



PsychoNeuroImmunology  
Research Society



# PsychoNeuroImmunology Research Society's 19<sup>th</sup> Annual Scientific Meeting June 7-9, 2012, San Diego, CA

## Brain, Behavior, and Immunity in Health and Disease



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## Acknowledgements

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We 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. Funding for the 2012 travel awards were made possible in part by a conference grant from the National Cancer Institute, National Institutes of Health<sup>1</sup>. We are also indebted to Gayle Page, Jan Moynihan and Monika Fleshner for preparing the proposal.

Special acknowledgements are extended to local organizer, Suzi Hong and her team for their dedication and commitment to making this meeting a success.



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<sup>1</sup> Funding for this conference was made possible (in part) by a conference grant (R13) from the National Cancer Institute. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government

# ***Society Officers and Committees***

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## ***Officers***

Monika Fleshner (President)  
Raz Yirmiya (Past President)  
Manfred Schedlowski (President-Elect)  
Gayle Page (Secretary/Treasurer)  
Susan Solomon (Executive Director)

## ***PNIRS Staff***

Maggie Denny

## ***PNIRS Trainee Scholars Program Coordinator***

Jan Moynihan

## ***Faculty Trainee Mentors***

Julienne Bower  
Jonathan Kipnis  
Andrew Miller  
Manfred Schedlowski  
Linda Watkins  
Raz Yirmiya

## ***Scientific Affairs Committee***

Monika Fleshner (President)  
Raz Yirmiya (Past-President)  
Manfred Schedlowski (President-Elect)  
Gayle Page (Secretary-Treasurer)  
William Banks  
Lucile Capuron  
Christopher Coe  
Mary Coussons-Read  
Terrence Deak  
Firdaus Dhabhar  
Suzi Hong

## ***Board of Directors***

Monika Fleshner (Chair, President)  
Raz Yirmiya (Past-President)  
Manfred Schedlowski (President-Elect)  
Gayle Page (Secretary-Treasurer)  
Staci Bilbo  
Lucile Capuron  
Steve Cole  
Firdaus Dhabhar  
Jonathan Godbout  
Janice Kiecolt-Glaser  
Jeffrey Woods

## ***Message from the President of the PNIRS***



Welcome to the 2012 annual meeting of the PsychoNeuroImmunology Research Society! This year's program has a new look. Instead of having a small number of symposia comprised of longer talks, we have 6 topically organized Oral Sessions that include 1-2 invited speakers (25 min talks) to kick off the session, followed by 2-6 shorter oral presentations (10 min) chosen from abstracts submitted by the membership. There were ~180 abstracts submitted this year, and the membership did an excellent job submitting their abstract's under appropriate Oral Session themes.

A big thank you to the members of the Scientific Affairs and Training Committees for reviewing and scoring all of the submitted abstracts. The 10 minute oral presentations were selected for each theme based on abstract rankings and thematic fit. In addition to the Oral Sessions, our program includes world-class invited keynote lecturers, outstanding presidential symposia speakers, and a terrific Educational Short Course!

I congratulate this year's 15 PNIRS scholars. Consistent with PNIRS tradition, and thanks to the generous support of Dr. Paige McDonald of the National Cancer Institute (NIH), we continue to provide unparalleled educational and training opportunities to promising young scientists interested in PNI research. I thank Dr. Jan Moynihan for organizing and recruiting the senior scientists involved with the PNIRS Scholars Program.

Finally, many thanks to our Secretary/Treasurer, Dr. Gayle Page, her right hand woman, Mrs. Maggie Brewer, and the financial management of Mrs. Susan K. Solomon. Their contributions were innumerable. And finally, I acknowledge Dr. Suzi Hong and her local organizing crew for their hard work and for choosing a beautiful venue on the bay in San Diego.

Enjoy the meeting!

Monika Fleshner, PhD  
PNIRS President 2011-2012

# *Next Year's Meeting*

20th Annual Scientific Meeting  
Stockholm, Sweden, June 5-8, 2013



Radisson Blu Royal Park Hotel

# General Information

## REGISTRATION DESK

Name badges and meeting bags will be distributed at the registration desk in the Randle Foyer, Harbor Tower, Fourth Level. The registration & information desk will be open during the following hours:

Wednesday, June 6:	5:00 pm – 7:30 pm
Thursday, June 7:	7:00 am – 5:00 pm
Friday, June 8:	8:00 am – 2:00 pm
Saturday, June 9:	8:00 am – 2:00 pm

## ACCOMPANYING PERSONS

Individuals (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. Guests are not permitted in either the lecture rooms or poster rooms during sessions.

## MOBILE PHONES

As a courtesy to others, please turn off mobile devices during all sessions.

## INSTRUCTIONS TO PRESENTERS

### Chairs

Chairs of the sessions should be in the designated room at least 15 minutes before the session starts in order to assist the speakers. In the event of a talk cancellation, the order and timing of the session is at the discretion of the chairs, but every effort should be made to keep the session on schedule for individuals attending specific talks within the session.

### Speakers

Speakers should go to the designated room a minimum of 10 minutes before the session starts to upload their talk onto the computer, make sure it works, and meet the moderators. Speakers must strictly adhere to the allocated time and moderators will be in place to ensure promptness.

### Computer presentation guidelines

To minimize the need for connecting multiple computers to the projectors, house computers are provided in the lecture theatres. Talks can be uploaded via a flashdrive (memory stick). Both PC and Mac systems are available in the event that your presentation will work with only one type of operating system. Unless our computers do not work, please do not use your own personal laptop. It is assumed that all presentations will use PowerPoint or Adobe Acrobat. Contact the Registration Desk if you are using a different program.

### Poster Presenters

The Poster Sessions will be held in *Randle "D", Harbor Tower, Fourth Level*. Poster Session 1 will be from 2:00 – 3:30 p.m. on Thursday, June 7<sup>th</sup>. Poster Session 2 will be on Saturday, June 9<sup>th</sup>, from 2:30 – 4:00 p.m. All posters can be mounted during the morning of your respective session, but no later than 10:00am. Poster boards are 8 ft long x 4 ft high. The dimensions of the poster should be 4 feet (48 inches) height x 3 feet (36 inches) width. Push pins for mounting the posters will be provided. Look for your poster number in this Program Book or on a list that will be posted in the poster area. Please remove your posters at the end of your session. Remaining posters may be discarded if they are not taken down promptly.

### Poster Data Blitz

30 minutes before each Poster Session, there will be a short oral presentation of some posters. The Poster Data Blitz talks will take place in *Randle "A", Harbor Tower, Fourth Level*. All Data Blitz participants will give a 3-minute oral presentation with a maximum of 2 slides. Given their brevity, please upload all files in advance before the 30-minute Data Blitz begins. After your presentations, please re-join everyone in the poster rooms.

## 2013 COUSINS AND ADER AWARDS

The winners of the 2013 Norman Cousins Award Lecture and the Robert Ader New Investigator Award will be announced at the Closing Banquet on Saturday, June 9<sup>th</sup>.

## Norman Cousins Award Lecture



The Norman Cousins Award is the highest honor given by the PsychoNeuroImmunity 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 PsychoNeuroImmunity Research Society.

### Previous Award Lecturers:

1991 – Robert Ader  
1993 – George F. Solomon  
1994 – Jean E. Merrill  
1996 – Hugo O. Besedovsky  
1997 – John F. Sheridan  
1998 – Janice K. Kiecolt-Glaser  
1999 – Cobi Heijnen  
2000 – Robert Dantzer  
2001 – Christopher Coe  
2002 – Steven Maier  
2003 – Keith Kelley  
2004 – Ronald Glaser  
2005 – Nicholas Cohen  
2006 – Linda Watkins  
2007 – Michael Irwin  
2008 – Andrew Miller  
2009 – Manfred Schedlowski  
2010 – Raz Yirmiya  
2011 – Virginia Sanders

### **2012 Norman Cousins Award Lecture**

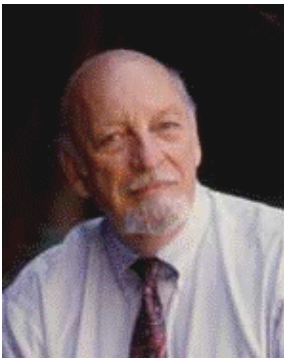
*Neuro-immune communication: The target tissue decides*

**Annemieke Kavelaars, PhD**

University of Illinois, USA

University Medical Center Utrecht, The Netherlands

## Robert Ader New Investigator Award



In honor of Dr. Robert Ader, a pioneer in the field of psychoneuroimmunology, the PsychoNeuroImmunity 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.

### Previous recipients of the Ader award:

2001 – Firdaus Dhabhar  
2002 – Annemieke Kavelaars  
2003 – Kurt Ackerman  
2004 – Lucille Capuron  
2005 – Susan Lutgendorf  
2006 – Marian Kohut  
2007 – Julienne Bower  
2008 – Suzanne Segerstrom  
2009 – Jonathan Godbout  
2010 – Staci Bilbo  
2011 – Jonathan Kipnis

### **2012 Robert Ader New Investigator Award Lecture**

*The intestinal microbiota are interactively involved in stressor-induced immunomodulation*

**Michael Bailey, PhD**

The Ohio State University

## ***PNIRS Faculty-Trainee Colloquium***

<b>Madeline A</b>	<b>Madeline B</b>	<b>Madeline C</b>	<b>Madeline D</b>
<b>Faculty:</b> J. Bower M. Schedlowski	<b>Faculty:</b> J. Kipnis R. Yirmiya	<b>Faculty:</b> L. Watkins	<b>Faculty:</b> A. Miller
<b>Trainees:</b> Laura Fonken	<b>Trainees:</b> Jeffrey Voorhees	<b>Trainees:</b> Luba Sominsky	<b>Trainees:</b> Kristin Speaker
Bianka Karshikoff	Ying An	Kristin Gabella	Jennifer Parrott
Lida Beninson	Gabriel Chiu	Donald Lamkin	Judith Carroll
Caroline Padro		Stephanie Tymen	Angela Corona

***Congratulations to our 2012  
Trainee Scholars!***

Throughout the program the “†” symbol indicates a trainee abstract



# Schedule at a Glance

Time	Wednesday June 6	Thursday June 7	Friday June 8	Saturday June 9
8:00-8:30		<b>Breakfast</b>	<b>Breakfast</b>	<b>Breakfast</b>
8:30-9:00			Concurrently: Finance Comm. Mtg. (Comm. Members Only)	
9:00-9:30		<b>NCI Keynote Address</b>  David Spiegel	<b>Oral Session 2</b>  Leukocyte Trafficking and Migration	<b>Oral Session 5</b>  Cancer: PsychoNeuroImmunological Perspectives
9:30-10:00				
10:00-10:30		<b>Presidential Symposium</b>  Endogenous PAMPs, DAMPs, and Sterile Inflammation	<b>Break</b>	<b>Break</b>
10:30-11:00				
11:00-11:30			<b>Oral Session 3</b>  Infection, Cognition & Mental Health	<b>Oral Session 6</b>  Other PNI Topics
11:30-12:00				
12:00-12:30		<b>Lunch- On Your Own</b>  Concurrently: Board Mtg. (Board Members Only)	<b>Lunch- On Your Own</b>  Concurrently: BBI Board Mtg. (Invitation only)	<b>Lunch- On Your Own</b>
12:30-1:00				
1:00-1:30		<b>Poster Data Blitz 1</b>	<b>Oral Session 4</b>  Promoting Stress Resistance and Stress Resilience	<b>Poster Data Blitz 2</b>
1:30-2:00				
2:00-2:30		<b>Poster Session 1</b>	<b>Break</b>  Concurrently: Communications Comm. Mtg.	<b>Poster Session 2</b>
2:30-3:00				
3:00-3:30				
3:30-4:00		<b>Oral Session 1</b>  Glucocorticoids: Newly discovered functions in health and disease?	<b>Educational Short Course</b>  A Tutorial on 21st Century Molecular Biology: A Role in PNI Research?	<b>Keynote Address</b>  Bill Banks
4:00-4:30				
4:30-5:00		<b>Break</b>	<b>Break</b>	<b>Business Meeting</b>
5:00-5:30				
5:30-6:00		<b>Robert Ader New Investigator Lecture</b>  Michael Bailey	<b>Break</b>	<b>Break</b>
6:00-6:30				
6:30-7:00		<b>Norman Cousins Memorial Lecture</b>  Annemieke Kavelaars	<b>Early Career Investigator Social</b>	<b>Break</b>
7:00-7:30				
7:30-8:00	<b>Faculty- Trainee Colloquium</b>	<b>Welcome Reception</b>	<b>Trainee Dinner</b>	<b>Dinner Banquet</b> (Music and Dancing to follow)
8:00-8:30				
8:00-8:30				
9:00-				



## Thursday June 7

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**7:00-5:00 REGISTRATION OPEN**

(Randle Foyer: Harbor Tower, Fourth Level)

**8:00-9:00 BREAKFAST**

(Randle Foyer: Harbor Tower, Fourth Level)

**9:00-10:00 NCI KEYNOTE ADDRESS**

**Circadian Cortisol Rhythms, Depression and Cancer Survival: Timing is Everything**

(Randle A: Harbor Tower, Fourth Level)

David Spiegel, Stanford University

Introductions by Firdaus Dhabhar

**10:00-12:00 PRESIDENTIAL SYMPOSIUM**

**Endogenous PAMPs, DAMPs, and Sterile Inflammation**

Chair: Rodney Johnson

(Randle A: Harbor Tower, Fourth Level)

10:00 *IL-1, Inflammasomes and the Sterile Inflammatory Response*

Kenneth Rock, University of Massachusetts

10:40 *Aryl hydrocarbon receptor (AHR) in the Control of Neuroinflammation*

Francisco Quintana, Harvard University

11:20 *MAMPs, DAMPs, Inflammasomes and the Stress-Evoked Cytokine Storm*

Monika Fleshner, University of Colorado-Boulder

**12:00-1:30 LUNCH**

(On Your Own)

**Concurrently: PNIRS BOARD MEETING**

(The Gallery: Outside of the Seaport Tower, Ground Level)

**1:30-2:00 POSTER DATA BLITZ 1**

Chair: Mary Coussons-Read

(Randle A: Harbor Tower, Fourth Level)

1:30 *Programming of reproductive development by neonatal immunological challenge: Evidence for transgenerational inheritance †*

L. Sominsky, C. L. Meehan, A. K. Walker, L. Bobrovskaya, E. A. McLaughlin, D. M. Hodgson

1:35 *The inflammatory transcription factor NF-IL6 is linked to the activation of the hypothalamic-pituitary-adrenal stress axis in rats*

F. Fuchs, J. Damm, R. Gerstberger, J. Roth, C. Rummel

1:40 *Repeated Stressor Exposure Regionally Sensitizes Beta-Adrenoceptor-Mediated Induction of Brain IL-1 †*

K. Gabella, V. M. Porterfield, J. D. Johnson

1:45 *A novel role of miR124 in inflammatory hyperalgesia and the spinal cord microglial M1/M2 balance*

H. L. Willemen, X. Huo, Q. Mao-Ying, C. J. Heijnen, A. Kavelaars

1:50 *Getting fit or losing weight...which way to reduce inflammation?*

K. Wachmann, K. L. Wilson, B. G. Woods, C. Pruitt, M. A. Pung, P. J. Mills

**2:00-3:30 POSTER SESSION 1**

(Randle D: Harbor Tower, Fourth Level)

**3:30-5:00 ORAL SESSION 1**

**Glucocorticoids: Newly discovered functions in health and disease?**

Co-Chairs: Keith Kelley and Ruth Barrientos

(Randle A: Harbor Tower, Fourth Level)

3:30 *Glucocorticoids Can Be Pro-Inflammatory*

Steven Maier, PhD, University of Colorado at Boulder

4:00 *Novel Molecular Determinants of Glucocorticoid Actions*

Carmine Pariante, MD, PhD, Kings College London

4:30 *Chronic Exposure to Glucocorticoids Primes an Epigenetic Proinflammatory Signature in Lymphocytes*

J. L. Eddy, K. Krukowski, L. Janusek, H. L. Mathews

4:45 *Glucocorticoid sensitivity of leukocytes predicts fatigue, depressive, and PTSD symptoms after military deployment*

A. Kavelaars, M. van Zuiden, M. C. Maas, K. Amarouchi, E. Vermetten, E. Geuze, C. J. Heijnen

**5:00-5:30 BREAK**

(Randle Foyer: Harbor Tower, Fourth Level)

**5:30-7:45 THE 2012 ROBERT ADER NEW INVESTIGATOR AND NORMAN COUSINS MEMORIAL LECTURES**

Co-Chairs: Cobi Heijnen and John Sheridan

(Randle A: Harbor Tower, Fourth Level)

5:30 Eulogy for Dr. Robert Ader given by Cobi Heijnen

5:45 *The intestinal microbiota are interactively involved in stressor-induced immunomodulation*

Michael Bailey, The Ohio State University

6:45 *Neuro-immune communication: The target tissue decides*

Annemieke Kavelaars, University Medical Center Utrecht

**7:45- 10:00 WELCOME RECEPTION**

(Kin Spa Pool Deck: Harbor Tower, Third Level)



## Friday June 8

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**8:00-2:00 REGISTRATION OPEN**  
(Randle Foyer: Harbor Tower, Fourth Level)

**8:00-9:00 BREAKFAST**  
(Randle Foyer: Harbor Tower, Fourth Level)

**Concurrently: FINANCE COMMITTEE MEETING**  
(Gibbons, next to pool, Fourth Level)

**9:00-10:30 ORAL SESSION 2**  
**Leukocyte Trafficking and Migration**  
Co-Chairs: Paul Mills and Katherine Wachmann  
(Randle A: Harbor Tower, Fourth Level)

9:00 *Stress-induced Redistribution of Immune Cells: From Barracks, to Boulevards, to Battlefields*  
Firdaus Dhabhar, PhD, Stanford University

9:30 *Mechanisms of Immune Cell Mobilization During Stress*  
Suzi Hong, PhD, UCSD School of Medicine

10:00 *Infiltrating PGI<sub>2</sub> producing leukocytes mediate neuroprotective effect of Cyclooxygenase-2 (COX-2) †*  
Y. An, N. Belevych, Y. Wang, N. Powell, Z. Liu, Q. Chen, N. Quan

10:15 *Repeated social defeat causes infiltration of bone marrow-derived macrophages into the brain parenchyma that are pivotal to the development of anxiety-like behavior*  
E. S. Wohleb, N. D. Powell, J. P. Godbout, J. F. Sheridan

**10:30-11:00 BREAK**  
(Randle Foyer: Harbor Tower, Fourth Level)

**11:00-12:30 ORAL SESSION 3**  
**Infection, Cognition & Mental Health**  
Co-Chairs: Mark Laudenslager and Jony Kipnis  
(Randle A: Harbor Tower, Fourth Level)

11:00 *Brain Immunophilins: Guardians of Neuronal Homeostasis*  
Cristian L. Achim MD, PhD, UCSD School of Medicine

11:30 *Systemic Inflammation and the Integrity of Brain White Matter Tracts*  
A. Marsland, K. Krajina, P. J. Gianaros

11:45 *Indolamine-2,3-dioxygenase inhibition attenuates lipopolysaccharide induced persistent microglial activation and depressive-like complications in fractalkine receptor (CX3CR1)-deficient mice †*

A. W. Corona, J. Skendelas, D. Norden, Y. Huang, J. C. O'Connor, M. Lawson, R. Dantzer, K. Kelly, J. P. Godbout

12:00 *Adenosine receptor-dependent activation of caspase 1 impairs memory formation after hypoxia/reoxygenation †*

G. S. Chiu, D. Chatterjee, P. T. Darmody, J. P. Walsh, R. W. Johnson, G. G. Freund

12:15 *Environmental mold, brain inflammation, and memory deficits*

C. F. Harding, K. Ryberg, C. Pytte, M. Nagai, B. Ali, K. Denisova

**12:30-2:00 LUNCH**  
(On Your Own)

**Concurrently: BBI BOARD MEETING**  
(America's Cup C, next to pool, Harbor Tower, Fourth Level)

**2:00-3:30 ORAL SESSION 4**  
**Promoting Stress Resistance and Stress Resilience**  
Co-Chairs: Andy Miller and Lisa Christian  
(Randle A: Harbor Tower, Fourth Level)

2:00 *Behavioral Control of Inflammation: Promoting Well-Being in Aging*  
Michael Irwin, MD, UCLA

2:30 *Compassion Training as a Pathway to Stress Resilience: Effects Along the Mind-Body Continuum*  
Charles Raison, MD, Emory University

3:00 *Stress, coping, and inflammation in adolescents*  
C. A. Low, K. A. Matthews, M. Hall

3:15 *Engagement with Cognitively-Based Compassion Training is associated with reduced salivary C-reactive protein and cortisol from before to after training in foster care program adolescents*  
T. Pace, L. T. Negi, B. Dodson-Lavelle, B. Ozawa-de Silva, S. D. Reddy, S. P. Cole, L. W. Craighead, C. L. Raison

**3:30-4:30 BREAK**  
(Randle Foyer: Harbor Tower, Fourth Level)

**Concurrently: COMMUNICATIONS COMMITTEE MEETING**  
(Gibbons, next to pool, Fourth Level)

**4:30-6:30 EDUCATIONAL SHORT COURSE**  
**A Tutorial on 21st Century Molecular Biology: A Role in PNI Research?**  
Chair: Monika Fleshner  
(Randle A: Harbor Tower, Fourth Level)

4:30 *A Primer on Molecular Biology*  
Herbert Mathews, Loyola University of Chicago

- 5:00 *Genomic Approaches in PNI*  
Steve Cole, University of California Los Angeles
  
- 5:30 *The basics of miRNA: A Newly Appreciated Genetic Modulator*  
Erick Tatro, University of California San Diego
  
- 6:00 *Strengths and Limitations of Current Molecular Analysis Approaches*  
Matthew McQueen, University of Colorado
  
- 6:30-7:00 BREAK**  
(Randle Foyer: Harbor Tower, Fourth Level)
  
- 6:30-7:30 Concurrently: EARLY CAREER INVESTIGATOR SOCIAL**  
(Randle Terrace: Harbor Tower, Fourth Level)
  
- 7:00-9:00 Concurrently: TRAINEE DINNER/SOCIAL**  
(Off Site)

## Notes

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# Saturday June 9

**8:00-2:00 REGISTRATION OPEN**  
(Randle Foyer: Harbor Tower, Fourth Level)

**8:00-9:00 BREAKFAST**  
(Randle Foyer: Harbor Tower, Fourth Level)

**9:00-10:30 ORAL SESSION 5**  
**Cancer: PsychoNeuroImmunological Perspectives**  
Co-Chairs: Susan Lutgendorf and Bonnie McGregor  
(Randle A: Harbor Tower, Fourth Level)

9:00 *Stress, Inflammation and Behavioral Symptoms in Cancer Survivors*  
Julie Bower, PhD, UCLA

9:30 *Chronic Stress Enhances Progression of Leukemia through Beta-adrenergic Signaling †*  
D. M. Lamkin, E. K. Sloan, S. W. Cole

9:45 *Relationships Between Global Epigenetic Modifications and NK Cell Function in Women With Breast Cancer*  
K. Krukowski, J. L. Eddy, D. Tell, L. Janusek, H. L. Mathews

10:00 *Interaction effects of IL6 and treatment on neurobehavioral functioning in women with breast cancer*  
S. K. Patel, E. C. Breen, A. Davtyan, E. Beier, A. Meier, K. Barrera, A. Wong, C. Perez, L. Wong, M. R. Irwin, S. Bhatia

10:15 *Oxytocin Receptor Gene (OXTR) Variation Moderates Affective Placebo Responders in Fatigued Breast Cancer Survivors: Relevance to Biological Sensitivity to Context*  
S. Jain, K. Aschbacher, N. Bat, P. J. Mills, C. S. Carter, J. Connelly, W. Jonas, J. Ives

**10:30-11:00 BREAK**  
(Randle Foyer: Harbor Tower, Fourth Level)

**11:00-12:30 ORAL SESSION 6**  
**PNI Hot Topics**  
Co-Chairs: John Sheridan and Marni Silverman  
(Randle A: Harbor Tower, Fourth Level)

11:00 *Inhibition of miR-98 ameliorates stress-impaired wound healing†*  
S. D. Tymen, X. Zhou, Z. J. Fang, Y. Zhao, P. T. Marucha

11:15 *Neonatal immune challenge induces anxiety in adulthood and is associated with functional alterations to the autonomic nervous system*  
L. Sominisky, E. A. Fuller, E. Bondarenko, L. K. Ong, V. R. Clark, L. Bobrovskaya, P. R. Dunkley, E. Nalivaiko, D. M. Hodgson

- 11:30 *Sickness hurts: pain sensitivity during human endotoxemia †*  
B. Karshikoff, M. Lekander, F. Lindstedt, K. Sahlander, M. Kramar, A. Soop, T. Bachrach, E. Kosek, M. Ingvar, C. Olgart Höglund, J. Axelsson
- 11:45 *The Beta-2 Adrenergic Receptor on B cells Exacerbates IgE and Allergic Asthma †*  
C. J. Padro, V. M. Sanders
- 12:00 *The functional role of exosome associated extracellular heat shock protein 72 following exposure to acute stress †*  
L. A. Beninson, T. Maslanik, M. J. Murphy, M. Fleshner
- 12:15 *Light at Night Affects Cardiac Arrest Outcome †*  
L. K. Fonken, T. A. Bedrosian, N. Zhang, Z. M. Weil, A. C. DeVries, R. J. Nelson

**12:30-2:00 LUNCH**  
(On Your Own)

**2:00-2:30 POSTER DATA BLITZ 2**  
Chair: John Johnson  
(Randle A: Harbor Tower, Fourth Level)

- 2:00 *Antidepressants from different classes reduce inflammation in human hippocampal stem cells*  
M. A. Horowitz, P. Zunszain, J. Wertz, C. Anacker, K. Musaelyan, C. Pariante
- 2:05 *Simultaneous and complementary pro- and anti-inflammatory responses of immune stimulation by CpG-C*  
L. Sorski, R. Melamed, M. Benish, B. Levi, L. Shaashua, P. Matzner, S. Ben-Eliyahu
- 2:10 *The gut microbiota modulates stress-induced cytokine concentrations in healthy, non-obese white adipose tissue †*  
K. J. Speaker, T. Maslanik, M. Fleshner
- 2:15 *An Extended Model Of Restraint Stress Elicits Depressive-like Behavior and Altered Interleukin Expression During and Following Stress Exposure †*  
J. L. Voorhees, A. J. Tarr, E. S. Wohleb, J. F. Sheridan, T. D. Eubank, C. B. Marsh
- 2:20 *Inhibition of Indoleamine 2,3-Dioxygenase Prevents Amyloid-Beta-Induced Neuropsychiatric-Like Behaviors in Mice †*  
J. M. Parrott, A. Salazar, L. Redus, A. Green, C. T. Skalomenos, J. M. Heisler, J. C. O'Connor
- 2:25 *Subjective feelings of social isolation are associated with differential intra-nuclear Signal Transducer and Activator of Transcription (STAT) signaling †*  
J. E. Carroll, T. Witarama, M. M. Caudill, E. C. Breen, R. Olmstead, S. W. Cole, M. R. Irwin

- 2:30-4:00 POSTER SESSION 2**  
(Randle D: Harbor Tower, Fourth Level)
- 4:00-5:00 KEYNOTE ADDRESS**  
**Neuroinflammation, Alzheimer's disease, and the Blood-brain Barrier**  
(Randle A: Harbor Tower, Fourth Level  
William A Bank, University of Washington  
Introduction by Monika Fleshner)
- 5:00-6:00 BUSINESS MEETING**  
(Randle A: Harbor Tower, Fourth Level)
- 6:00-7:00 BREAK**  
(Randle Foyer: Harbor Tower, Fourth Level)
- 7:00- DINNER BANQUET (DANCING)**  
(Randle Ballrooms: Harbor Tower, Fourth Level)

**Notes**

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## Poster Session 1: Thursday, June 7

‡ Indicates participation in the Data Blitz

1		Interleukin-6 as a Biomarker in Major Depressive Disorder A. Halaris, E. Meresh, J. Fareed, D. Hoppensteadt, S. Kimmons, J. Sinacore
2		Tumor Necrosis Factor alpha as a Biomarker in Major Depressive Disorder A. Halaris, E. Meresh, J. Fareed, D. Hoppensteadt, S. Kimmons, J. Sinacore
3		Novel mouse models for the investigation of neuronal-glia immune interactions A. M. Ingiosi, M. N. Pavlova, R. M. Raymond, Jr., M. R. Opp
4		Stressful life events during pregnancy might modulate local inflammation during delivery E. Fransson, A. Dubicke, G. Ekman-Ordeberg, A. Hjelmstedt
5		Intra bone marrow procedure facilitates entry of transplanted bone marrow cells through the tenia of choroid plexus into brain parenchyma S. Hasegawa-Ishii, A. Shimada, M. Inaba, M. Li, M. Shi, N. Kawamura, S. Takei, S. Ikehara
6		Enhanced recruitment of bone marrow-derived cells into the brain parenchyma in senescence-accelerated mice A. Shimada, S. Hasegawa-Ishii, M. Inaba, M. Li, M. Shi, N. Kawamura, S. Takei, S. Ikehara
7		Transgenerational Effects of LPS Exposure on the Expression of Depressive-Like Behavior of Mice Rated by an Experimental Model of Depression T. M. Reis-Silva, M. M. Bernardi
8		Reactivation of Latent Epstein-Barr Virus in Pregnancy: Effects of Race and Implications for Preterm Birth L. M. Christian, J. D. Iams, K. Porter, R. Glaser
9		Dysregulated diurnal cortisol pattern and increased glucocorticoid resistance among pre-menopausal women with major depressive disorder M. R. Jarcho, G. M. Slavich, H. Tylova-Stein, O. M. Wolkowitz, H. M. Burke
10	‡	A novel role of miR124 in inflammatory hyperalgesia and the spinal cord microglial M1/M2 balance H. L. Willemsen, X. Huo, Q. Mao-Ying, C. J. Heijnen, A. Kavelaars
11		A rat model of autism induced by a single early prenatal exposure to LPS T. B. Kirsten, J. Palermo-Neto, M. M. Bernardi
12		Low stress system activity and high peripheral inflammation in female competitive ballroom dancers J. Strahler, C. Berndt, C. Kirschbaum, N. Rohleder
13		Therapeutic treatment with cannabidiol, a non-psychoactive plant-derived cannabinoid, decreases inflammation in a murine model of acute lung injury J. Palermo-Neto, V. I. Almeida, C. Costola-de-Souza, V. Ferraz-de-Paula, M. L. Pinheiro, A. T. Akamine, A. Ribeiro
14		Alpha-7 nicotinic receptor stimulation modifies cytokine profile in OVA-sensitized mice M. L. Pinheiro, A. Ribeiro, V. Ferraz-de-Paula, J. Palermo-Neto
15		Cohabitation with a sick cage mate: Interaction between innate immunity and resistance to Ehrlich tumor growth in male mice T. R. Machado, G. J. Alves, J. Palermo-Neto
16		Maternal Immune Activation in Late Gestation Increases Corticosterone Secretion and Stimulates Th1 Immunity in Male Mice Offspring

		A. Zager, M. L. Pinheiro, V. Ferraz-de-Paula, A. Ribeiro, J. Palermo-Neto
17		Anandamide attenuates the inflammatory phenotype of rheumatoid arthritis synovial fibroblasts by activating multiple receptor pathways T. Lowin, A. Gräber, E. Neumann, R. H. Straub
18		Cortisol-induced adhesion of synovial fibroblasts is mediated by the endocannabinoid system T. Lowin, W. Zhu, A. Gräber, E. Neumann, U. Müller-Ladner, R. H. Straub
19		The peripheral nervous system and focal bony erosions in arthritis H. Stangl, R. H. Straub
20		Caregiving from the outset: Stressed but not stressed out M. L. Laudenslager, S. K. Mikulich-Gilbertson, C. Natvig, S. Philips, P. Benitez, R. Gryzwa-Cobb, J. Spradley, K. Kilbourn, T. Simoneau
21		Cytokine Concentration in Sleep Impaired Individuals with Known Heart Disease T. L. Hammonds, J. Hughes, J. Johnson, J. Gunstad, T. Alexander, J. Rosneck, L. Define
22		Ketamine Abrogates Lipopolysaccharide-Induced Depressive-Like Behavior in C57/B16J Mice by Antagonizing the Activation of NMDA Receptors A. K. Walker, R. A. Smith, B. Beenders, K. W. Kelley, R. Dantzer
23		Partial sleep deprivation leads to changes in activation of pro-inflammatory transcription factors in peripheral blood subsets M. M. Caudill, T. Witarama, E. C. Breen, J. E. Carroll, R. Olmstead, M. R. Irwin
24	‡	The inflammatory transcription factor NF-IL6 is linked to the activation of the hypothalamic-pituitary-adrenal stress axis in rats F. Fuchs, J. Damm, R. Gerstberger, J. Roth, C. Rummel
25		The study of natural killer cell activity in patients with at-risk mental state and with the first-episode schizophrenia. L. N. Petrakova, E. F. Vasil'eva, V. G. Kaleda, A. N. Barkhatova
26		Effects of cannabinoids on microglial activation and tyrosine hydroxylase expression in substantia nigra of rats with 6-hydroxydopamine-induced hemiparkinsonism G. P. Chaves-Kirsten, A. S. Torrão
27		Plasma oxytocin and vasopressin and social functioning J. Gouin, C. Carter, H. Pournajafi-Nazarloo, R. Glaser, W. Malarkey, T. Loving, J. Stowell, J. K. Kiecolt-Glaser
28		Positive Thyroid Peroxidase Antibody Titer is Associated with Dysphoric Moods during Pregnancy and Throughout the Postpartum M. Groer, J. H. Vaughn, S. N. Williams
29		Lower morning cortisol is associated with depression, stress and lower IL-10 in dementia caregivers M. Rowe, M. W. Groer, J. W. Beckstead, B. Lehman
30	‡	Programming of reproductive development by neonatal immunological challenge: Evidence for transgenerational inheritance. L. Sominsky, C. L. Meehan, A. K. Walker, L. Bobrovskaya, E. A. McLaughlin, D. M. Hodgson
31		Grief is Associated with Cortisol Awakening Response and TNF-alpha in Female Partners of Veterans with Traumatic Brain Injury K. L. Saban, H. L. Mathews, N. S. Hogan, J. M. Griffin, F. B. Bryant, T. L. Pape, E. G. Collins, L. Witek Janusek
32		Immune adaptation in the central nervous system in response to systemic infection

		U. Püntener, S. G. Booth, V. H. Perry, J. L. Teeling
33		Relationship of Sexual Trauma with the Health of Women Veterans A. G. Rossiter, F. M. Sahebzamani, M. S. Webb, M. W. Groer
34		Rumination, Post-stress Contemplation, and Diurnal Cortisol among Mid-Life Adults C. N. Crittenden, J. E. Carroll, S. Cohen, A. L. Marsland
35		Heritability of interleukin-6 and its receptor in adult twins W. Amaral, C. Coe
36		Antidepressant effects of macrophage migration inhibitory factor using a knockout mouse approach C. Bay-Richter, S. Janelidze, R. Bucala, T. Deierborg, L. Brundin
37		Anti-inflammatory Effects of Apupuncture on Systemic and Localized Inflammogens. D. M. Nance, G. Luczy-Bachman, P. Min
38		Laboratory Immune Parameters of Normal Humans Vary by Cytokine Receptor Polymorphisms L. Xiang, K. E. Rehm, O. U. Elci, G. D. Marshall, Jr.
39		Chaotic childhood home environment is associated with heightened inflammatory markers in adult breast cancer survivors A. Dupont, J. E. Bower, P. A. Ganz
40		Does anticipation induce affective states with consequences for immunocompetence? U. Gimsa, P. Kloeckner, S. Jaskulke, E. Kanitz, M. Tuchscherer, P. C. Schoen, A. Tuchscherer, G. Manteuffel
41		Increased PBMC expression of inflammation and neurological disease-associated genes correlates with anhedonia, the BOLD response to masked happy faces and subgenual anterior cingulate cortex volume in patients with primary mood disorders J. Savitz, B. Frank, B. Mckinney, T. K. Teague, W. Drevets
42		Upregulation of indoleamine 2,3 dioxygenase in brain tumors is associated with decreased survival through a T cell-dependent mechanism D. A. Wainwright, I. B. Balyasnikova, A. U. Ahmed, B. Auffinger, Y. Han, M. S. Lesniak
43		Differing trafficking and TNF-alpha production by monocyte subsets under adrenergic activation: blunted mobilization of ?pro-inflammatory? monocytes in individuals with elevated blood pressure S. Dimitrov, F. Shaikh, C. Pruitt, M. Green, K. Wilson, N. Beg, S. Hong
44		The Association of Behavioral Inhibition and the Airways Response in Asthma: Possible Mechanisms K. Chun, L. A. Miller, E. S. Schelegle, D. M. Hyde, J. P. Capitanio
45		Cohabitation with a Sick Cage-Mate Induce Immune Changes J. Palermo-Neto, G. J. Alves
46		Inhibitors of Monoacylglycerol Lipase, URB602 and JZL184, Decrease Inflammation in a Dose-Dependent Murine Model of Acute Lung Injury C. Costola-de-Souza, A. Ribeiro, V. Ferraz-de-Paula, M. L. Pinheiro, J. Palermo-Neto
47	‡	Getting fit or losing weight...which way to reduce inflammation? K. Wachmann, K. L. Wilson, B. G. Woods, C. Pruitt, M. A. Pung, P. J. Mills
48		Salivary alpha-amylase response to endotoxin administration in humans J. S. Grigoleit, J. S. Kullmann, R. Oberbeck, M. Schedlowski, H. Engler

49	Dose-dependent effects of lipopolysaccharide on memory and social cognition in humans J. S. Grigoleit, J. S. Kullmann, O. T. Wolf, H. Engler, R. Oberbeck, M. Schedlowski
50	Glutamatergic involvement in amphetamine-induced effects on pulmonary allergic inflammatory response in mice E. K. Hamasato, A. Ribeiro, V. Ferraz-de-Paula, M. Lobão Pinheiro, W. Moreno Quinteiro Filho, A. Sabino Damazo, A. Lino-dos-Santos-Franco, A. Ligeiro de Oliveira, W. Tavares-de-Lima, J. Palermo Neto
51	The Spatial Energy Expenditure Configuration and possible Applications in an Experimental Model of Arthritis S. Klatt, R. H. Straub
52	Blockade of the neuropilin-2/plexin A2 receptor ? a new treatment of rheumatoid arthritis? J. Kunath, R. Straub
53	Age dependant effects of the PPAR-gamma agonist rosiglitazone on the brain and periphery during systemic LPS-induced inflammation in rats S. Koenig, T. Wenz, G. N. Luheshi, R. Gerstberger, J. Roth, C. Rummel
54	Anxiety about Relationships is Linked to Alterations in Cortisol Production and Cellular Immunity L. M. Jaremka, R. Glaser, T. J. Loving, W. B. Malarkey, J. R. Stowell, J. K. Kiecolt-Glaser
55	Effects of regular exercise and weight loss on inflammatory biomarkers in individuals with high blood pressure P. J. Mills, K. Wilson, J. Sadjja, B. Woods, C. Pruitt, L. Redwine, G. Schmid-Schonbein, S. Hong
56	Long-term amphetamine treatment increases inflammatory lung reaction and reduces upper airway reactivity after allergic lung inflammation in rats. E. K. Hamasato, A. Ligeiro de Oliveira, A. Lino-dos-Santos-Franco, B. Golegã Acceturi, I. Daufenback Machado, J. A. Gimenes Júnior, R. de Paula Vieira, S. Poliselli Farsky, W. Tavares-de-Lima, J. Palermo-Neto
57	Indoleamine 2,3-dioxygenase mediates anhedonia and anxiety-like behaviors caused by peripheral lipopolysaccharide immune challenge J. C. O'Connor, A. Salazar, B. L. Gonzalez-Rivera, L. Redus, J. M. Parrott
58	Cultural differences in the link between supportive relationships and proinflammatory cytokines J. Chiang, N. I. Eisenberger, T. E. Seeman, S. E. Taylor
59	Long Lasting Effects of Smoking: Breast Cancer Survivors? Inflammatory Responses to Acute Stress Differ by Smoking History J. M. Bennett, R. Glaser, R. R. Andridge, J. Peng, W. B. Malarkey, J. K. Kiecolt-Glaser
60	Association between immune genetic markers and opioid dependence J. Collier, M. Hutchinson, J. Tuke, J. White, A. Somogyi
61	Evidence for neuroplastic changes in the brainstem following TH2 lung inflammation: a role for the central nervous system in contributing to the symptoms of asthma and investigating a potential target for therapy O. Larsson, L. M. Felton, V. H. Perry, J. L. Teeling
62	Combined beta-adrenergic-receptor (AR) agonist and alpha-AR antagonist treatment reduced joint damage in adjuvant-induced arthritis without affecting disease-induced sympathetic denervation of the ankle. D. Lorton, C. Wood, C. Lubahn, J. Wergedal, J. Schaller, D. L. Bellinger



63	Association Between Serum Inflammatory Markers and Autologous Stem Cell Transplant-Induced Sickness Symptoms in Patients with Multiple Myeloma X. Wang, Q. Shi, N. Shah, R. Dantzer, V. Johnson, J. Reuben, E. Cohen, V. Ilagan, L. Williams, C. Cleeland
64	A role for beta 2-adrenergic receptor signaling in the exercise-induced redistribution of Th cells within an asthmatic lung. K. J. Dugger, T. Chrisman, K. Estell, L. Schwiebert
65	Novel mechanisms by which social isolation delays dermal wound healing in mice C. G. Engeland, L. Pyter, C. McKenzie, L. Yang
66	Circadian Rhythmicity, Variability and Correlation of Interleukin-6 in Plasma and Cerebrospinal Fluid of Healthy Humans A. Agorastos, R. L. Hauger, T. Moeller-Bertram, D. Barkauskas, P. L. Clopton, U. Haji, S. P. Patel, J. B. Lohr, A. Turken, P. M. Patel, D. G. Baker
67	The neurotransmitter, vasoactive intestinal peptide (VIP), bolsters the anti-leukemic activities of Ikaros and regulates cellular migration in human T cells. T. van der Steen, G. P. Dorsam
68	High C-Reactive Protein Levels in Active Duty Soldiers are Associated with Depression, PTSD and Combat Exposure M. Groer, R. Murphy, M. Hazlett, D. Padgett, A. Radford
69	Targeted Rejection Life Events Trigger Altered Glucocorticoid Receptor mRNA Expression and Major Depressive Disorder in Adolescents G. M. Slavich, M. L. Murphy, G. E. Miller
70	Self-rated health is associated with inflammation in young men of the general population A. N. Andreasson, C. Warnoff, T. Hemmingsson, B. Melin, M. Lekander
71	Meta-Analysis of Monocytes and Lymphocytes in Schizophrenia: Clinical Status and Antipsychotic Effects B. J. Miller, B. Gassama, D. Sebastian, P. Buckley, A. Mellor
72	Relationships of Toxoplasma gondii antibody titers and dysphoric moods in female veterans A. Radford, S. N. Williams, B. Kane, M. Groer
73	Mice Injected with E.coli as Neonates have Hyperactive Behavior and an Increased Microglial Inflammatory Profile J. C. Lieblein, D. T. Shea, Y. Huang, M. T. Bailey, S. D. Bilbo, J. P. Godbout
74	Analysis of the effects of short-term corticosterone treatment on the CD8+ T cell response to a well-defined oncoprotein J. L. Yorty
75	Depressive Symptomology is More Strongly Associated with TNF-a Levels and Sleep than Fitness, Adiposity, or Blood Pressure in Individuals with Elevated Blood Pressure K. L. Wilson, J. Sadjja, B. Woods, K. Wachmann, T. Rutledge, L. Tomfohr, L. Redwine, S. Hong, P. J. Mills
76	Orbitofrontal IL-6 enhances reversal learning in the rat J. J. Donegan, M. Girotti, D. A. Morilak
77	Insulin-like Growth Factor (IGF)-I Interaction with Lipopolysaccharide (LPS) on Organotypic Hippocampal Slice Cultures (OHSCs) R. H. McCusker, S. Park, M. A. Lawson, R. Dantzer, K. W. Kelley
78	Psychological resilience is associated with markers of inflammation and angiogenesis in pre-surgical ovarian cancer patients L. Zagorski, K. DeGeest, P. H. Thaker, G. M. Slavich, F. Penedo, S. Cole, A. K.

		Sood, D. Lubaroff, S. Lutgendorf
79	‡	Repeated Stressor Exposure Regionally Sensitizes Beta-Adrenoceptor-Mediated Induction of Brain IL-1 K. Gabella, V. M. Porterfield, J. D. Johnson
80		The Tumor Necrosis Factor-alpha Antagonist Infliximab Reduces Depressive Symptoms in Patients with Treatment Resistant Depression and High Inflammation C. Raison, R. E. Rutherford, B. Woolwine, C. Shuo, P. Schettler, D. Drake, E. Haroon, A. H. Miller

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## Poster Session 2: Saturday, June 9

‡ Indicates participation in the Data Blitz

1		The Effect of Acute Metabolic Stress on Anhedonia and IL-1 Beta Expression Following Chronic Stress J. L. Remus, L. Stewart, K. Mulhern, A. Patel, R. Camp, C. Novak, J. Johnson
2		Methamphetamine addiction is associated with increased T-cell immunoreactivity and neuropsychiatric impairment M. Huckans, A. Buenafe, J. Huan, A. A. Vandembark, J. M. Loftis
3		Sex Modulates Social Isolation-Induced Wound Healing Impairments in Mice L. M. Pyter, L. Yang, C. G. Engeland
4		Sex Differences in the Effects of Adolescent Stress on Adult Brain Inflammatory Responses L. M. Pyter, S. Kelly, C. Harrell, G. N. Neigh
5		The role of microglia in cognitive disturbance: a new frontier in the neurobiology of stress F. R. Walker, R. J. Tynan, M. Hinwood, S. Woodworth
6		Antisense Directed Against The Amyloid Precursor Protein Reduces Cytokine Expression in the Brain and Improves Learning and Memory in the Tg2576 Mouse Model of Alzheimer's Disease M. A. Erickson, S. A. Farr, M. L. Niehoff, J. E. Morley, W. A. Banks
7		Expression of TLRs in the rat intestine following chemotherapy for cancer J. Bowen, J. Collier, M. Hutchinson, R. Gibson
8		The role of polyunsaturated fatty acids on Interferon-alpha induced clinical factors N. Heggul, S. Baraldi, C. Bufalino, R. Gray, T. Sanders, M. Henderson, M. Hotopf, A. J. Cleare, K. Agarwal, C. M. Pariante
9	‡	Antidepressants from different classes reduce inflammation in human hippocampal stem cells M. A. Horowitz, P. Zunszain, J. Wertz, C. Anacker, K. Musaelyan, C. Pariante
10		Plasma Markers of Inflammation are Elevated in Intermittent Explosive Disorder and as a Function of Aggression in Human Subjects E. Coccaro, R. Lee, S. Madore, M. Coussons-Read
11		Leptin deficiency in maltreated children: Implications for Psychoneuroimmunology A. Danese, R. Dove
12		Restraint Stress Inhibits Melanoma Tumor Progression In Vivo Through Suppression of IL-10 J. L. Voorhees, C. B. Marsh, T. D. Eubank
13		Interleukin (IL)-4 knockout (KO) mice show anxiety-like behaviors that appear dependent on IL-1 receptor antagonist (RA) J. J. Joesting, N. A. Blevins, L. K. McNeil, G. S. Chiu, S. J. Gainey, A. M. Nemeth, G. G. Freund
14		Central Interleukin-4 infusion after a Peripheral Lipopolysaccharide Injection Promotes a Neuroprotective CNS environment with increased M2 microglia J. P. Godbout, A. Fenn, Y. Huang, J. Gensel
15	‡	An Extended Model Of Restraint Stress Elicits Depressive-like Behavior and Altered Interleukin Expression During and Following Stress Exposure J. L. Voorhees, A. J. Tarr, E. S. Wohleb, J. F. Sheridan, T. D. Eubank, C. B. Marsh

16	Cognitive Vulnerability to Emotional Disorders, Self-regulation and Pro-inflammatory State. D. J. Swistun, C. L. Coe, T. J. Strauman, L. Y. Abramson, L. Y. Abramson
17	Decreased regulatory T cell populations in an in vitro stress model using normal human PBMC K. E. Rehm, D. D. Montgomery, G. D. Marshall, Jr.
18	Marital Status is Related to Epstein-Barr Virus Latency in Individuals Undergoing Cancer Diagnostic Procedures H. M. Derry, R. Glaser, J. K. Kiecolt-Glaser
19	Beta-Adrenergic Sensitivity and Somatic Symptoms of Depression in Heart Failure Patients M. N. Iqbal, B. A. Wentworth, K. Wachmann, P. J. Mills, A. S. Maisel, L. S. Redwine
20	Intrusive thoughts counteract the effects of progressive relaxation on early wound repair M. E. Lindgren, R. Glaser, W. B. Malarkey, J. K. Kiecolt-Glaser
21	Functional Consequences of Social Stress-induced Alterations in Activation and Inhibitory Phenotypes of Natural Killer Cells A. J. Tarr, N. D. Powell, B. F. Reader, J. F. Sheridan
22	Neural and Behavioral Responses to Low-grade Inflammation A. J. Tarr, Q. Chen, Y. Wang, J. F. Sheridan, N. Quan
23	Stress-induced activation of the inflammasome is necessary for stress-evoked cytokine and chemokine production T. M. Maslanik, L. W. Mahaffey, K. Tannura, M. Fleshner
24	Insight into the Role of CD8 T Cells in HIV-associated Neurocognitive Impairment R. D. Schrier, S. Hong, M. Crescini, R. J. Ellis, S. Letendre
25	Obstructive Sleep Apnea and Neurocognitive Performance ? The Role of Cortisol K. M. Edwards, R. Kamat, L. M. Tomfohr, S. Ancoli-Israel, J. E. Dimsdale
26	Modeling an autism risk factor in mice leads to permanent changes in the immune system E. Hsiao, S. McBride, J. Chow, S. K. Mazmanian, P. H. Patterson
27	Influence of Childhood Adversity and Neighborhood Violence on Inflammatory Risk in Young Urban African American Men L. W. Janusek, D. Tell, K. Fishe, N. Gaylord-Harden, H. Mathews
28	Febrile Response in an Ectothermic Species Upon Exposure to Cytokines K. S. Kinney, A. L. Whitney, E. L. Hindsley
29	Immunosenescence is Associated with Disease Progression but not Depression in Presymptomatic Stage B Heart Failure Patients T. Cheng, S. Dimitrov, M. Green, M. Pung, P. J. Mills, L. Redwine, S. Hong
30	Psychological risk factors are related to higher levels of antioxidant enzyme activity in ovarian cancer patients J. L. Bayer-Carter, D. Christensen, L. Dahmouch, M. L. McCormick, K. DeGeest, D. R. Spitz, A. Sood, S. K. Lutgendorf
31	Corticosteroids, but not catecholamines, mediate stress- and surgery-induced suppression of plasma IL-12 levels in rats: A second-phase response of stress-induced immune perturbations L. Shaashua, L. Sorski, B. Levi, P. Matzner, G. Page, S. Ben-Eliyahu

32		A comparative examination of the anti-inflammatory effects of SSRI and SNRI antidepressants on microglia R. J. Tynan, M. Hinwood, J. Weidenhofer, M. Cairns, F. R. Walker
33		HPA axis habituation to repeated acute psychosocial stress is related to lower sensitization of plasma interleukin-6 responses N. Rohleder, D. Gianferante, A. Fiksdal, L. Hanlin, X. Chen, M. V. Thoma
34		Phosphorylation status of ERK1/2, p38 - Mitogen-activated protein kinase, and nuclear factor Kappa B-p65 in peripheral blood mononuclear cells of bipolar disorder patients I. G. Barbosa, N. P. Rocha, C. Nogueira, J. Vago, C. T. Fagundes, R. . Huguet, L. P. de Sousa, A. L. Teixeira
35		Depressive Symptoms Enhance Stress-induced Inflammatory Responses C. P. Fagundes, R. Glaser, B. Hwang , W. B. Malarkey , J. K. Kiecolt-Glaser
36		Subpyrogenic Inflammation Exacerbates Behaviour in Chronic Stress Models of Depression Y. Couch, J. P. Costas-Nunes, T. Strelakova, H. W. Steinbusch, D. C. Anthony
37		Subjective social status reduces the association between poor sleep and elevated inflammation in female college students J. C. Knudsen, S. J. Gray, J. M. Wolf
38	‡	The gut microbiota modulates stress-induced cytokine concentrations in healthy, non-obese white adipose tissue K. J. Speaker, T. Maslanik, M. Fleshner
39		The effects of voluntary-wheel exercise on LPS-induced sickness behavior in aged mice. S. A. Martin, S. J. Johnson, R. M. Greene, R. Dantzer, K. W. Kelley, J. A. Woods
40		Free fatty acids (FFAs) induce sickness behavior via a Toll-like receptor (TLR)4 independent pathway M. L. Moon, N. A. Blevins, J. M. York, S. J. Gainey, G. G. Freund
41	‡	Simultaneous and complementary pro- and anti-inflammatory responses of immune stimulation by CpG-C L. Sorski, R. Melamed, M. Benish, B. Levi, L. Shaashua, P. Matzner, S. Ben-Eliyahu
42		Stress jeopardizes immune stimulation by CpG-C: Attenuation by adrenalectomy, but not by receptor blockade of adrenal-secreted factors. P. Matzner, L. Shaashua, L. Sorski, B. Levi, Y. Tishler, G. Etzion, S. Ben-Eliyahu
43		Inflammatory effects on human Rhinal cortex glucose metabolism predict subsequent spatial memory impairment N. A. Harrison, C. Doeller, E. Cooper, N. Burgess, H. D. Critchley
44		Cortisol and Inflammatory Processes in Ovarian Cancer Patients Following Primary Treatment: Relationships with Depression, Fatigue, and Disability A. D. Schrepf, L. Clevenger, D. Christensen, K. DeGeest, D. Bender, A. Ahmed, M. Goodheart, L. Dahmouch, F. Penedo, J. Lucci, P. Ganjei-Azar, L. Mendez, K. Markon, S. Lutgendorf
45		The Effects of Low Partner Support on Pregnancy Outcomes in Latinas are Mediated by Maternal Acculturation M. Kreither, C. Brandt, M. Lobel, K. D'Anna, M. Coussons-Read
46		A Dynamical Systems Analysis of Psychological Distress and Genital HSV-2 Infection in Humans

		E. Strachan, E. Horn, A. Magaret, A. Wald, E. Turkheimer
47		Short-term selective upregulation of natural killer cell genes in response to a first-time tandem skydive N. Beliakova-Bethell, C. H. Woelk, W. Y. Ensign, J. Carlson, L. R. Mujica-Parodi, B. K. Rana
48		No evidence of sickness behavior in a sample of women with and without breast cancer prior to initiation of chemotherapy J. Grigsby, M. Fleshner, M. Laudenslager, K. Conway, L. Baillie, R. Bennett, P. Walker, K. Onderko, M. Ray, R. Porter, S. Min, T. Simoneau
49		Interleukin-1R3 mediates interleukin-1 induced potassium current increase through fast activation of Akt kinase J. Qian, L. Zhu, Q. Li, N. Belevych, Q. Chen, F. Zhao, S. Herness, N. Quan
50		Temporal associations between IL-6 and cortisol production in response to acute psychosocial stress C. E. Gawuga, A. R. Tyrka, L. H. Price, L. L. Carpenter
51		Depressive Symptoms and Cardiovascular Risk B. A. Wentworth, M. N. Iqbal, K. Wachmann, L. S. Redwine, A. S. Maisel, P. J. Mills
52		Neural correlates of persistent fatigue-like behavior in cancer chemotherapy-treated rats. L. E. Goehler, J. King, R. P. Gaykema
53		Treatment of Neonatal Brain Injury with Mesenchymal Stem Cells C. T. van Velthoven, V. Donega, C. H. Nijboer, A. Kavelaars, C. J. Heijnen
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57	‡	Subjective feelings of social isolation are associated with differential intra-nuclear Signal Transducer and Activator of Transcription (STAT) signaling J. E. Carroll, T. Witarama, M. M. Caudill, E. C. Breen, R. Olmstead, S. W. Cole, M. R. Irwin
58		Latent CMV infection accounts for the age-related differences in the mobilization and egress of senescent CD8+ T-cells in response to acute exercise R. J. Simpson, A. B. Bigley, G. Spielmann, E. C. LaVoy, M. Momcilovic, M. R. Morrison
59		Targeting the GRK2-Epac1 balance: a novel route to prevent transition to chronic pain H. Wang, C. J. Heijnen, C. T. van Velthoven, H. L. Willemsen, P. Singmar, B. Igwe, A. Vroon, N. Eijkelkamp, A. Kavelaars
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65		Comorbid Chronic Pain and Depression: a Search for Common Neuroimmune Mechanisms W. Zhou, R. Dantzer, K. W. Kelley, A. Kavelaars
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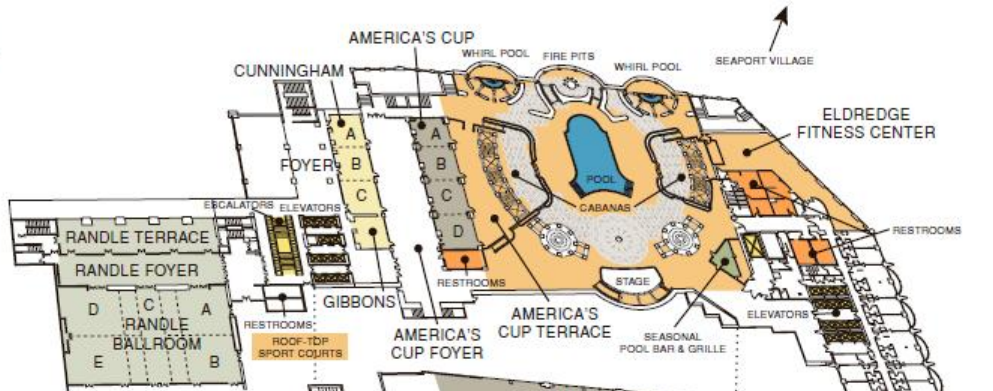


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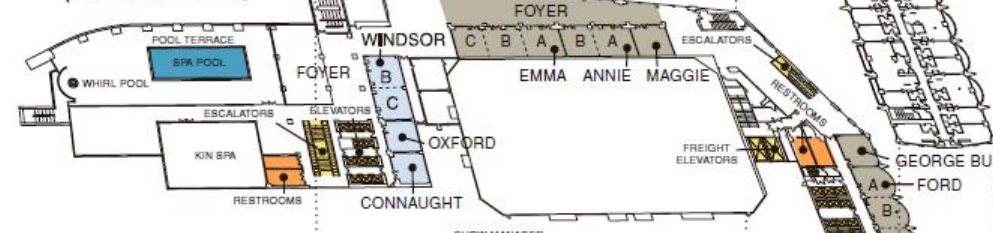




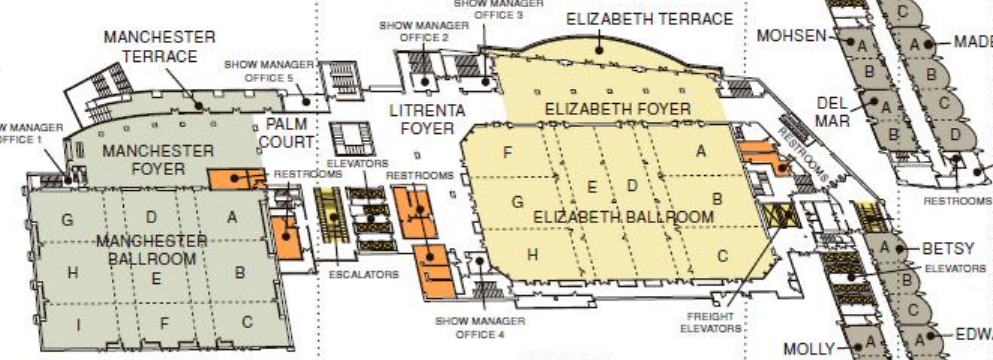
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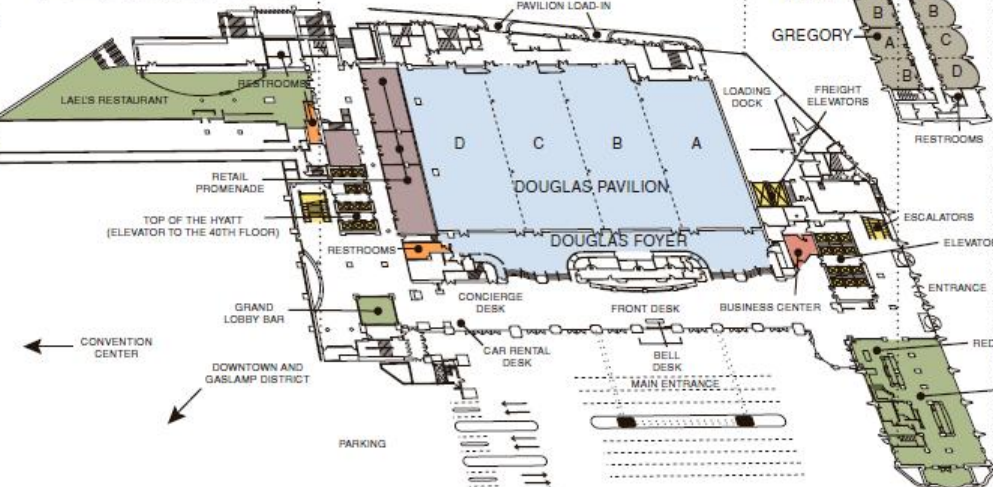
THIRD LEVEL



SECOND LEVEL



GROUND LEVEL



HARBOR TOWER

SEAPORT TOWER

ELEVATORS / ESCALATORS  
 RESTROOMS

GROUND LEVEL:

Meeting Rooms:  
Douglas Pavilion  
Douglas Foyer  
Gallery

Restaurants:  
Sally's Seafood On The Water  
Lael's Restaurant  
Redfield's Sports Bar  
Redfield's Deli  
Grand Lobby Bar  
Ann-Marie's Coffee House

Retail Promenade:  
Grand Floral  
HarborLinks  
Regency Gifts  
Madison Fine Arts

Business Center

SECOND LEVEL:

Meeting Rooms:  
Manchester Ballroom  
Manchester Foyer  
Manchester Terrace  
Litrenta Foyer  
Elizabeth Ballroom  
Elizabeth Foyer  
Elizabeth Terrace  
Betsy  
Edward  
Gregory  
Molly

THIRD LEVEL:

Meeting Rooms:  
Annie  
Connaught  
Del Mar  
Emma  
Ford  
George Bush  
Madeleine  
Maggie  
Oxford  
Mohsen  
Windsor

Recreation:  
Kin Spa & Pool

FOURTH LEVEL:

Meeting Rooms:  
Randle Ballroom  
Randle Foyer  
Randle Terrace  
America's Cup  
America's Cup Terrace  
America's Cup Foyer  
Cunningham  
Gibbons

Hospitality Suites  
Conference Suites

Recreation:  
Pool Deck, Bar and Stage  
Fire-pits and Whirl Pools  
Eldredge Fitness Center  
Sport Courts