

The 8th Annual International Conference on

DOSE-RESPONSE 2009: **Implications for Toxicology,** **Medicine, and Risk Assessment**

*The Annual Meeting of the
International Dose-Response Society*

April 28-29, 2009

University of Massachusetts, Amherst, MA

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

**THRESHOLD • ADAPTIVE • BIDIRECTIONAL • BIPHASIC
HORMETIC • NON-MONOTONIC • U/J-SHAPED • PARADOXICAL**

Continuing Education Credits will be offered through the University of Massachusetts pending approval

DEAR COLLEAGUE,

The Dose-Response Conference addresses some of the most critical challenges facing the field of toxicology, pharmacology, radiation biology and medicine today, that is, the significance of the biological effects of low level exposures. Toxicology is in rapid transition from that of a high dose hazard assessment profession to one that addresses the nature of more realistic exposures, which are predominantly in the low dose zone. Knowledge of low dose effects is becoming a driving force in the field of risk assessment and chemotherapeutics. This conference provides a significant opportunity to bring together leading scientists across a broad range of biological disciplines to seek common understandings on how biological systems respond to low level stresses and their implications within society. One of the critical goals of the conference is to recognize that professionals in different fields of biology have utilized different terminologies for similar appearing dose response phenomena. These terms include adaptive, bidirectional, dual effects, opposite effects, biphasic, hormetic, non-monotonic, u-shaped, j-shaped, and paradoxical. The convergence of scientists from multiple disciplines on this topic is designed to provide a greater interactive focus on the topic of low dose responses and hopefully prevent further professional/academic isolation with respect to language, concept and interpretation of low dose effects. The conference will also provide the most current advances in the nature of the dose response with respect to chemical and radiation induced stresses as well as a host of effects of pharmaceutical agents that have profound biomedical and risk assessment implications. It is our hope that you share the belief that determining the nature of the dose response in the low-dose zone will drive the future of toxicology, pharmacology and risk assessment and will take the opportunity to attend this conference on **DOSE-RESPONSE 2009: IMPLICATIONS FOR TOXICOLOGY, MEDICINE, AND RISK ASSESSMENT**

Edward J Calabrese, Ph.D.

Paul T. Kostecki, Ph.D.

Conference Directors

INTERNATIONAL DOSE-RESPONSE SOCIETY

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 new professional association has been created 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.

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. 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).

As part of the INTERNATIONAL DOSE-RESPONSE SOCIETY membership, each member will receive a subscription to the e-journal Dose-Response, which is a peer-reviewed quarterly journal. In addition, there is a Society Newsletter developed for the membership. Members will receive a 25% reduction in registration fees to Dose-Response 2009: Implications for Toxicology, Medicine, and Risk Assessment, the Annual Meeting of the International Dose-Response Society.

To Become a Member, Visit
www.dose-response.org

PLATFORM PRESENTATIONS

TUESDAY, APRIL 28, 2009

Morning

8:15AM - Noon

Session I: PLENARY

Moderator: George Hoffmann, *Holy Cross, Worcester, MA*

Adaptive Responses and Risk - Yeast to the Clinic

Douglas R. Boreham, *McMaster University, Hamilton, ON, Canada*

Hormesis and Its Potential Implications for the Pharmaceutical Industry

Kenneth Maynard, *Sanofi-aventis, US, Inc., Bridgewater, NJ*

Adaptive Responses to Oxidative Stress: Particularly the RCAN1 Gene

Kelvin J. A. Davies, *University of Southern California, Los Angeles, CA*

Biological Systems Have Three Barriers Blocking Responses To Low-Level Irradiation

Ludwig E. Feinendegen, M.D., *University Düsseldorf, Germany*

Luncheon - Noon

Afternoon

1:00 - 5:30PM

Session II: BIOMEDICAL SESSION

Moderator: Mark Mattson, *National Institute on Aging Intramural Research Program, Baltimore, MD*

Stimulating Hormetic Signaling Pathways to Improve Brain Health

Mark P. Mattson, *National Institute on Aging Intramural Research Program, Baltimore, MD*

Vitagenes, Cellular Stress Response and Acetylcarnitine: Relevance to Hormesis

Vittorio Calabrese, *University of Catania, Catania, Italy*

Hormetic Immune Signaling Initiates Neurological Preventative Health

Richard Kraig, *The University of Chicago Medical Center, Chicago, IL*

Heidi Mitchell, *The University of Chicago Medical Center, Chicago, IL*

Barbara Christie-Pope, *Cornell College, Mt. Vernon, IA*

David M. White, *The University of Chicago Medical Center, Chicago, IL*

Phillip E. Kunkler, *The University of Chicago Medical Center, Chicago, IL*

The Rational Design of Therapeutic Antioxidants: Free Radical Trapping Activity and the Dose-Response Relationship

James J. Ley, *University of Miami, Miami, FL*

Mimetics of Hormetic Agents Offer Interventions in Aging, Disease, and Trauma

Joan Smith-Sonneborn, *University of Wyoming, Laramie, WY*

Resveratrol, a Polyphenolic Antioxidant Present in Red Wine, is Dose-Dependent in Delivering Cardioprotection

Jocelyn I. Dudley, Subvendu Mukherjee and Dipak K. Das, *Cardiovascular Research Center, University of Connecticut School of Medicine, Farmington, CT*

Biphasic Dose Response in Low Level Light Therapy

Michael Hamblin, *Harvard Medical School, Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA*

Methylene Blue Dose-Response: Implications for Toxicology and Medicine

Francisco Gonzalez-Lima, *The University of Texas at Austin, Austin, TX*

SOCIAL & DINNER

6:30PM

PLATFORM PRESENTATIONS (cont.)

WEDNESDAY, APRIL 29, 2009

Morning

8:30AM - Noon

Session I:

BIOMEDICAL SESSION (cont.)

Moderator: Mark Mattson, *National Institute on Aging Intramural Research Program, Baltimore, MD*

Implications for Drug Development of the U-shaped Dose Response Curve Frequently Observed with Anti-angiogenic Drugs

Andrew P. Mazar, Ph.D., *Attenuon, LLC, Evanston, IL*

The Hormetic Morphogen Theory of Curvature and the Morphogenesis and Pathology of Tubular and other Curved Structures

Egil Fosslie, *University of Illinois at Chicago, Chicago, IL*

Inhibitors of Angiogenesis Can Exhibit Bell-Shaped or U-Shaped Dose-Response Curves: Relevance for Cancer Therapy

Andrew R. Reynolds, *Breakthrough Breast Cancer Research Centre, Institute of Cancer Research, London, UK*

Luncheon - Noon

Afternoon

1:00 - 3:30PM

Session III:

TOXICOLOGY SESSION (cont.)

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

The Role of a Newly Identified Protein in the Adaptive Response to Ionizing Radiation

Jie Zhang, *UMDNJ-New Jersey Medical School, Newark, NJ, Fourth Military Medical University, Xian, P. R. China*
Sonia de Toledo, *UMDNJ-New Jersey Medical School, Newark, NJ*

Guozheng Guo, *Fourth Military Medical University, Xian, P. R. China*

Edouard Azzam, *UMDNJ-New Jersey Medical School, Newark, NJ*

Systems Biology and Non targeted Effects of Low Radiation Doses

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

Feedback/Feedforward Homeostatic Control and Hormesis

Qiang Zhang, M.D., Ph.D., *The Hamner Institutes for Health Sciences, Durham, NC*

On the Death of Threshold

Janet Kester, *NewFields St. Louis, Wentzville, MO*

Hormesis Knowledge and Opinion Survey Results

Amy Jones, *Lockheed Martin Corporation, Bethesda, MD*
D.L. Anderton, *University of Massachusetts, Amherst, MA*
E.J. Stanek, *University of Massachusetts, Amherst, MA*
E. J. Calabrese, *University of Massachusetts, Amherst, MA*

Session II:

TOXICOLOGY SESSION

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

Selenium, Apoptosis, and DNA Damage: Defining the Optimal Selenium Dose for Human Prostate Cancer Prevention

David Waters, *Purdue University, West Lafayette, IN*

Predicting Low Dose Effects for Chemicals in High Through-Put Studies

Edward J. Stanek III, *University of Massachusetts, Amherst, MA*

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

Hormesis and Radiation-Induced Neoplastic Transformation In Vitro: The Role of Radiation Dose-Rate

Leslie Redpath, *University of California Irvine, Irvine, CA*

CONFERENCE CONTINUING EDUCATION CREDITS

Approval is pending from the University of Massachusetts Department of Continuing and Professional Education.

CPEUs will be awarded at the rate of one credit per 10 hours of successful conference attendance.

Those applying for CPEUs from the University of Massachusetts must

- 1) check off the box on the conference registration form in this booklet and include the \$50 fee,
- 2) record their attendance by signing in and out at the session and workshop doors with a picture ID and
- 3) fill out and return the UMass registration form that will be included in the conference registration packet you will receive at conference check in.

Transcripts will be mailed in June.

CALL FOR PAPERS

The 9th International Conference on
**DOSE-RESPONSE 2010: IMPLICATIONS FOR
TOXICOLOGY, MEDICINE, AND RISK ASSESSMENT**
*The Annual Meeting of the
International Dose-Response Society*

APRIL 27-28, 2010

University of Massachusetts at Amherst

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

TOPICS WILL INCLUDE:

- Molecular mechanisms
- Pharmacological effects
- Chemical and radiation toxicology
- Risk assessment implications
- Low-dose modeling
- Evolutionary foundations
- Ecological effects
- Clinical/therapeutic effects
- Psychological/behavioral responses
- Bioengineering processes
- Exercise science
- Epidemiology of low doses
- Industrial hygiene
- Legal implications

Please visit our website for more information, Abstract Submission Guidelines and Abstract Submission

www.dose-response.org

For further Information contact

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

Environmental Health Sciences • Morrill I, N344

University of Massachusetts Amherst, MA 01003

Phone: (413) 545-3164 • FAX: (413) 545-4692 • edwardc@schoolph.umass.edu

DEADLINE FOR SUBMISSION - December 15, 2009

E-mail to dleonard@schoolph.umass.edu

The 8th Annual International Conference
**DOSE-RESPONSE 2009: IMPLICATIONS FOR
 TOXICOLOGY, MEDICINE, AND RISK ASSESSMENT**
The Annual Meeting of the International Dose-Response Society
April 28 - 29, 2009
 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 13, 2009** with full payment.

Mail or fax to: **University Conference Services - CS09-63**

918 Campus Center

University of Massachusetts

Amherst, MA 01003

Phone: 413-545-0172 • Fax: 413- 545-0050

Mr. Mrs. Ms. Dr.

First: _____ MI: _____ Last: _____

Title: _____ Company: _____

Address: _____

City: _____ State: _____ Zip: _____ Country: _____

Telephone: _____ Fax: _____

Email: _____

For Office Use _____
Case No. _____
Ref. No. _____
Date _____
Payment _____
Confirmed _____

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

Conference Continuing Education Credits: Approval is pending from the University of Massachusetts Department of Continuing and Professional Education. CPEUs will be awarded at the rate of one credit per 10 hours of successful conference attendance. Those applying for CPEUs from the University of Massachusetts must 1) record their attendance by signing in and out at the session and workshop doors with a picture ID and 2) fill out and return the registration form that will be included in the conference registration packet you will receive at conference check in. Transcripts will be mailed in June.

CEU Credits Administrative Charge (for UMass Continuing and Professional Education Credits)..... \$50

Sub Total _____

Hot Buffet Lunch: \$25 each day Tuesday Wednesday

Lunch Total _____

Hot Buffet Dinner: \$35 Tuesday

Dinner _____

Note: All registrations received after April 14, 2008, will be assessed a \$50 late fee

Late Fee _____

Total _____

Visa Amex Master Card Diners Discover Check payable to: UMass/Conference Services CS09-63

Card Number: _____ Expiration Date: _____

Name on Card (print): _____

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 at the on-site registration. Non-compliance will result in a \$35 processing fee for any resulting billings. Phonein registrations will not be accepted. Cancellations made on or before April 16, 2009 will receive a full refund minus a \$35 cancellation fee. Cancellations after April 16, 2009 will be charged the \$35 cancellation fee plus any food service charge. Checks must be redeemable at US banks. Any processing fees will be billed to registrant. In order to process refunds we will need your personal social security number or your business identification number. There will be no refunds for cancellations made after April 21, 2009.

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

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University of Massachusetts, Amherst, MA

www.dose-response.org

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

Amherst	Single/Double	Hadley	Single/Double
Allen House Inn (413) 253-5000	\$75-175	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	\$82-114	Howard Johnson (413) 586-0114	\$89-179
Lord Jeffrey Inn (413) 253-2576	\$129-259	Norwottuck Inn (413) 587-9866	\$65-129
University Motor Lodge (413) 256-8111	\$70-150	Quality Inn (413) 584-9816	\$69-145
Deerfield	Single/Double	Northampton	Single/Double
Deerfield Inn (413) 774-5587	\$149-200	Autumn Inn (413) 584-7660	\$99-180
Red Roof Inn (413) 665-7161	\$79-116	Best Western (413) 586-1500	\$69-149
Holyoke	Single/Double	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 1808.

University Conference Services does not guarantee the accuracy of any of the rates listed above. (Updated 6/2007)

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

The Valley Transporter - RESERVATIONS ARE REQUIRED, call (800) 872-8752 or (413) 253-1350 or visit www.valleytransporter.com.

REGISTRATION

All Registrations for the conference must be received by the University Conference Services no later than April 13, 2009 in order to avoid late registration fee of \$50.

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

University Conference Services - CS08-63

918 Campus Center

University of Massachusetts

Amherst, MA 01003

Phone: 413-545-0172; Fax: 413- 545-0050

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

Email: dleonard@schoolph.umass.edu

www.dose-response.org

FOR CONFERENCE INFORMATION Please contact the conference coordinator: **Denise Leonard 413-545-1239**