

The 14th Annual International Conference on Dose-Response

# *PRECONDITIONING* **IN BIOLOGY** **AND MEDICINE**

Mechanisms and  
Translational Research

*The Annual Meeting of the*  
International **DOSE-RESPONSE** Society  
[www.Dose-Response.org](http://www.Dose-Response.org)

*Conference Directors:* Edward J. Calabrese, Ph.D., Paul Kostecki, Ph.D

**April 21-22, 2015**  
**University of Massachusetts**  
**Amherst, MA**

Threshold  
Adaptive  
Bidirectional  
Biphasic  
Hormetic  
Non-Monotonic  
U/J Shaped  
Linear



*Approved for CPH Recertification by the  
National Board of Public Health Examiners*

## INTERNATIONAL DOSE-RESPONSE SOCIETY MEMBERSHIP

The **INTERNATIONAL DOSE-RESPONSE SOCIETY** is a professional society designed to enhance understanding of the nature of the dose response and its implications for science and society. Those Individuals with a professional interest in these areas are invited to join the Society.

Applications for membership can be found at [www.dose-response.org](http://www.dose-response.org). Annual membership rates are as follows:  
**Corporate Membership** \$5000 (US),  
**Sustaining Membership** \$1000 (US),  
**Individual Membership** - 1yr. \$125 (US),  
**Individual Membership** - 2yr. \$225 (US),  
**Retiree Membership** - 1yr. \$75 (US),  
**Retiree Membership** - 2yr. \$125 (US),  
**Post-Graduate Membership** (up to three years post-graduation) - 1yr. \$75 (US),  
**Post-Graduate Membership** (up to three years post-graduation) - 2yr. \$125 (US),  
**Student Membership** - 1yr. \$10 (US) and  
**Student Membership** - 2yr. \$15 (US).

Members will receive a 25% reduction in registration fees to **The 2015 Dose Response Conference, Adaptive Responses in Biology and Medicine**, the Annual Meeting of the International Dose-Response Society.

To Become a Member, Visit  
[www.dose-response.org](http://www.dose-response.org)

A growing number of scientists, including toxicologists, pharmacologists, biostatisticians, epidemiologists, occupational and environmental medical researchers and others have begun to display considerable interest in the topic of hormesis, a dose response phenomenon characterized by a low dose stimulation and a high dose inhibition. While there are many professional societies that have a general interest in dose response relationships, none explicitly is devoted to the topic of understanding the nature of the dose response in general and hormesis in particular. The diversity of professional societies that may consider dose response issues, including hormesis, is nonetheless quite broad ranging from the agricultural to the biomedical and clinical sciences. However, nearly without exception, these societies tend to be strongly organized around professional advancement and not focused on specific scientific concepts. This makes the issue of hormesis one of diffuse interest across a broad range of professions. The present situation represents a major obstacle for the integrated assessment of the dose response in general and hormesis in particular. In order to provide intellectual and research leadership on the topic of hormesis, a professional association was created in 2005 called the International Dose-Response Society.

The Society is dedicated to the enhancement, exchange, and dissemination of ongoing global research efforts in the field of hormesis. In addition, the Society also strongly encourages the assessment of the implications of hormesis for such diverse fields as toxicology, risk assessment, risk communication, medicine, numerous areas of biomedical research, and all other biological disciplines including relevant engineering domains dealing with the dose response.

The International Dose-Response Society is administered by the School of Public Health & Health Sciences at the University of Massachusetts at Amherst.

If you would like additional information about the society including information on becoming a member, please contact Alfred Sorensen at [sorensen@ehs.umass.edu](mailto:sorensen@ehs.umass.edu) or visit the society webpage [www.dose-response.org](http://www.dose-response.org).

# PLATFORM PRESENTATIONS - Tuesday, April 21, 2015

**8:00AM – Noon**

## PLENARY SESSION

Moderator: **James Mitchell**, *Harvard University, Cambridge, MA*

**Preconditioning by Ethanol Ingestion Prevents Postischemic Microvascular and Tissue Dysfunction: Role of the Immune System**

**Ronald J. Korthuis**, *University of Missouri School of Medicine, Columbia, MO*

**Hydrogen Sulfide: A Mediator and Modulator of Conditioning**

**Kenneth R. Olson**, *University of Indiana, South Bend, IN*

**Adaptive Response: Modulation of Response by Low Dose Diagnostic Radiation, Exercise, and Diet**

**Doug Boreham**, *Northern Ontario School of Medicine, Sudbury, ON, Canada*

**Preconditioning, Nanoneuropharmacology and the BRAIN Initiative: Neuroethical Obligations and Responsibilities**

**James Giordano**, *Georgetown University, Washington, DC*

**Noon**

## LUNCH

**1:00 - 3:00PM**

## NEUROLOGICAL SESSION

Moderator: **James Giordano**, *Georgetown University, Washington DC*

**Significance and Mechanisms of Ischemic Postconditioning against Stroke**

**Heng Zhao**, *Stanford University, Stanford, CA*

**Unleashing the Brain's Endogenous Neuroprotective Strategies through Toll-like Receptors**

**Mary P. Stenzel-Poore**, *Frances R. Bahjat, Sara N. Christensen, Valerie K. Conrad, Raffaella Gesuete, Christine C. Glynn, Mingyue Liu, Susan L. Stevens and Keri B. Vartanian, Oregon Health and Science University, Portland, OR*

**Dietary Preconditioning Limits Neurological Impairment in Stroke Models**

**Alexis Stranahan**, *Medical College of Georgia, Georgia Regents University, Augusta, GA*

**Silvia Manzanero**, *The University of Queensland, St Lucia, Australia*

**Thiruma V. Arumugam**, *Yong Loo Lin School of Medicine, National University of Singapore*

**Microglia Regulate Blood Clearance in Subarachnoid Hemorrhage by Heme Oxygenase-1**

**Nils Schallner**, *Harvard Medical School, Boston, MA and University Medical Center Freiburg, Freiburg, Germany*

**Rambhau Pandit, Robert LeBlanc**, *Harvard Medical School, Boston, MA*

**Leo E. Otterbein**, *Harvard Medical School, Boston, MA and Aston University, Birmingham U.K.*

**Khalid A. Hanafy**, *Harvard Medical School, Boston, MA*

**3:30 - 5:00PM**

## CARDIOVASCULAR SESSION

Moderator: **Scott Powers**, *University of Florida, Gainesville, FL*

**Nitrite Mediates Delayed Protection through Modulation of Mitochondrial Function**

**Sruti Shiva**, *University of Pittsburgh, Pittsburgh, PA*

**Cytoprotective Actions of Hydrogen Sulfide in Cardiovascular Disease**

**David J. Lefer**, *Louisiana State University, New Orleans, LA*

**Protecting the Heart with Exercise**

**John Calvert**, *Emory University, Atlanta, GA*

**5:30 - 6:30PM**

## POSTER SESSION AND SOCIAL

**6:30PM**

## DINNER

# PLATFORM PRESENTATIONS - Wednesday, April 22, 2015

**8:00 – 9:00AM**

## **CARDIOVASCULAR SESSION** *(Continued)*

Moderator: **Scott Powers**, *University of Florida, Gainesville, FL*

**Chemical and Pharmacological Preconditioning of Heart against Injury from Ischemia: Importance of the Dose-Response Relationship**

**John E. Baker**, *Medical College of Wisconsin, Milwaukee, WI*

**Cardioprotection with Ischemic Conditioning: The Comorbidity Conundrum**

**Karin Przyklenk** and **Peter Whittaker**, *Wayne State University School of Medicine, Detroit MI*

**9:00AM - Noon**

## **BIOMEDICAL AND ENVIRONMENTAL SESSION**

Moderator: **Douglas Boreham**, *Northern Ontario School of Medicine, Sudbury, ON, Canada*

**Cancer: A Metabolic Disease with Metabolic Solutions**

**Thomas Seyfried**, *Boston College, Boston, MA*

**Adaptive Homeostasis, Oxidative Stress, and Aging**

**Kelvin Davies**, *University of Southern California, Los Angeles, CA*

**Low-dose Radiation and Diabetes, and its Complications**

**Lu Cai**, *University of Louisville, Louisville, KY*

**Bystander Effects, Adaptive responses and Hormesis:**

**Being on the Right Part of the Stress Response Curve**

**Carmell Mothersill**, *McMaster University, Hamilton, ON, Canada*

**Colin Seymour**, *McMaster University, Hamilton, ON, Canada*

**Extracellular Oxidized DNA: A Novel Stressor with Hormetic Potential**

**Ancha Baranova**, *George Mason University, Fairfax, VA*

**Natalia Veyko**, *Research Centre for Medical Genetics, Moscow, Russia*

**Noon**

## **LUNCH - Speaker**

**Dose and Response: A Foundational Concept for Health and Healing**

**Wayne Jonas**, *Samueli Institute, Alexandria, VA*

**1:30 - 3:30PM**

## **APPLICATIONS AND PERSPECTIVES SESSION**

Moderator: **Colin Seymour**, *McMaster University, Hamilton, ON, Canada*

**Clinical Applications of Pre-, Post- and Remote Ischemic and Pharmacologic Conditioning in Ischemic Disease: Promise and Limitations**

**Ronald J. Korthuis**, *University of Missouri, Columbia, MO*

**Exercise-Induced Preconditioning in Cardiac and Skeletal Muscles**

**Scott K. Powers**, *University of Florida, Gainesville, FL*

**Preconditioning can modulate Therapeutic Index of Photobiomodulation**

**Praveen Arany**, *National Institutes of Health/NIDCR, Bethesda, MD*

**The Case for Hormetic Dose-Response and Against the LNT**

**Richard A. Williams**, *Mercatus Center at George Mason University, Arlington, VA*

**Edward J. Calabrese**, *University of Massachusetts, Amherst, MA*

**Dima Yaziqi Shamoun**, *Mercatus Center at George Mason University, Arlington, VA*

**James Broughel**, *Mercatus Center at George Mason University, Arlington, VA*

# CALL FOR POSTERS

We invite you to submit an ABSTRACT for poster presentation at  
*The 14th Annual International Conference on Dose-Response*

## **PRECONDITIONING IN BIOLOGY AND MEDICINE** Mechanisms and Translational Research

**APRIL 21-22, 2015**

**University of Massachusetts at Amherst**

*Sponsored by*

**International DOSE-RESPONSE Society**  
[www.Dose-Response.org](http://www.Dose-Response.org)

*The conference will address a multidisciplinary and mechanistic focus  
in toxicology, medicine, pharmacology, radiation, risk assessment for  
dose-response relationships.*

### AREAS OF INTEREST

#### **PRE- POST-CONDITIONING:**

Alzheimer's Disease/Dementia  
Parkinson's Disease  
Depression and PTSD  
Concussions/Traumatic Brain Injury  
Improving Surgical Outcomes  
Stroke/Cardiovascular Disease  
Diabetes  
Glaucoma  
Stem Cell Transplantation Therapy

#### **HEALTHY LIFESTYLES, AGING**

**AND LIFE EXTENSION:**  
Intermittent Fasting  
Exercise  
Chemical/Nutritional Supplements  
Low Dose Radiation and Longevity  
Adaptive response-based cosmetics  
**ENHANCING HUMAN PERFORMANCE:**  
Cognition  
Endurance, Strength and Speed  
Fatigue/Jet Lag: Prolong Onset/  
Speed Up Recovery  
Wound Healing Acceleration - skin,  
tendon, muscle, bone, and vascular

### Enhancing Healthy Living and Performance

Please visit conference website

[www.dose-response.org](http://www.dose-response.org)

For abstract submission guidelines as well as information  
about the conference and the Dose-Response society  
email Conference Coordinator, Denise Leonard at

[dleonard@schoolph.umass.edu](mailto:dleonard@schoolph.umass.edu)

*Deadline for abstract submissions for the  
Dose-Response 2015 Conference poster session is*

**MARCH 20, 2015**

*Conference Directors :*

**Edward J Calabrese, Ph.D., Paul T. Kostecki, Ph.D.**

### **AREA HOTEL INFORMATION**

Registrants are responsible for making their own hotel arrangements.  
*(We recommend you make reservations early)*

<b>Amherst</b>	<b>Single/Double</b>	<b>Hadley</b>	<b>Single/Double</b>
Allen House Inn (413) 253-5000	\$75-150	Econo Lodge (413) 582-7077	\$79-149
Amherst Motel (413) 256-8122	\$59-85	Hampton Inn (413) 586-4851	\$119-179
Black Walnut Inn (413) 549-5649	\$108-159	Holiday Inn Express (413) 582-0002	\$119-200
*Campus Center Hotel* (UMass) (413) 549-6000	\$120	Howard Johnson (413) 586-0114	\$85-179
Lord Jeffrey Inn (413) 253-2576	\$129-259	Norwottuck Inn (413) 587-9866	\$159-179
University Motor Lodge (413) 256-8111	\$70-150	Quality Inn (413) 584-9816	\$69-145
<b>Deerfield</b>	<b>Single/Double</b>	<b>Northampton</b>	<b>Single/Double</b>
Deerfield Inn (413) 774-5587	\$170-270	Autumn Inn (413) 584-7660	\$99-180
Red Roof Inn (413) 665-7161	\$75-125	Best Western (413) 586-1500	\$69-149
<b>Holyoke</b>	<b>Single/Double</b>	Clarion Hotel (413) 586-1211	\$100-235
Country Inn & Suites (413) 533-2100	\$89-189	Hotel Northampton (413) 584-3100	\$145-180
Holyoke Holiday Inn (413) 534-3311	\$120-150		

\* For those attendees wishing to stay at the Campus Center Hotel where the conference will be held, telephone the hotel directly at (413) 549-6000. IDENTIFY THE CONFERENCE AS HOTEL BLOCK DOSEC.

*University Conference Services does not guarantee the accuracy of any of the rates listed above.*

### **FOR CONFERENCE INFORMATION**

Please contact the conference coordinator Denise Leonard  
**413-545-1239 • [dleonard@schoolph.umass.edu](mailto:dleonard@schoolph.umass.edu)**

### **LOCATION AND TRAVEL INFORMATION**

The conference will take place in the Murray D. Lincoln Campus Center, **University of Massachusetts at Amherst**, located in the scenic Connecticut River Valley. Amherst is served by major airlines through **Bradley International Airport** in Windsor Locks, Connecticut (about 1 1/4 hours by car) and **Logan Airport** in Boston (about 2 1/2 hours by car). Rental cars and bus service are available from both airports.

There are two services that provide shuttle service to and from both airports, Amtrak and bus stations to the University of Massachusetts - Seemo Shuttle Service and Valley Transporter.

**Seemo Shuttle Service** - call (800) 908-2829 or (413) 586-1120 or visit [www.seemoshuttle.com](http://www.seemoshuttle.com)

**The Valley Transporter** - RESERVATIONS ARE REQUIRED, call (800) 872-8752 or (413) 253-1350 or visit [www.valleytransporter.com](http://www.valleytransporter.com).

### **REGISTRATION**

All Registrations for the conference must be received by the University Conference Services no later than **April 7, 2015** in order to avoid late registration fee of \$50.

To register for the conference please fill out and return the accompanying registration form to:

**Conference Registration Office - CS15-158**

**810 Campus Center  
University of Massachusetts  
1 Campus Center Way  
Amherst, MA 01003**

Phone: **413-577-8102**; Fax: **413- 577-8130**

For further information contact us at:

**INTERNATIONAL DOSE-RESPONSE SOCIETY**

Phone: **413-545-3164**; Fax: **413-545-4692**

Email: [dleonard@schoolph.umass.edu](mailto:dleonard@schoolph.umass.edu)

[www.dose-response.org](http://www.dose-response.org)

*The 14th Annual International Conference on Dose-Response*  
**PRECONDITIONING**  
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*The Annual Meeting of the International Dose-Response Society*  
**April 21 - 22, 2015 • University of Massachusetts, Amherst, MA**

**R E G I S T R A T I O N F O R M**

**To Register:** Form should be received on or before **April 7, 2015** with full payment.

Mail or fax to: **Conference Registration Office - CS15-168**

**810 Campus Center**

**University of Massachusetts**

**Amherst, MA 01003**

**Phone: 413-577-8102 • Fax: 413- 577-8130**

For Office Use _____
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Mr.  Mrs.  Ms.  Dr.

First: \_\_\_\_\_ MI: \_\_\_\_\_ Last: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

**Registration:** Includes all sessions and refreshment breaks

Full Two Days .....	\$399
Full Two Days for International Dose-Response Society Members* .....	\$299
Government and Academic Rate.....	\$199
Government and Academic Rate for International Dose-Response Society Members* .....	\$149
Student Rate.....	\$99
Student Rate for International Dose-Response Society Members* .....	\$74

\*Must be a member at the time of registration to receive the International Dose-Response Society Members rate

**Sub Total** \_\_\_\_\_

**Hot Buffet Lunch:** \$26 each day  Tuesday  Wednesday

**Lunch Total** \_\_\_\_\_

**Hot Buffet Dinner:** \$36  Tuesday

**Dinner** \_\_\_\_\_

**Note:** All registrations received after **April 7, 2015**, will be assessed a \$50 late fee

**Late Fee** \_\_\_\_\_

**Total** \_\_\_\_\_

Visa  Amex  Master Card  Diners  Discover  Check payable to: UMass/Conference Services CS15-168

Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Name on Card (print): \_\_\_\_\_ 3 digit CVV/Security Code: \_\_\_\_\_

Signature (all charges must be signed): \_\_\_\_\_

**Hotel Reservations: CONFERENCE ATTENDEES ARE RESPONSIBLE FOR THEIR OWN HOTEL RESERVATIONS**

Encumbered Purchase Orders will be accepted from institutions and agencies for the purpose of pre-registration only. Full payment including those pre-registrations secured by P.O. must be remitted on or before the on-site registration. Non-compliance will result in a \$35 processing fee for any resulting billings. Phone registrations will not be accepted. Checks must be redeemable at US banks. Any processing fees will be filled to the registrant. Cancellations made by the close of business (5:00pm EST) on April 14, 2015, will receive a full refund minus a \$60 cancellation fee and any administrative fees. There will be no refunds for cancellations made after the close of business on April 14, 2015. Registrations should be received on or before April 7, 2015. After April 7, 2015, a \$50 late fee will be assessed.

**For more conference information contact: INTERNATIONAL DOSE-RESPONSE SOCIETY**  
**Phone: 413-545-3164 • Fax: 413-545-4692 • Email: dleonard@schoolph.umass.edu**