

BELLE presents

NON-LINEAR DOSE-RESPONSE RELATIONSHIPS IN BIOLOGY, TOXICOLOGY AND MEDICINE

An International Conference

June 8 -10, 2004

University of Massachusetts, Amherst, MA

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

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

***Scientific Foundations,
Implications for
Pharmaceuticals
and Environmental
Risk Assessment***

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PLATFORM PRESENTATIONS

TUESDAY, JUNE 8, 2004

Morning

Session I: PLENARY SESSION

Moderator: Paul T. Kostecki, Ph.D., *Vice Provost for Research, University of Massachusetts, Amherst, MA*

8:30am

Temporal Hormesis Associated with Heart Failure and Animal Asthma Model

Richard A. Bond, *University of Houston, Houston, TX*

Zsuzsanna Callaerts-Vegh, *University of Houston, Houston, TX*

9:15am

Reflections on Twenty Years in Risk Assessment: Lessons Learned and How They Relate to Incorporating Hormesis into the Paradigm

Dennis J. Paustenbach, *ChemRisk, Inc.®, San Francisco, CA*

10:00am

Break

10:30am

Relationship Between Toxicity and Hormesis in Rats Treated with Various Dioxins

Karl K. Rozman, Ph.D., *University of Kansas Medical Center, Kansas City, KS*

Margitta Lebofsky, *University of Kansas Medical Center, Kansas City, KS*

David M. Pinson, *University of Kansas Medical Center, Kansas City, KS*

11:15am

Hormesis: Changing the Toxicological Paradigm

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

Noon

LUNCHEON SPEAKER

TRENDS IN ENVIRONMENTAL RESEARCH FROM CANARIES TO GENOMICS

Robert Huggett, *Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI*

Afternoon

Session II: RADIATION

Moderator: Ron Mitchel, *Atomic Energy Canada Limited, Chalk River, Ontario, Canada*

1:30pm

Low Doses of Radiation are Protective in vitro and in vivo

Ron Mitchel, *Atomic Energy of Canada Limited, Chalk River, ON, Canada*

2:00pm

Non-Linear Response for Neoplastic Transformation following Low Doses of Low LET Radiation

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

2:30pm

Low-Dose Radiation-Induced Protective Process and Implications for Risk Assessment, Cancer Prevention, and Cancer Therapy

Bobby R. Scott, *Lovelace Respiratory Research Institute, Albuquerque, NM*

Dale M. Walker, *Lovelace Respiratory Research Institute, Albuquerque, NM*

3:00pm

Break

3:30pm

Update on the Department of Energy Low Dose Radiation Research Program

Noelle Metting, Sc.D., *U.S. Department of Energy, Washington, D.C.*

4:00pm

Biological Effects of Low Dose Radiation

Philippe Duport, *University of Ottawa, Ottawa, Ontario, Canada*

4:30pm

Low Dose Body Irradiation Prevention and Therapy of Cancer

Myron Polycove, *School of Medicine University of California San Francisco*

5:00pm -

POSTER SESSION / SOCIAL

7:00pm

(see listing of posters at the end of the program)

PLATFORM PRESENTATIONS

WEDNESDAY, JUNE 9, 2004

Morning

Afternoon

Session III: BIOMEDICAL

Moderator: Mark P. Mattson, *Laboratory of Neurosciences, Baltimore, MD*

- 9:00am** **Hormesis is a Mechanism Underlying Beneficial Effects of Dietary Restriction in Rodents**
Mark P. Mattson, Ruiqian Wan, Zhihong Guo, Wenzhen Duan, *National Institute on Aging Intramural Research Program, Baltimore, MD*
- 9:30am** **Hormesis in Dose-Response Studies with Fungitoxins and Phytotoxins**
Stephen O. Duke, *USDA, ARS, University, MS*
Albrecht Michel, *Syngenta Crop Protection AG, Stein, Switzerland*
Anna Oliva, *State Univ. of New York, Stony Brook, NY*
Regina G. Belz, *Univ. Hohenheim, Stuttgart, Germany*
- 10:00am** **Break**
- 10:30am** **Low Dose Effects in Psychopharmacology: Ontogenetic Considerations**
Linda Patia Spear, *Binghamton University, Binghamton, NY*
- 11:00am** **Are Low Doses of DNA Damaging Agents Anti-Mutagenic?**
Pamela J. Sykes, Sarah J. Swinburne, *Flinders University and Medical Centre, Bedford Park, South Australia*
Madhava Bhat, *Royal Adelaide Hospital, Adelaide, SA, Australia*
John Cormack, Tanya K Day, *Flinders University and Medical Centre, Bedford Park, South Australia*
Renate U Domel, William M. Burch, *Australian Nuclear Science and Technology Organisation, Menai, New South Wales, Australia*
Alexander A. Morley, Antony M. Hooker, *Flinders University and Medical Centre, Bedford Park, South Australia*
- 11:30am** **Stress Immunology: Differential Dose-Response**
Jeffrey A. Woods, Ph.D., *University of Illinois at Urbana-Champaign, Urbana IL*

Session IV: TOXICOLOGY

Moderator: Raymond Yang, *Colorado State University, Fort Collins, CO*

- 1:30pm** **Distinct Gene Expression Profiles in Lung Cells at Toxic vs Non-Toxic Nickel Doses**
Robert Y.-S. Cheng, *University of Massachusetts Medical School, Worcester, MA*
W. Gregory Alvord, *Data Management Services, Inc., Ft. Detrick, Frederick, MD*
Lucy M. Anderson, *National Cancer Institute at Frederick, Ft. Detrick, Frederick MD*
- 2:00pm** **Arsenic as an Endocrine Disruptor: Complex Dose Dependent Effects of Arsenic on Steroid Receptor Signaling**
Josh Hamilton, Jack E. Bodwell, *Dartmouth Medical School, Hanover, NH*
- 2:30pm** **Chemically Induced Liver Tumors and the Possibility of Hormesis**
James Klaunig, *Indiana University of Medicine, Indianapolis, IN*
- 3:00pm** **Break**
- 3:30pm** **Chemical Mixtures: Nonlinear Dose-Response Phenomenon, Physiologically Based Pharmacokinetics, and Reaction Network Modeling**
Raymond S. H. Yang, *Colorado State University, Foothills Campus, Fort Collins, CO*
- 4:00pm** **The Non-Linear Nature of Lead-Related Changes in Behavior and Neurochemistry**
Deborah A. Cory-Slechta, *University of Medicine and Dentistry of New Jersey and Rutgers University, Piscataway, NJ*
- 4:30pm** **Universality of J-Shaped and U-Shaped Dose-Response Relations in Stochastic Transition Systems**
Louis Anthony (Tony) Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*

Noon

LUNCHEON SPEAKER WEDNESDAY, JUNE 9, 2004

THROUGH THE LOOKING GLASS: AN EDITORIAL PERSPECTIVE ON PUBLISHING
Angela Eggelston, *North American Editor of Nature*

PLATFORM PRESENTATIONS

THURSDAY, JUNE 10, 2004

Morning

Session V: REGULATORY / RISK SESSION

Moderator: Barbara Beck, *Gradient Corp., Cambridge, MA*

- 9:00am** **Implications of the Hormesis Response for Cancer Risk Assessment**
Jonathan Borak, *Yale University, New Haven, CT*
- 9:30am** **The Search for Non-Linear Exposure-Response Relationships at Ambient Levels in Environmental Epidemiology**
Morton Lippmann, *New York University School of Medicine, Tuxedo, NY*
- 10:00am** **Break**
- 10:30am** **Public Policy Implications of Hormesis**
Joseph V. Rodricks, Ph.D., *DABT, ENVIRON International Corporation, Arlington, VA*
- 11:00am** **Some Implications of Nonlinear Dose-Response Relationships for Quantitative Risk Assessment**
Robert L. Sielken Jr., Ph.D., *Sielken & Associates Consulting, Inc., Bryan, TX*
- 11:30am** **Precautionary Principles, Anticipatory Actions and Hormesis: Society Gains a New Regulatory Paradigm**
Paolo F. Ricci, Thomas R. MacDonald, *University of San Francisco and University of Queensland, San Francisco, CA*

TUESDAY, JUNE 8, 2004

An Overview of the Hormesis Database

Robyn B. Blain, Edward J. Calabrese, *University of Massachusetts, Environmental Health Sciences, Amherst, MA*

Low-Dose Radiation and Diabetes

Lu Cai, *Departments of Medicine, Pharmacology & Toxicology, University of Louisville School of Medicine, Louisville, KY and Department of Toxicology, Jilin University School of Preventive Medicine, Jilin PR China*

Non-Linear Effect of Radiation on Erythrocyte Immunity

Guangjun Wang, *Department of Hematology & Oncology, The First Hospital, Jilin University School of Medicine, Jilin, PR China*
Lu Cai, *Departments of Medicine, Pharmacology & Toxicology, University of Louisville School of Medicine, Louisville, KY and Department of Toxicology, Jilin University School of Preventive Medicine, Jilin PR China*

Detecting Causal Nonlinear Exposure-Response Relations in Epidemiological Data

Louis Anthony (Tony) Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*

Low-Dose Nonlinearity of Hematopoietic Dose-Response Relations

Louis Anthony (Tony) Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*

Biphasic Dose-response Relationships in Human Experimental Exposure to Solvents

Ivo Iavicoli, *Catholic University of Sacred Heart, Institute of Occupational Health, Rome, Italy*
Giovanni Carelli, *Catholic University of Sacred Heart, Institute of Occupational Health, Rome, Italy*

Regulation of Glutathione by Oxidative Stress in Bovine Pulmonary Artery Endothelial Cell

Regina M. Day, Ph.D., *Departments of Medicine and Pharmacology, Georgetown University Medical School, Washington DC*
Yuichiro J. Suzuki, Ph.D., *Department of Pharmacology, Georgetown University Medical School, Washington DC*
Barry L. Fanburg, M.D., *Department of Medicine, Tufts-New England Medical Center, Tupper Research Institute, Boston, MA*

Effects of a Chronic Exposure to Lead Acetate on Immune Function in Swiss Mice

Ivo Iavicoli, *Catholic University of Sacred Heart, Institute of Occupational Health, Rome, Italy*
Giovanni Carelli, *Catholic University of Sacred Heart, Institute of Occupational Health, Rome, Italy*

Low Doses of Phenolic Compound Can Be Useful in Quick Recognition their Affinity to Laccase

Elzbieta Malarczyk, Janina Kochmanska-Rdest, Anna Jarosz-Wilkolazka, *Maria Curie-Skłodowska University, Biochemistry Department, Lubin, Poland*

Regulation of Veratrate Demethylation in *Rhodococcus erythropolis* Cells by Low Doses of Formaldehyde

Elzbieta Malarczyk, Marzanna Pazdziuch-Czochra, Janina Kochmanska-Rdest, *Maria Curie-Skłodowska University, Biochemistry Department, Lubin, Poland*

Thimerosal for the Treatment of Influenza and Herpes Virus Infections

John McMichael, *The Institute for Therapeutic Discovery, Delanson, NY*
Allan D. Lieberman, *Center for Occupational and Environmental Medicine, North Charleston, SC*

Adaptive Immune Responses to Long-Term Low-Level Radiation Exposure: Feasibility Study on Dog Material from Argonne

Viktor Meineke, Kerstin Müller, Karin M. Greulich-Bode, Dirk van Beuningen, *Institute of Radiobiology, German Armed Forces, Munich, Germany*
Thomas E. Fritz, *Naperville, Illinois*
Theodor M. Fliedner, *Radiation Medicine Research Group and WHO Collaborating Center for Radiation Accident Management, University of Ulm, Helmholtzstrasse, Germany*
Ludwig E. Feinendegen, *Lindau, Germany*

Cardiorenal Dose Response Relationship of Cadmium

V.N.Puri, S.Saha, *Division of Pharmacology, Central Drug Research Institute, Lucknow, India*

A Comparative Study of Drug Standardization in Hormetic Observations and Homeopathic Provings

Jahangir Satti, Ph.D., *Department of Radiation Physics, St. Joseph's Medical Center, Stockton, CA*

Complementary Nano-Scale Therapeutic Approach through Frequency Based Bio-Synchronization.

Jahangir Satti, Ph.D., *Department of Radiation Physics, St. Joseph's Medical Center, Stockton, CA*

Alcoholic Beverage Hormesis for Cataract and Atherosclerosis is Related to Plasma Oxidative Condition

Claire D. Prickett, Erin Lister, B.Sc., Michelle Collins, Colleen Trevithick-Sutton, B.Sc., Maurice Hirst, Ph.D., Earl Noble, Ph.D., *University of Western Ontario, London, Ontario, Canada*
Joe A. Vinson, Ph.D., *University of Scranton, Scranton, PA*
John R. Trevithick, Ph.D., *University of Western Ontario, London, Ontario, Canada*