Preconditioning in Biology and Medicine
Adaptive Responses/Preconditioning

The Annual Meeting of the International Dose-Response Society

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

April 16-17, 2019
University of Massachusetts
Amherst, MA

Adaptive
Bidirectional
Biphasic
Hormetic
Non-Monotonic
Yerkes-Dodson Law (Psychology)
U-Shaped
J-Shaped
Subsidy-Stress Gradient (Ecology)
Reverse Dose-Responses

Approved for CPH Recertification by the National Board of Public Health Examiners
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 or visit the society webpage www.dose-response.org.
Day 1 Moderator - **Edward J. Calabrese**, Environmental Health, University of Massachusetts, Amherst, MA

**8:00 AM**  Welcome / Conference Overview  
**Edward J. Calabrese**, Conference Director, UMass/Amherst

### PLENARY SESSION

**8:30 AM**  
**Hormesis: It’s Impact on Biology, Toxicology, and Medicine**  
Walter J. Kozumbo, Hormesis Project, University of Massachusetts, Amherst, MA

**9:15 AM**  
**Radiation Hormesis: Its Significance and Applications**  
Douglas Boreham, North Ontario School of Medicine, Sudbury, Ontario, Canada

**10:00 AM**  Break

**10:30 AM**  
**Metabolic Management of Cancer**  
Thomas Seyfried, Biology Department, Boston College, Chestnut Hill, MA

**11:15 AM**  
**From Jumping Genes to Genomic Instability; the Contributions of Barbara McClintock to Low Dose Radiation Biology and Toxicology**  
Carmel Mothersill, Department of Medical Physics and Applied Radiation Sciences, McMaster University, Hamilton, Ontario, Canada

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**NOON - 1:30 PM**  **LUNCH** Amherst Room, 10th Floor Campus Center

### Session I: EXERCISE

**1:30 PM**  
**Digitizing Physical Activity Dose: Step Counting and Cadence Tracking**  
Catrine Tudor-Locke, Department of Kinesiology, School of Public Health, UMass, Amherst, MA

**2:00 PM**  
**Exercise Induced hormesis in Skeletal Muscle Health**  
Ji Li, Laboratory of Physiological Hygiene and Exercise Science, School of Kinesiology, University of Minnesota, Minneapolis, MN

### Session II: INTERMITTENT FASTING

**2:30 PM**  
**Harnessing the Benefits of Intermittent Fasting by Targeting Lysosomes**  
Abhinav Dwan, Department of Internal Medicine, Washington University, St. Louis, MO

**3:00 PM**  Break

**3:30 PM**  
**Caloric Excess or Restriction and the Human Inflammasome**  
Michael Sac, Center for Molecular Medicine, NHLBI, NIH, Bethesda, MD

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**5:30 PM - 6:30 PM**  **POSTER SESSION AND SOCIAL** 10th Floor Campus Center

**6:30 PM**  **DINNER** Amherst Room, 10th Floor Campus Center

Dinner Speaker: **Paul Selby**

Session III:  **ENHANCING RESILIENCE**

8:00AM  
**Biological Resilience**  
Rehana K. Leak,  *Graduate School of Pharmaceutical Sciences, Duquesne University, Pittsburgh, PA*

8:30AM  
**Remote Ischemic Conditioning: Trials, Tribulations and Clinical Translation**  
Karin Przyklenk,  *Cardiovascular Research Institute, Wayne State University School of Medicine, Detroit, MI*

9:00AM  
**Remote Ischemic Conditioning for Stroke and Vascular Dementia: an Exercise Mimetic?**  
David Hess,  *Department of Neurology, Medical College of Georgia, Augusta, GA*

9:30AM  
**Endoplasmic Reticulum Stress: Its Role in Adaptive Response**  
Danilo Medinas,  *Cellular and Molecular Biology, University of Chile, Santiago, Chile*

**10:00AM  BREAK AND HOTEL CHECK OUT**

10:30AM  
**Biomarker Development for Aerobic Exercise: Applications for Assessing Performance and Pathology**  
Michael Moto,  *McGowan Institute for Regenerative Medicine, University of Pittsburgh, Pittsburgh, PA*

11:00AM  
**Stress Inducible Evolution from Bacteria to Cancer**  
Susan M. Rosenberg,  *Dept. of Molecular and Human Genetics, Baylor College of Medicine, Houston, TX*

**11:30AM  CONFERENCE CLOSING REMARKS**  
Colin Seymour,  *Department of Medical Physics and Applied Radiation Sciences, McMaster University, Hamilton, Ontario, Canada*

**NOON - 2:00PM**  
**LUNCH**  Amherst Room, 10th Floor Campus Center
THE 18TH ANNUAL INTERNATIONAL CONFERENCE ON DOSE-RESPONSE
PRECONDITIONING
IN BIOLOGY AND MEDICINE
Adaptive Responses/Preconditioning
APRIL 16-17, 2019
University of Massachusetts at Amherst
Sponsored by
International DOSE-RESPONSE Society

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

TOPICS WILL INCLUDE:

- Pre-Post-Conditioning:
  - Alzheimer's Disease/Dementia
  - Parkinson's Disease
  - Depression and PTSD
  - Concussions/Traumatic Brain Injury
  - Improving Surgical Outcomes
  - Stroke/Cardiovascular Disease
  - 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

Call For Abstracts

Please visit conference website
http://dose-response.org/annual-conference

For abstract submission guidelines as well as information about the conference and the Dose-Response society email Conference Coordinator, Mary B. Glavin at mbglavin@umass.edu

Deadline for abstract submissions for the Dose-Response 2019 Conference poster session is

JANUARY 31, 2019

For further Information contact:
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The 18th Annual International Conference on Dose-Response
PRECONDITIONING
IN BIOLOGY AND MEDICINE
Adaptive Responses/Preconditioning
The Annual Meeting of the International Dose-Response Society
April 16-17, 2019 • University of Massachusetts, Amherst, MA

REGISTRATION FORM

To Register: Form should be received on or before April 2, 2019 with full payment.

Mail or fax to: Conference Registration Office - CS19117
810 Campus Center
University of Massachusetts
Amherst, MA 01003
Phone: 413-577-8102 • Fax: 413-577-8130

☐ 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

Hot Buffet Dinner: $36  ☐ Tuesday

Note: All registrations received after April 2, 2019, will be assessed a $50 late fee

Lunch Total ______________

Dinner __________________

Late Fee ________________

Total ___________________

☐ Visa  ☐ Amex  ☐ Master Card  ☐ Diners  ☐ Discover  ☐ Check payable to: UMass/Conference Services CS19117

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 9, 2019, 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 9, 2019. Registrations should be received on or before April 2, 2019. After April 2, 2019, 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: mbglavin@umass.edu
Online Conference Registration: umass.irisregistration.com