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Michigan Regional Chapter of the Society of Toxicology



NEWSLETTER

Volume 23

Number 3

October, 2005

Editor: Lawrence H. Lash

Associate Editor: Randall J. Ruch

MESSAGE FROM THE PRESIDENT

(submitted by James McKim)

The field of toxicology is growing at an amazing pace. The need for reliable in vitro models that provide data with in vivo relevance has never been greater. The desire by special interest groups and by scientists to maximize the data obtained from the use of animals is also high. Michigan is an amazing center of academic research, chemical, pharmaceutical, and contract service companies. I would like to find ways of making the Michigan Society of toxicology attractive to all of these groups. We can all learn so much by interacting with fellow toxicologists who face very challenging and diverse issues. I look forward to my year as the Chapter President, but more than that I look forward to meeting more of you and to expanding the scientific scope of the Michigan Society of Toxicology. Thank you for your support and I look forward to seeing you at the Fall meeting in Lansing.

Meeting Announcement

The Michigan Society of Toxicology

The Michigan Society of Toxicology is pleased to announce their Fall meeting.

Topic: Biomonitoring

Where: Kellogg Center,
Michigan State
University

When: November 4th,
8:00 am to 4:00 pm

Special events include:

- Nationally recognized speakers from industry and academia
- Poster session with \$500 prize for the best student poster, \$500 prize for best poster from research staff and \$500 prize plus an invitation to present a 20 minute talk at the Spring meeting for best poster from a postdoctoral fellow. Abstract submission guidelines will be available soon.
- Registration discounts for students
- Registration includes continental breakfast and lunch buffet

Final Meeting Program, registration materials and directions to Kellogg Center will be available in early October.

Questions concerning this meeting can be directed to:

Jim McKim (MISOT President) via email at jim.mckim@ceetox.com, or
Paul Stemmer (MI SOT Secretary/Treasurer) via email at pmstemmer@wayne.edu

Michigan Society of Toxicology
Registration Form

Deadline for registration and abstract submission is October 25, 2005

Name: _____

Affiliation (Company, University, etc): _____

Address: _____

City, State, Zip:

E mail: _____

Poster Presentation: Yes No

If yes: Please provide an abstract of no more than 250 words including, title of poster, authors and affiliations. These abstracts should be sent via email to: pmstemmer@wayne.edu. Please include in the body of the message whether you are a student, technical staff or Post-Doc.

Registration Fee:

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Member (\$50.00) |
| <input type="checkbox"/> | Student (member or non-member) (\$25.00) |
| <input type="checkbox"/> | Non-member (\$75.00) |

Membership applications can be obtained at: Michigan Chapter:

<http://www.toxicology.org/memberservices/regionalchapter/michigan/MichiganChaptDues.pdf>

Please make registration checks payable to:
The Society of Toxicology

Please send registration form to:

Paul Stemmer

Wayne State University
Institute of Environmental Health Sciences
2727 Second Avenue, Suite 4000
Detroit, MI 48201

If you have questions:
pmstemmer@wayne.edu

If you require Hotel accommodations contact
The Kellogg Center: (800) 875-5090
When making reservations please say you are
attending the Michigan SOT meeting and
they will give you a discount rate of \$89.00
(double occupancy). These rooms are only
available for Thursday November 3rd.

Meeting Agenda

8:00 – 8:40	Registration and Coffee
8:40 – 8:50	Welcome: James M. McKim and Brandi Soldo
8:50 – 9:00	Dr. Jean Domoradzki: <i>Introduction and Scope of Biomonitoring</i>
9:00 – 9:45	Dr John P. Giesy, Michigan State University: <i>Screening for Endocrine Disruptors--Beyond Receptor Binding</i>
9:45 – 10:30	Dr Paul Shea, MPI Research, <i>Integrating Non-invasive Imaging Technologies into Therapeutics Discovery and Development</i>
10:30-10:45	Break
10:45 –11:30	Dr. John Waechter, The Dow Chemical Company: <i>Factors Affecting Accuracy in Exposure Estimations from Bisphenol A Biomonitoring Studies.</i>
11:30-1:00	Lunch (provided) and Posters
1:00 – 1:45	Dr. Geary Olsen, 3M: <i>Perfluorinated Alkyl</i>

*Acids in Blood:
Challenges to Risk
Characterization.*

1:45 - 2:30

Mr. Harvey Clewell,
CIIT Centers for Health Research: *The Application of PB-PK Modeling in the Interpretation of Human Biomonitoring Data.*

2:30-2:45

Break

2:45 - 3:30

Dr. David Garabrandt,
University of Michigan: *Title to be determined*

3:30 – 4:00

Chapter Business

4:00 – 4:15

Close

Chapter Member Profile

The profilee for this issue of the MISOT newsletter is our President, Dr. James M. McKim, Ph.D., D.A.B.T. Jim is the founder of CeeTox, Inc., located in Kalamazoo, MI, where he currently serves as President and CEO. CeeTox provides contract support in the area of *in vitro* technology to predict sub-cellular toxicity. Jim is also a Diplomat of the American Board of Toxicology and an adjunct Associate Professor at Michigan State University.

As a biochemical and molecular toxicology graduate from Oregon State University, Jim received his doctoral degree with high honors in 1989. He continued his training at the University of Kansas, Medical School, as a postdoctoral fellow in the laboratory of Dr. Curtis Klaassen, a well-known leader in the field of toxicology. During this time, he was awarded the postdoctoral outstanding research award and was recognized by the Society of Toxicology.

Following a three-year period in Kansas, Jim accepted a position with the University of Colorado, School of Medicine, in the pediatric GI group. His research focused on the mechanisms underlying children's liver diseases. In 1993, Jim accepted a biochemical toxicologist position with Dow Corning in Midland, Michigan. His primary responsibility was to lead research designed to understand the biological effects of silicone products. For these efforts, Jim was awarded the Dow Corning award for research excellence.

From Dow Corning, Jim moved to Kalamazoo, Michigan and accepted a position with Pharmacia Corporation. During his stint at Pharmacia, Jim led an initiative to develop and implement *in vitro* screening technologies that would allow discovery teams to identify and understand potential adverse effects of new drug candidates early in the development process. Jim received the Preclinical Impact Award in 2002 for leading the industry with these initiatives. In 2003, he was promoted to Sr. Research Advisor, and was admitted into the prestigious scientific fellow program as a full scientific fellow. Over his career, Jim has published many scientific manuscripts, book chapters, and reviews.

Jim has three daughters, Melissa, who is in her second year at Western Michigan University, and twins Stefanie and Emily, who are both sophomores in High School. Jim is a private pilot and enjoys scuba diving, camping, and photography.

CALL FOR NOMINATIONS

Michigan Society
for Medical Research

ADVOCACY AWARDS

2006

THE MICHIGAN SOCIETY FOR MEDICAL RESEARCH AWARDS PROGRAM was established in 1996 by the Board of Directors to honor and recognize individuals for outstanding research, education, and science advocacy. The purpose of the awards is to recognize individuals whose activities and attitudes promote the understanding of biomedical research, science education, and public and animal health. The awards are presented on an annual basis to bring to public attention those advocates whose contributions have been especially effective in promoting these goals.

BENNETT J. COHEN EDUCATION LEADERSHIP AWARD

This award is named in memory of the pioneer and visionary in the field of laboratory animal science and medicine who founded and directed the Unit for Laboratory Animal Medicine at the University of Michigan for 23 years. He was instrumental in founding the American Association of Laboratory Animal Science, American College of Laboratory Animal Medicine, chaired the National Academy of Science committee that wrote the first edition of the *Guide for the Care and Use of Laboratory Animals*, and helped found the American Association for Accreditation of Laboratory Animal Care International. Dr. Cohen, with members of the Michigan research community, in 1981 established the Michigan Society for Medical Research and was its first president.

SCIENCE EDUCATION AWARD

This award was established in 1993 and is given to individuals who have been instrumental in developing, implementing, or contributing to any advocacy program that promotes science and science education. This award acknowledges efforts made to increase this public's appreciation of science, its methods, and the benefits to public and animal welfare.

For additional information about the nomination process and to obtain a nomination form please contact MISMR:

tel (734) 763-8029 fax (734) 930-1568
email mismr@umich.edu web www.mismr.org

Deadline for Nominations: January 25, 2006

ANNUAL ESSAY CONTEST 2006

- **The Michigan Society for Medical Research (MISMR)**
- annually sponsors an essay contest open to all Michigan middle school students. It is part of MISMR's educational outreach program to promote awareness of the benefits and the process of biomedical research, and increase awareness and interest in science. Entries will be judged on originality, creativity (**including a creative title**), command of the English language, and the demonstration that an extra effort was made to learn about biomedical research and why animals are used. Students are asked to describe one specific example of a situation in which animals help people. You can use an example from your own life or from the lives of your relatives or friends. Give as much detail as possible: for example, what kind of animal (or animals) is involved, why that animal was chosen, and what kind of people benefit the most. Creative answers will be rated the highest.

AWARDS

- The **STUDENT FINALIST** awarded a **\$500 cash prize and plaque**.
- The **TEACHER** of the student finalist awarded a **cash prize of \$100**.
- **HONORABLE MENTIONS** awarded a **\$50 cash prize and merit certificate**.
- **ALL STUDENTS** who enter receive a certificate.

Winning essays will be published in a special booklet and the first place winner will be invited to the Michigan Society for Medical Research annual meeting in 2006. Entries become the property of MISMR and may be reprinted, published, or distributed for educational purposes. WINNERS ONLY will be notified by the end of March 2006.

ESSAY CONTEST RULES

- All Michigan middle school students grades 6-8 are eligible to enter.
- Submit essays in standard English with a bibliography that **must cite several different references** (not just the internet information). References may include documented oral sources. Essays should be typed on 8 1/2" x 11" white paper, double-spaced, and 500-750 words.
- Essay should be the original work of student who enters.
- Submit one coversheet followed by two copies of the essay. There should be **NO identifying information** on the essays **except for the title**. The coversheet needs the following information:

- Title of Essay	- Grade Level	- Teacher's Full Name
- Student's Name	- Name of School	- Teacher's Email Address
- Home Address	- School Address	- Class Title
- Home Phone Number	- School Phone Number	- Small Student Photo
- Entries accepted any time prior to deadline but must be postmarked by **Dec. 15, 2005**.
- Send entries to: MISMR Essay Contest • P.O. Box 3237 • Ann Arbor, MI 48106-3237.

Refer to the MISMR website (www.mismr.org) for additional information and resource material.

TOPIC: Why Animals Are Used in Biomedical Research

The Michigan Society for Medical Research (MISMR) annually sponsors an essay contest open to all Michigan high school students. It is part of MISMR's educational outreach program to promote awareness of the benefits and the process of biomedical research, and increase awareness and interest in science. Entries will be judged on originality, creativity (including a creative title), command of the English language, and the demonstration that an extra effort was made to learn about biomedical research and why animals are used. Students are encouraged to research some or all of the following ideas:

- Why animal research is necessary and the limitations of other alternatives (e.g., cell culture, computer simulations).
- How biomedical research has helped in the treatment of diseases for both humans and animals.
- How biomedical research helped a friend, family member, pet, livestock, or endangered species.
- How animal research helps with environmental protection (e.g., toxicity testing of pesticides).
- What the laws and regulations governing the use of animals in research are.



2005 ESSAY CONTEST WINNER
Sittanyiw Chirunga
 John Glenn High School
 Westland, Michigan
 Teacher: Mrs. Cathy Germain
 Essay: Why Animals

AWARDS

- The **STUDENT FINALIST** will be awarded a **\$500 cash prize and plaque**.
- The **TEACHER** of the student finalist will be awarded a **cash prize of \$100**.
- **HONORABLE MENTIONS** will be awarded a **\$50 cash prize and merit certificate**.
- **ALL STUDENTS** who enter receive a certificate.

Winning essays will be published in a special booklet and the first place winner will be invited to the Michigan Society for Medical Research annual meeting in 2006. Entries become the property of MISMR and may be reprinted, published, or distributed for educational purposes. **WINNERS ONLY** will be notified by the end of March 2006.

CONTEST RULES & REGULATIONS

- All Michigan high school students grades 9-12 are eligible to enter.
- Submit essays in standard English with a bibliography that **must cite several different references** (not just the internet information) specific to the content or argument detailed in the paper. References may include documented oral sources. Essays should be typed on 8 1/2" x 11" white paper, be 4-6 double spaced typewritten pages, and not exceed 1500 words.
- Submit one coversheet followed by two copies of the essay. There should be **NO identifying information** on the essays **except for the title**. The coversheet needs the following information:

- Title of Essay	- Grade Level	- Teacher's Full Name
- Student's Name	- Name of School	- Teacher's Email Address
- Home Address	- School Address	- Class Title
- Home Phone Number	- School Phone Number	- Small Student Photo
- Essay should be the original work of student who enters.
- Entries accepted any time prior to deadline but must be postmarked by **December 15, 2005**.
- Send entries to: MISMR Essay Contest • P.O. Box 3237 • Ann Arbor, MI 48106-3237.

Refer to the MISMR website (www.mismr.org) for additional information and resource material.

candidate must be first and presenting author on the abstract.

Abstracts will be judged based on clarity of presentation and scientific merit. Abstracts that present work which illustrates the use of morphologic and/or clinical pathology techniques in new ways or use molecular techniques to increase the understanding of whole animal or tissue toxicologic responses will be given preference. Preference will be given to candidates whose professional goals include the incorporation of pathology into their professional activities. Selected candidates must present a brief (10 minute) synopsis of their research project at the TEPSS reception during the annual meeting.

For further information, please contact Dr. Glenn Cantor, Discovery Toxicology, Bristol-Myers Squibb Co., PO Box 5400, Princeton NJ 08543-5400, glenn.cantor@bms.com, 609-818-4115.

MEMBER ABSTRACTS

ADULT STEM CELL THEORY OF THE MULTI-STAGE, MULTI-MECHANISM MODEL OF CARCINOGENESIS: ROLE OF INFLAMMATION ON THE PROMOTION OF INITIATED STEM CELLS. J.E. Trosko. Department of Pediatrics and Human Development, College of Human Medicine, Michigan State University, East Lansing, Michigan, USA.

Inflammation, induced by microbial agents, radiation, endogenous or exogenous chemicals, has been associated with chronic diseases, including cancer. Since carcinogenesis has been characterized as consisting of the "initiation", "promotion" and "progression" phases, the inflammatory process could affect any or all three phases. The stem cell theory of carcinogenesis has been given a revival, in that isolated human adult stem cells have been isolated and shown to be "targets" for neoplastic transformation. Oct4, a transcription factor, has been associated with adult stem cells, as well as their immortalized and tumorigenic derivatives, but not with the normal differentiated daughters. These data are consistent with the stem cell theory of carcinogenesis. In addition, gap junctional intercellular communication (GJIC) seems to play a major role in cell growth. Inhibition of GJIC by non-genotoxic chemicals or various oncogenes seems to be the mechanism for the tumor promotion and progression phases of carcinogenesis. Many of the toxins, synthetic non-genotoxicants, and endogenous inflammatory factors have been shown to inhibit GJIC and act as tumor promoters. The inhibition of GJIC might be the mechanism by which the inflammatory process affects cancer and that to intervene during tumor promotion

Toxicologic and Exploratory Pathology Study Section (TEPSS) - Student membership and travel awards

The goal of TEPSS is to encourage scientific and educational programs that advance the science of toxicology through the tools of pathologists. We encourage student members, and membership in TEPSS is free to students who are already SOT members.

TEPSS provides two travel awards to assist students to attend the SOT meeting in San Diego, March 5-9, 2006. Funds for one of the awards are provided by Merck. To qualify for the travel award, students should submit an abstract to the SOT by October 3, 2005. The abstract submission should identify Toxicologic and Exploratory Pathology as the specialty section. Applicants should also notify TEPSS of their abstract, send a letter (maximum of 2 pages) describing the research project and professional goals, as well as a letter of sponsorship from an academic advisor who is a member of SOT. The

with anti-inflammatory factors might be the most efficacious anti-cancer strategy.

Contributed by Dr. James Trosko. Presented at Annual Environmental Mutagen Society meeting, San Francisco, CA, 12 September, 2005.

COMMENTARY: The emperor wears no clothes in the field of carcinogen risk assessment: Ignored concepts in cancer risk assessment. Trosko, J.E. and Upham, B.L. *Mutagenesis* **20**: 81-92 (2005)
The following is a position paper challenging the paradigm that 'carcinogen = mutagen', and that the current rodent bioassay to predict risks to human cancers is relevant and useful. Specifically, we review current observations concerning carcinogenesis that might lead to another approach for assessing the identification of human carcinogenic hazards and the risk assessment that chemicals might pose. We give a brief review of the multistage and multimechanism process of cancer in a tissue that involves not only genotoxic but also epigenetic events, and the importance of stem and progenitor cells in the development of cancer. We focus on the often ignored 'epigenetic' effects of carcinogens and the role of cell communication systems in epigenetically altering gene expression that leads to an imbalance of cell proliferation, differentiation and apoptosis in a tissue that can contribute to the cancer process. To draw attention to the fact that the current paradigm and policy to test toxic chemicals is often misleading and incorrect, we discuss how oxidative stress, in spite of the DNA damaging data, most probably contributes to cancer at the epigenetic level. Additionally, we briefly review how this mutagenic concept has greatly diverted attention away from doing research on the lower molecular weight, nongenotoxic, polycyclic aromatic hydrocarbons (PAHs), and how these low molecular weight PAHs are etiologically more relevant to the disease potential of environmental mixtures such as cigarette smoke.

JANUARY ISSUE PREVIEW

The January, 2006 Issue of the Newsletter will feature a review of the Fall meeting, a preview of the Spring meeting, and other items of interest to our members.

Please submit any member news or ideas for the newsletter to your local contact person or directly to the editors. Material for the January newsletter should be submitted no later than January 9, 2006.

BENEFITS OF MEMBERSHIP

Don't forget that your membership to the Michigan Regional Chapter of the SOT includes:

- Discounted registration fees for chapter meetings
- Newsletter with chapter and regional news

- Free listing in the newsletter of training and employment opportunities
- Free listing in the newsletter of positions desired

POSITIONS AVAILABLE

Postdoctoral fellowships, research assistantships, government positions, and industrial positions can be advertised in this space. Submissions to the editor should include a brief description of the position and contact information. This service is free to members!

Job Title:

Genomic/Metabolomic/Bioinformatic/Toxicology Post Doc/Research Associate

The Michigan State University Department of Biochemistry & Molecular Biology, and the National Food Safety & Toxicology Center are engaged in NIH- and EPA-funded research examining the impact of drugs, natural products and chemicals on human health. The goal is to improve safety through the elucidation of mechanisms of actions in order to optimize efficacy while minimizing adverse effects.

Job Description: Research Associate/Post doctoral and graduate student positions are available to use systems biology approaches to investigate the mechanisms of action and toxicity of drugs, commerce chemicals, natural products, and environmental contaminants at Michigan State University in the Department of Biochemistry & Molecular Biology and the National Food Safety & Toxicology Center.

Available projects involve the integration of technologies, such as bioinformatics, chromatin immunoprecipitation, microarray, metabolomic and histopathology obtained from human, mouse and rat in vitro and in vivo models. More targeted molecular and comparative approaches are also used to elucidate mechanisms of action that correlate molecular changes to physiological outcomes. The ideal candidate will be a highly motivated, team oriented scientific investigator who possesses strong organizational, verbal and written communication skills with training in molecular biology and biochemistry. Experience with tissue culture and animal handling as well as computer programming (e.g., Java, C++), database administration (e.g., ANSI SQL), or statistical analysis is desirable.

Further information regarding research activities and specific projects is available at <http://www.bch.msu.edu/~zacharet>.

An application package consisting of: 1) a CV with a list of publications, 2) a brief summary of research experience, and 3) a brief statement regarding research interests and career objectives should be e-mailed to tzachare@msu.edu.

Recent Publications

Boverhof DR, Burgoon LD, Tashiro C, Chittim B, Harkema JR, Jump DB, Zacharewski TR (2005)

Temporal and dose-dependent hepatic gene expression patterns in mice provide new insights into TCDD-mediated hepatotoxicity. *Toxicological Sciences*, **85(2)**,1048-1063.

Eckel, J.E., Gennings, C., Chinchilli, V.M., Burgoon, L.D., Zacharewski, T. (2004) Normalization of two-channel microarray experiments: a semiparametric approach. *Bioinformatics*, **21(7)**, 1078-1083.

Yan, S., Boverhof, D.R., Burgoon, L.D., Fielden, M.R., and Zacharewski, T. (2004) Comparative analysis of dioxin response elements in human mouse and rat genomic sequences. *Nucleic Acids Research*, **32(15)**, 4512-4523.

Fertuck, K.C., Eckel, J.E., Sun, Y., Gennings, C., and Zacharewski, T. (2003) Identification of temporal patterns of gene expression in the uteri of immature, ovariectomized mice following exposure to ethynyl estradiol. *Physiological Genomics*, **15(2)**, 127-141.

POSITION DESIRED

Individuals seeking positions in the region can advertise in this section. Submissions to the editor should include a brief description of research interests, experience, education, type of position desired, and geographical location desired. This service is free to members!

This newsletter is published three times a year (January, April, and September) by the Michigan Regional Chapter of the Society of Toxicology. Send material for newsletter one month in advance by phone, fax, or e-mail to either:
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E-mail: l.h.lash@wayne.edu or Randall J. Ruch, Medical University of Ohio, Dept. of Biochemistry and Cancer Biology, 3000 Arlington Ave. Toledo, OH 43699; Phone: (419) 383-4918 Fax: (419) 383-3089
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