. Hanlin, J. Price, G. Zhang, N. Assaf, J. R. Mitchell, N. Rohleder [1589]
17	Novel inflammatory CSF biomarkers strongly predict medial temporal atrophy and cognitive decline in Alzheimer's disease. A. A. Willette [1590]

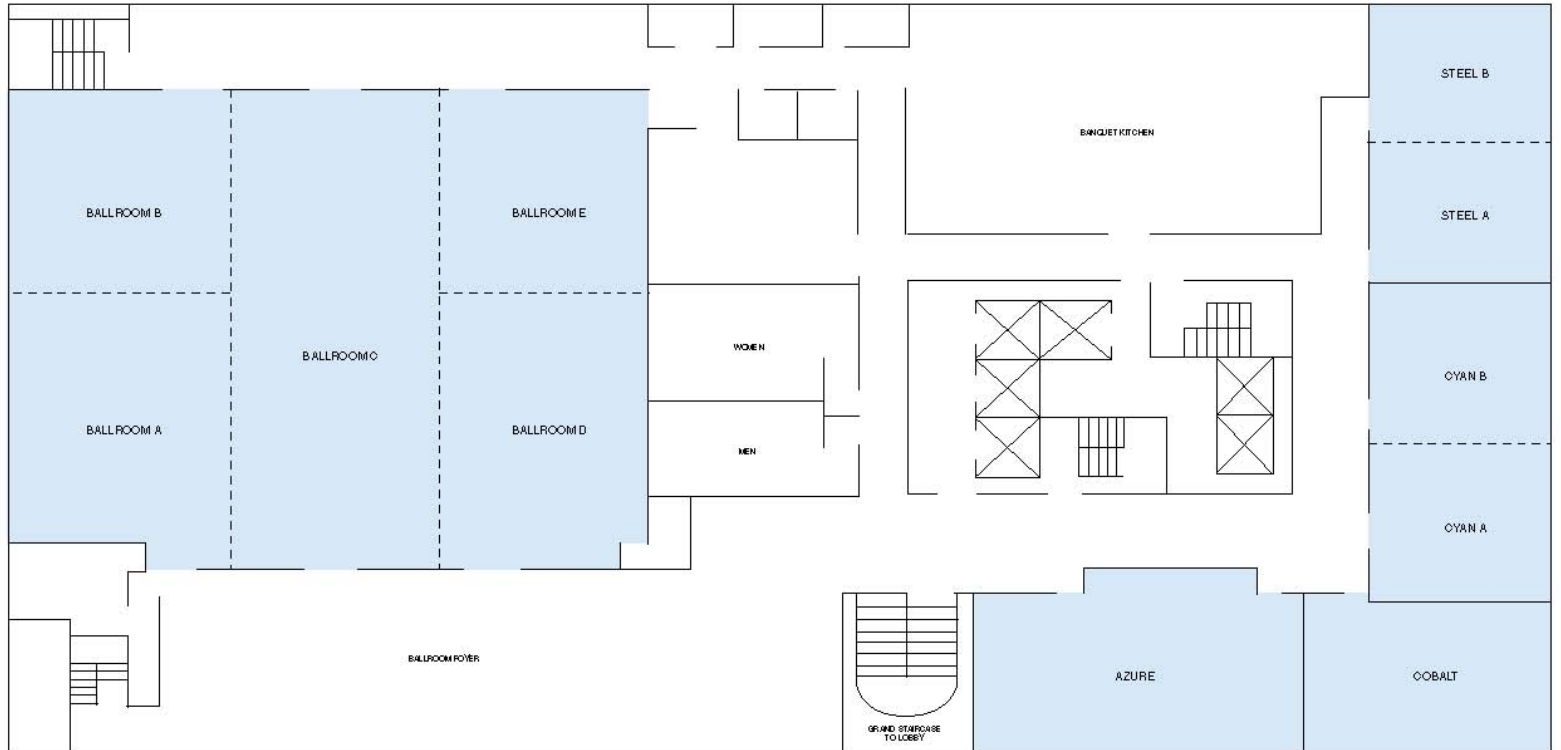
18	Metabolic pathways linking glucoregulatory dysfunction and inflammatory physiology in ethnically distinct populations. W. Z. Amaral, C. L. Coe [1596]
19*◇	Prevention of chemotherapy-induced peripheral neuropathy by the small-molecule inhibitor Pifithrin-mu in a mouse model. K. Krukowski, C. H. Nijboer, X. Huo, M. Maj, A. Kavelaars, C. J. Heijnen [1603]
20	Psychosocial stress suppresses tumor progression in a murine model of spontaneous, metastatic breast cancer. R. P. Dawes, D. K. Byun, E. B. Brown, K. S. Madden [1610]
21	Gene expression changes and fatigue during IMRT in Patients with Head and Neck Cancer. C. Xiao, J. J. Beitler, K. A. Higgins, J. Felger, K. Conneely, B. Dwivedi, J. Kowalski, D. W. Bruner, A. H. Miller [1613]
22*	Acute and innocuous CpG-C immune stimulation potentiates host resistance to hepatic metastases of colon cancer and protects against immunosuppressive effects of surgery. L. Sorski, R. Melamed, H. Lavon, P. Matzner, E. Rosenne, S. Ben-Eliyahu [1616]
23	Pre-existent anxiety symptoms is associated with modified behavioral response during endotoxemia. J. Lasselín, M. Lekander, J. Axelsson, B. Karshikoff, H. Engler, S. Elsenbruch, J. Grigoleit, S. Benson [1617]
24	Tumor Necrosis Factor alters evoked response potentials in dissociated neural networks in culture. D. Sahabandu, K. Jewett, P. Taishi, S. Roy, J. M. Krueger [1620]
25	Multisensory Integration, Bodily Self-consciousness and disorders of the immune system. G. Finotti, D. Migliorati, M. Costantini [1621]
26*	Altered brain development in fetal and neonatal piglets following maternal porcine respiratory and reproductive syndrome virus (PRRSV) infection. B. Balakrishnan, R. W. Johnson [1624]
27	Exposure to the mold <i>Stachybotrys</i> alters microglial morphology differentially in CA1 and CA2-3 of the dorsomedial hippocampus. J. Horowitz, M. Nagai, T. Desai, C. L. Pytte, C. Harding [1628]
28	Pifithrin-mu prevents cisplatin-induced cognitive impairment and neuronal mitochondrial dysfunction. G. S. Chiu, S. Rizvi, A. Kavelaars, C. J. Heijnen [1631]
29	Iron biology is key to understanding how inflammation, stress and obesity affect maternal and child health. C. L. Coe, G. R. Lubach, P. Kling, M. Georgieff, R. Rao, J. Connor [1633]
30	Effect of adrenalectomy on IgA production in the large intestine of BALB/c mice. A. Resendiz Albor, A. García-Fonseca, I. Arciniega-Martínez, M. Salas-Pimentel, E. Martínez-Becerril, R. Campos-Rodríguez [1635]
31	Effect of acute stress on B cells and IgA production of large intestine. A. Resendiz Albor, E. Martínez-Becerril, I. Arciniega-Martínez, M. Salas-Pimentel, A. García-Fonseca, R. Campos-Rodríguez [1636]
32	Short-term hyperprolactinemia decreases allergic inflammatory response of the lungs J. Ochoa Amaya, E. K. Hamasato, C. Nappo Tobaruela, N. Queiroz-Hazarbassanov, A. Anselmo Franci, J. Palermo Neto, F. Greiffo, E. da Silveira, R. de Paula Vieira, A. Ligeiro de Oliveira, C. de Oliveira Massoco Salles Gomes, L. Freitas Felicio [1686]
33*◇	Leucine blocks lipopolysaccharide-induced depression-like behavior by interfering with kynurenine influx into the brain. A. Walker, E. G. Vichaya, E. Wing, W. A. Banks, R. Dantzer [1639]
34*	Neuroprotection by caloric restriction is associated with a distinct state of hippocampal energy metabolism linked to PGC-1alpha and GSK3beta. S. A. Martin, T. M. DeMuth, K. N. Miller, M. A. Polewski, R. J. Colman, K. W. Eliceiri, T. M. Beasley, S. C. Johnson, R. M. Anderson [1640]

35	Mindfulness Based Stress Reduction Improves Psychological Well-Being and Restores Immune Function in Women with Breast Cancer, from Diagnosis Through 6-months Post-Cancer Treatment. L. W. Janusek, D. Tell, H. L. Mathews [1644]
36	Epigenetic Profile of Women with Breast Cancer Exhibiting A Proinflammatory Phenotype. L. W. Janusek, D. Tell, H. L. Mathews [1645]
37	Divergent Amygdalar and Prefrontal Cortex Delayed Inflammatory Mediator Responses to Acute Psychological Stress Exposure. H. A. Vecchiarelli, C. P. Gandhi, J. M. Gray, M. Morena, K. Hassan, M. N. Hill [1646]
38	Brain Metastasis: The Impact of Surgical Stress, Immune Stimulation, and NK Cells. A. Benbenishty, A. Lubart, H. Lavon, P. Blinder, S. Ben-Eliyahu [1651]
39	Interferon- α induced fatigue is predicted by acute changes in stratal magnetisation transfer (qMT). N. A. Harrison, N. Dowell, E. Cooper, J. Tibble, V. Voon, M. Cercignani, H. Critchley [1652]
40◇	Euflammation dynamically regulates peripheral inflammation induced neuroimmune reactivity and sickness behavior. X. Liu, N. Quan, D. P. Nemeth, N. Nath, N. O. Reed, A. J. Tarr [1654]
41*◇	Brain endothelial IL-1R1 mediates central IL-1 induced neuroinflammation and anxiety-like behavior. X. Liu, N. Belevych, N. Quan, Q. Chen, J. Zuo, D. P. Nemeth, A. J. Tarr, A. S. Ismail [1561]
42	The interaction effects of surgery and morphine treatment on neuroinflammation and cognitive function in aged rats. R. M. Barrientos, M. M. Kitt, V. M. Thompson, L. R. Watkins, S. F. Maier [1656]
43	Distress and symptom development in relation to plasma cytokines and secretion of DAMPs during remission induction treatment for acute myeloid leukemia. T. Lacourt, A. Kavelaars, S. Rizvi, B. LaVergne, S. Shelburne, C. Cleeland, D. Kontoyiannis, A. Futreal, C. Heijnen [1658]
44	Beta-adrenergic antagonist prevents anxiety like behavior and natural killer cells migration to the spleen in a model of cohabitation with sick partners R. O. Margatho, E. K. Hamasato, D. G. Cruz , A. S. Calefi, T. M. Sandini, A. Zager, W. M. Quinteiro-Filho, A. P. Lima, C. O. Massoco, J. Palermo-Neto [1676]
45	Acute Neonatal Immune Challenge: Lipopolysaccharide Exposure Alters Neonatal Ovarian Inflammatory Pathways and Mediators. E. A. Fuller, L. Sominsky, E. A. McLaughlin, D. M. Hodgson [1637]
46	Early life peripheral lipopolysaccharide challenge reprograms the glial cells and catecholaminergic neurons L. K. Ong, E. A. Fuller, L. Sominsky , D. M. Hodgson, P. R. Dunkley, P. W. Dickson [1690]
Posters 47 to 66 will be presented in CYAN	
47	Relationship between immune biomarkers and both physical activity and stress levels in young and older adults. K. E. Rehm, G. D. Marshall [1524]
48	Sex Differences in Neuroimmune Response to Neonatal Infection in Brain Regions Important for Learning and Memory: Implications for Developmental Disorders. B. F. Osborne, J. I. Caulfield, J. M. Schwarz, Ph.D [1528]
49	Restraint Coping Predicts Cortisol Response But Not Subjective Distress Following a Standardized Social Stressor. L. G. Roos, Z. W. Adams, A. Amstadter, S. Thomas, C. K. Danielson [1562]
50	Oral doxycycline increases microglia numbers in the mouse hippocampus. K. Page, C. McDermott, A. Lopez, S. Uvaydov, K. Lin, L. Bickerton, C. Harding, C. Pytte [1563]

51	Age and wheel running modulate the response to intra-hippocampal IL-4/IL-13 administration. A. Littlefield, R. A. Kohman [1569]
52	Effects of exercise on cognition following chronic inflammation. S. Setti, P. Freeman, A. Littlefield, K. Barnes, M. Shannahan, R. A. Kohman [1582]
53	T Cell Dependent & Independent Behavioral Phenotypes in Rag2 ^{-/-} Mice. J. A. Soroka, S. M. Clark, X. Li, C. Song, L. H. Tonelli [1585]
54	Contemplate your symptoms and re-evaluate your health. A. Andreasson, H. Schiller, G. Kecklund, M. Lekander [1648]
55	Differences in Microglia Morphology are Associated with Social Hierarchy Status and Social Stress. B. Nemon, J. LeSauter, J. Curley [1650]
56	Effects of TSST on immune biomarkers separated by distinct genotypes. I. Sunesara, K. E. Rehm, L. Xiang, G. D. Marshall, Jr [1653]
57	DNA methylation of the IL-1 β promoter and associated epigenetic regulators are modulated by immune activation, aging, and pharmacological demethylation in primary and BV-2 murine microglia. S. M. Matt, R. W. Johnson [1659]
58	Impact of sleep on innate immune cells. J. Hahn, M. Günter, S. Autenrieth [1665]
59	The Development of a Reactive Brain Endothelium after Psychosocial Stress. C. M. Sawicki, D. B. McKim, E. S. Wohleb, B. L. Jarrett, B. F. Reader, D. M. Norden, J. P. Godbout, J. F. Sheridan [1666]
60	Salivary cortisol/CRP ratios indicate treatment response in distressed caregivers. I. G. Wheat, T. S. Sannes, S. J. Philips, P. A. Benitez, C. L. Natvig, S. K. MikulichGilbertson, T. L. Simoneau, M. L. Laudenslager [1668]
61	Developmental influences on schizophrenia-like cognitive and neurophysiological outcomes in a rat model of maternal immune challenge. L. Harms, C. Meehan, K. Zavitsanou, R. Fulham, A. Wong, J. Todd, U. Schall, C. Shannon Weickert, P. Michie, D. Hodgson [1669]
62	Differential microglial inflammatory responses in the spinal cord and brain towards the chronic neuropathic pain in rats. Z. Li, H. Wei, E. Kalso, A. Pertovaara, L. Tian [1673]
63	Three-dimensional quantification of microglial ramification in the mouse brain after chronic restraint stress. S. Piirainen, L. Tian [1680]
64	Local glucocorticoid synthesis and regeneration in lymphoid organs: neonatal and adult mice M. D. Taves, A. W. Plumb, B. A. Sandkam, A. M. Korol, N. Abraham, K. K. Soma [1681]
65	Evidence for Two Distinct Immune Phenotypes in Subjects with Depression and Comorbid Kidney Disease. M. S. Toups, I. Dozmorov, M. H. Trivedi, S. S. Hedayati [1687]
66	Altered Toll-Like Receptors 1/2 frequency and signaling in Type 1 Bipolar Disorder. A. Wieck, C. Hartmann do Prado, L. Esteves Petersen, B. Porto, R. Grassi-Oliveira, M. E. Bauer [1692]

Maps and Floor Plans

THIRD FLOOR



Welcome to Seattle!

Welcome to Seattle! We provide here some information about transportation, some popular downtown restaurants/bars, and activities in-and-around Seattle.

Transportation

For ease in using Seattle's mass transit system, the Apps to use are Onebusaway: (<http://onebusaway.org/>) and the King County Metrolink (<http://metro.kingcounty.gov/>) for bus routes, stops, arrival times, etc. The King County Metrolink has a great Plan a Trip link (<http://tripplanner.kingcounty.gov/hiwire?.a=iTripPlanning>)

To/from SeaTac Airport via light rail:

The most efficient and least expensive way to get from SeaTac International Airport into downtown is by Sound Transit **Link-Light Rail**. The airport's light rail station is connected to the fourth floor of the main parking garage at the airport (see figure below). To get to the Light Rail terminal and ticket machines from SeaTac Terminal, walk across the covered bridge into the parking garage, then work your way to the left (there are signs). Elevators and escalators are available. [NOTE: Taxis are an option, but the cost will be \$40-\$50 depending on traffic.]

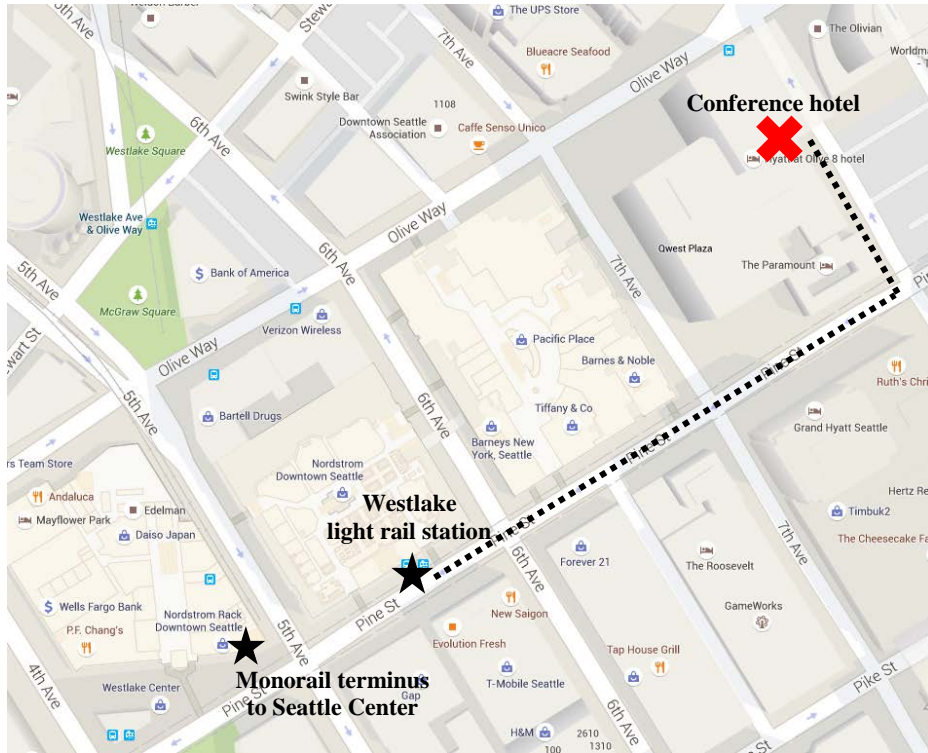
Trains depart every 7-15 minutes to downtown Seattle. The trip from the airport to downtown Seattle takes about 35 minutes. Schedules are listed at: <http://www.soundtransit.org/Schedules/Link-light-rail>.



Light Rail tickets must be purchased from the station ticket vending machine (TVM) before boarding the train.

- All TVMs are located on the same level as the walkway. No machines are available on the platform (upper) level.
- Keep your ticket with you and be ready to show it to a fare enforcement officer, if asked.
- Adult (19-64) one-way fares are \$3.00; youth (\$1.50); senior/disabled (\$1.00) to the Westlake station.

Take light rail to the **last stop (Westlake)**. Take the Pine St & 5th Ave exit. From there, walk northeast on Pine St (head away from the water) to 8th Ave. Take a left on 8th Ave and walk one block to the conference hotel, Hyatt @ Olive 8.



To/from banquet location from conference hotel:

The banquet will be held at Chihuly Garden and Glass, which is located in the Seattle Center at 305 Harrison St, Seattle, WA 98109. It is accessible by walking (~21 min), a short cab ride, or the Seattle Center Monorail (2-min ride).

The Seattle Center Monorail was built for the 1962 World’s Fair. The monorail departs approximately every 10 minutes and shuttles between two stations: the Westlake Center Mall station and the Seattle Center station. The Seattle Center station is adjacent to the Space Needle and Chihuly Garden and Glass. One-way fares are \$2.25 for adults, \$1.00 for youth (5-12), and \$1.00 for seniors (65+) and disabled persons.

To take the Seattle Center Monorail from the conference hotel, walk to the Westlake Center Mall station at 5th Ave and Pine St by heading one block east to Pine St, then southwest along Pine St until you reach 5th Ave.



More information regarding the monorail can be found at: <http://www.seattlemonorail.com/information/>

Restaurants

There are many dining and drinking options within walking distance or short cab rides of the Hyatt @ Olive 8. Here is a short list:

Saley's Classic: crepes/sandwiches (\$)
Noodle Zone: Asian/Italian (\$)
Pita Bite: sandwiches/Greek (\$)
Pho Bac: Vietnamese (\$)
The Crumpet Shop: breakfast (\$)
Serious Pie: pizza (\$\$)
Lola: Greek/Mediterranean (\$\$)
Masala Grill: Indian (\$\$)
Pike Place Chowder: seafood (\$\$)
Maximilien: French (\$\$)
The Pink Door: Italian (\$\$)
Le Pichet: French (\$\$)
Japonessa: Japanese (\$\$)
Chan Seattle: Korean (\$\$)
Tango: Spanish/tapas (\$\$)
Rumba: Caribbean/Cuban (\$\$)
Taylor Shellfish Farms: seafood/raw bar (\$\$)
Etta's: seafood (\$\$\$)
Loulay: French (\$\$\$)
RN74: French/New American (\$\$\$)
Sitka and Spruce: New American (\$\$\$)
Matt's in the Market: New American (\$\$\$)
Mamnoon: Middle Eastern (\$\$\$)

Bars (also serve food)

The Zig Zag Café: New American/cocktail bar (\$\$)
Tap House Grill: pub (\$\$)
Radiator Whiskey: pub/New American (\$\$)
The Pine Box: pub/New American (\$\$)
Bar ferd'nand: wine bar (\$\$)
Kells: pub/Irish (\$\$)
Pike Brewing Company: pub/brewery (\$\$)
White Horse Trading Company: wine bar (\$\$)
Elysian Bar: cocktail bar (\$\$)
Bathtub Gin: cocktail bar (\$\$)

Activities

Pike Place Market: a public market overlooking the Elliott Bay waterfront with variety of unique shops such as antique dealers, collectible shops, and small family-owned restaurants. The upper street level contains fishmongers, fresh produce stands and craft stalls.

Seattle Art Museum: cool museum with a collection of almost 25,000 pieces with a focus on modern and ethnic art. Admission is ~\$20.

Frye Art Museum: the Frye collection features mostly traditional late-nineteenth and early-twentieth-century European art, although visiting exhibitions are usually dedicated to more contemporary and less representational art. Admission is free.

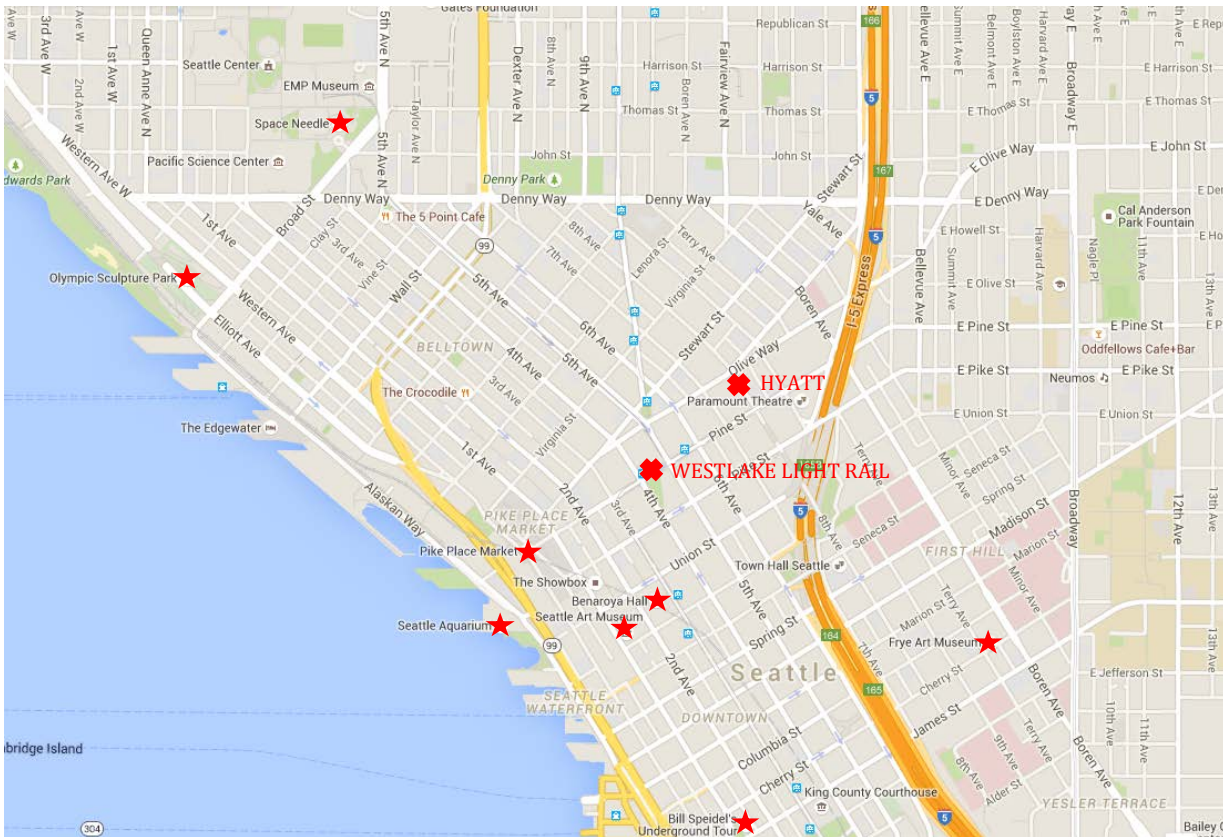
Olympic Sculpture Park: beautiful 9-acre park overlooking the water featuring outdoor contemporary sculpture installations. Admission is free.

Underground Tour: a leisurely, guided walking tour beneath Seattle's sidewalks and streets. The tour is a fun way to learn about Seattle's history and check out the subterranean passages that once were the main roadways and first-floor storefronts of old downtown Seattle. Tickets are ~\$20.

Seattle Aquarium: a smallish but very interesting aquarium featuring animals from around the world, but with an emphasis on Pacific Northwest marine birds, fish, and cephalopods. Admission is \$22.

Space Needle: definitely a classic tourist activity, the observation deck offers beautiful views of the city, especially on a clear night. Tickets are ~\$20.

Benaroya Hall: home of the Seattle Symphony. Prices vary depending on the performance.



Escaping the Tourist Trap (sort of)

Just outside the hotel door between 8th and 9th Avenue on Pike is the bus stop for the 10 and 11 buses. These buses can take you to other unique parts of Seattle.

Capitol Hill, one of the premier Seattle neighborhoods

http://wikitravel.org/en/Seattle/Capitol_Hill-Central_District.

Take the 10 or #11 bus about 10 min to the corner of Pine & Broadway. This is the intersection for two of the shopping/dining/people-watching areas of Capitol Hill: Broadway (mostly to your left) and the Pike/Pine corridor (mostly directly in front of you). Stay on the 10 bus for about another 8 minutes to reach 15th street (the third S/D/P-W region of Cap Hill running from John street to Mercer); another 5 min on the 10 bus takes you to 15th and Prospect, a good place to jump off for the small scenic Volunteer Park

http://www.seattle.gov/parks/park_detail.asp?id=399).

Take the 11 bus to Capitol Hill at Broadway and Union and walk to the left to reach the intersection of Broadway & Pine. Staying on the 11 bus another 10ish, 12ish, or 20ish minutes can take you to the Madison Valley (<http://seattle.findwell.com/seattle-neighborhoods/madison-valley/>), the entrance to the Washington Park Arboretum (<http://depts.washington.edu/uwbq/gardens/wpa.shtml>), and Madison Park (<http://seattle.findwell.com/seattle-neighborhoods/madison-park/>).

Sun & Sand in Seattle: Take the short trip by water taxi (the same fare as the buses) to West Seattle's Alki Beach.

<http://www.kingcounty.gov/transportation/kcdot/WaterTaxi/WSeattle.aspx>;

<http://seattletravel.com/activities/alki-beach/>)