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## Michigan Regional Chapter of the Society of Toxicology



## NEWSLETTER

*Volume 23*

*Number 1*

February, 2005

Editor: Lawrence H. Lash

Associate Editor: Randall J. Ruch

### *MESSAGE FROM THE PRESIDENT*

(submitted by Stephen Frantz)

Wintertime greetings to all of the Chapter membership from your President. I hope that everyone had a safe and happy Holiday Season and that the New Year finds you well and ready to continue your participation in this Spring's Chapter activities.

First, let me recall some of the highlights from the Fall Symposium that was held this past November 12, 2004, at the Kellogg Center on the campus of Michigan State University in East Lansing. The symposium theme was "Mechanisms of Idiosyncratic Toxicity" and featured five very interesting presentations. The speakers and their talks included: Dr. Robert A. Roth, Michigan State University, speaking on "*Inflammation as a Susceptibility Factor for Hepatotoxicity: A Connection to Drug Idiosyncrasy?*"; Dr. Mark J. Reasor, West Virginia University, "*Drug-Induced Phospholipidosis: Characteristics and Consequences*"; Dr. Neal Goodwin, Ph.D., ProNAi Therapeutics, Kalamazoo, MI, speaking on "*The Humanized Mouse Model as a Tool for Evaluating Idiosyncratic Toxicity*"; Dr. Michael Reily, Pfizer Inc./Ann Arbor, speaking on "*Metabonomics as a Tool For Investigating Idiosyncratic Toxicity*"; and Dr. Craig Harris, University of Michigan,

speaking on "*Oxidative Stress: Intrinsic Factors That Can Tip the Balance Between Hypersensitivity and Resistance in the Developing Conceptus.*"

A poster competition was also held and, because there were no postdoctoral entries for the Fall Symposium, an additional \$500 dollar prize was awarded for a second-place student poster. This year's winners were: Mr. James Luyendyk, Department of Pharmacology and Toxicology and National Food Safety and Toxicology Center, Michigan State University – \$500 prize for the best student poster; Mr. Christopher Bradlee, Dept. of Environmental Health Sciences, University of Michigan – \$500 prize for the second-place student poster; and Ms. Sandra Newport, National Food Safety and Toxicology Center, Michigan State University – \$500 prize for the best poster from research staff. These winners are expected to apply these awards toward their travel to the national Society of Toxicology meeting this Spring in New Orleans and their abstracts are published elsewhere in this newsletter. Please join me in congratulating all of the students and research staff who contributed to this poster competition and plan to show your support for these awardees in their poster presentations at the national meeting in New Orleans.

In other business that your MISOT Council has been addressing during the month of January, a discussion was held on whether or not to arrange a reception at the Annual Meeting of SOT. It was noted that the previously enthusiastic Southern California Chapter has recently declined our invitation to have a joint reception, stating that they already have planned to have a co-reception with the Mountain West Chapter at SOT. It was pointed out that these types of meetings are usually not very well attended by local Chapter members during the national SOT meeting and that our two meetings per year already provide a good opportunity to network for the Chapter. The consensus was to consider doing a reception for the 2006 SOT meeting and to possibly provide a great speaker in order to have an effective reception.

Finally, the venue for the Spring Symposium has been decided and will have the theme of "Juvenile Toxicology." The planning for this

symposium is being led by our President-Elect Jim McKim (more details about this meeting elsewhere in this newsletter), and we once again expect to assemble an excellent slate of speakers from both academic and industry backgrounds. There was also a great deal of discussion during our January teleconference regarding the invitation to have a combined meeting between MISOT and MISMR. The MISMR meeting is now set for Wednesday, April 20th at the MSU/Kellogg Center, with the possibility of having Gov. Jennifer Granholm as the Keynote Speaker. This invitation is a welcome one, but the Council sentiment was that we may have started to consider this plan too late for an April meeting and that the best strategy might be to get together with MISMR to plan a combined meeting for this Fall. This is so that we can put together a really attractive common theme that is targeted to members of both organizations (and other interested parties as well) and not try to rush to combine the Spring meetings for both organizations. It was also noted that the April MISMR meeting is a great opportunity for MISOT to show our support for the beneficial aspects of animal research and by this newsletter, we encourage all MISOT members to attend this April 20th MISMR meeting.

We are looking forward to seeing Chapter members attending the New Orleans national meeting and to seeing as many of you that can attend the Spring Symposium.

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### **SPRING MEETING PREVIEW**

(contributed by Jim McKim)

This year's Spring meeting of the Michigan Chapter of the Society of Toxicology will be held at Brook Lodge near Kalamazoo, MI sometime in May. The meeting will feature presentations by scientists experienced in the area of Juvenile Toxicology. This is an important and timely topic and we invite everyone to participate in this event.

## ANNOUNCEMENTS FROM MISMR:



Michigan Society  
for Medical Research  
P.O. Box 3237 • Ann Arbor, MI 48106-3237

**Wednesday  
April 20, 2005**  
12:00PM – 4:00PM  
Kellogg Center  
Michigan State University  
East Lansing, Michigan


**Michigan Society for Medical Research**  
ANNUAL MEETING & EDUCATIONAL SYMPOSIUM

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**Michigan's  
RESEARCH & DEVELOPMENT CLIMATE**  
*State Government, Medical Research & You*

As the recent election demonstrated, science in general and medical research in particular have emerged as vital issues in public debate. The Michigan Society for Medical Research and MichBio have jointly extended an invitation to our leaders in Lansing to meet with our members. The goal of the dialogue is to address these contemporary challenges of the 21st Century and to help shape the future direction for biomedical research in Michigan.

PRESENTED BY:




Michigan Society  
for Medical Research



MICHIBIO  
CREATING LIFE SCIENCES INDUSTRY GROWTH

**PROGRAM & REGISTRATION INFORMATION TO COME**  
For additional information please email: [mismr@umich.edu](mailto:mismr@umich.edu)

Michigan Society for Medical Research  
PRESENTS



**IACUC 2005**  
Connecting Science with Animal Care & Compliance  
A FORUM FOR DISCUSSION

**Wednesday, May 18, 2005**  
9:00AM – 4:30PM  
Genoa Woods Executive Conference & Banquet Center  
7707 Conference Center Drive • Brighton, Michigan

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**PROGRAM & REGISTRATION INFORMATION TO COME**  
For additional information please email: [mismr@umich.edu](mailto:mismr@umich.edu)

## News Release

Michigan Society for Medical Research  
P.O. Box 3237, Ann Arbor, MI 48106  
PH (734) 763-8029 I FAX (734) 930-1568  
[www.mismr.org](http://www.mismr.org)

For Immediate Release  
January 24, 2005

### Governor Granholm Signs Laboratory Protection Bill

In response to several notable attacks by animal rights activists on research facilities in Michigan, Governor Jennifer Granholm recently signed legislation to protect research laboratories from crimes of domestic terrorism.

Public Acts 519 and 520 increase the penalties for destruction or damage to research laboratories. Senator Tom George, Republican-20th Senate District, introduced them as Senate Bills 1175 and 1176.

“We are taking action to protect the work of research companies and universities in our state,” Senator George said. “Life sciences research can lead to important medical benefits and improve our quality of life. We need to protect the public investment in medical research and this important part of our economy.”

These bills amend Michigan’s penal code to add research property to the nineteen specific classes of property, which the Legislature has already determined require enhanced protection of the law against malicious destruction. In enacting these bills, the state demonstrates to the world anew its commitment to making Michigan a leader in life sciences research.

“Enacting these bills is yet another demonstration by the state that we are committed to making Michigan a leader in life sciences research,” said Dr. Louis G. D’Alec, president of the Michigan Society for Medical Research, which lobbied for the bill for more than three years.

The Michigan Society for Medical Research (“MISMR”), a non-profit educational organization dedicated to promoting the understanding of medical research that includes the appropriate use of animals. MISMR’s members include the major Michigan research universities, medical and healthcare companies, and Michigan medical centers and teaching hospitals.

“What brings our members together is the belief that medical research conducted in Michigan, be it at a university, industry facility, or hospital is vital to this state and its citizens on many levels,” Dr. D’Alec said “The continued viability of Michigan as a place to conduct such research requires an ongoing dialogue with the public and its representatives on the promise of such research, as well as a frank discussion of the problems facing those who engage in it.”

**STUDENT/POST-DOC NEWS**  
(contributed by Tracy Pickering)

As my term as the Student Representative will come to an end in May, the Michigan Chapter is preparing to elect a new representative for the Student Advisory Committee (SAC). The student representative works with the SOT council providing communication between the council and the student members of SOT. The SAC advises SOT council and formulates and/or implements initiatives designed to encourage more widespread and meaningful participation of student membership in SOT. If you are interested in or would like to nominate someone to serve on the SAC, please contact me at [tracy.pickering@mpiresearch.com](mailto:tracy.pickering@mpiresearch.com).

For additional information concerning MISOT membership or any other pertinent student information, please contact me at the email address above. I look forward to seeing everyone in New Orleans!

**Students: Schedule these Activities at the March SOT New Orleans Meeting!**

**Saturday, March 5, 5:00-7:00 PM. Career Move: An Amalgam of Opportunities and Uncertainties.**

This workshop is targeted to those seeking career advancement opportunities and will address the major issues that are faced particularly prior to job seeking such as marketing one's self, critical decision-making, and negotiating offers.

**Sunday, March 6, 7:30 - 8:30 PM. Student/Post-Doctoral Fellow Mixer**

The Student Advisory Committee hosts this event for students and post-doctoral fellows to gather, meet new people, as well as re-establish relationships. Tickets are free; however, you must register to attend on the Annual Meeting Registration Form. Be sure to download the Student Event Planner for details on how you could win prizes at the student mixer.

**Monday, March 7, 4:30-6:00 PM. Consulting as a Career Choice**

Participants will learn about life as a toxicology consultant, choosing to operate as a sole practitioner versus joining a company, starting a consulting business, consulting following retirement, and Internet-based and

other tools to increase your visibility and client portfolio.

**Monday, March 7, 4:40 - 6:00 PM. Scientific Sunset Session: Interviewing Skills for Graduate Students and Post-Docs**

The purpose of this session is to expand the personal skill sets of graduate students and post-docs with regard to interviewing.

**Wednesday, March 9, 4:45 - 5:30 PM. SOT Council Meeting with Students/Post-Doctoral Fellows**

All students and post-docs are welcome to attend! This meeting serves as a dialog between SOT Council and students.

For full information, check the Student Events section of the annual meeting site and the annual meeting calendar. The SAC will also be publishing the Student Event Planner, in January, for the 2005 SOT Annual Meeting. This planner is filled with detailed descriptions of student events and is intended to assist students in planning their daily activities for the SOT meeting. This is a valuable resource for any student attending the meeting.

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**Michigan Regional Chapter of the  
Michigan Society of Toxicology**

**Annual Report 2003-2004**

**I. Introduction**

Active membership of 116 persons for 2003; including 81 full members and 35 student members.

	2003-2004	2004-2005
President:	Robert Meeks	Stephen Frantz
President-Elect:	Stephen Frantz	James McKim
Secretary/Treasurer:	John J. LaPres	Paul Stemmer
Councilors:	Paul A. Jean Micheal Graziano James G. Wagner Julie C. McGonigal	Paul A. Jean Robert Meeks John J. LaPres Yvonne Frater
Student Representative:	James Luyendyk	Tracy Pickering
Newsletter:	Lawrence Lash (Editor) Randall Ruch (Assoc. Editor)	

## II. Activities

The 2003 Fall meeting was held on Friday, October 31, 2003 at the Kellogg Center on the campus of Michigan State University. The meeting was entitled: "Genomics, proteomics, and metabonomics – putting "omics" into perspective." Featured speakers included Dr. Roger Ullrich from Rosetta/Merck, who presented a seminar on the uses of toxicogenomics in drug discovery. Dr. Timothy Zacharewski (Michigan State University) discussed the uses of toxicogenomics in mechanistic and predictive toxicology. Dr. Donald Robertson (Pfizer, Inc) gave an excellent introduction to metabolomics and its uses in drug toxicity screening. Dr. John LaPres (Michigan State University) gave a talk on the uses of genomics tools in establishing testable hypothesis with regards to metal-induced toxicity. Finally, Dr. Paul Brake of IBM Life Sciences gave an overview of the trials, tribulations and the absolute necessity for data integration. The meeting was made possible, in part; due to the continued generosity of the Pfizer Corporation. There were 76 registrants for the meeting. These included 37 members, 22 students, 3 post-docs and 14 non-members.

The poster competition at the Fall meeting was also well attended with 14 abstracts submitted for judging. There was a tie in the student award category. James Luyendyk's poster entitled "Altered Gene Expression As A Contributing Factor To Liver Injury In Rats Cotreated With Ranitidine And Lipopolysaccharide" and Darrell Boverhof's Poster Entitled "Ethinyl Estradiol Elicited Temporal And Dose-Dependent Hepatic Gene Expression Patterns In Immature, Ovariectomized Mice" were Judged to be equally meritorious and both were awarded \$500 prizes. Shaila Kulkarni (Pfizer) won the \$500 research staff award for her poster entitled "Quantitative mRNA Invader Analysis as a Fast Method to Screen for Induction Potential of Drugs Using Primary Cultures of Human and Rat Hepatocytes." Finally, XinWen Yu (Pfizer) won the Post Doctoral award for his poster entitled "NMR-Based Metabonomics As A Tool In Investigating CI-1034-Evoked Acute Coronary Artery Injury in Dogs." Dr. Yu was awarded \$250 and an invitation to speak at our Spring Meeting.

The 2004 Spring meeting was held on May 14, 2004 at the Brook Lodge Hotel & Conference Resort in Augusta, Michigan. The topic of this symposium was "Mechanisms & Models for Nongenotoxic Carcinogenicity." Speakers included Jay I. Goodman (Michigan State University): "Altered DNA Methylation: A Secondary Mechanism Underlying Carcinogenesis"; Dr. Michael L. Cunningham

(National Institute of Environmental Health Sciences): "Characterization of Early Gene Expression Alterations by the Nongenotoxic Carcinogens Phenobarbital and Peroxisome Proliferators"; Dr. James M. McKim, (CeeTox, Inc.): "In Vitro Models to Characterize Biochemical Profiles of Nongenotoxic Carcinogens"; Dr. Craig P. Webb (Van Andel Research Institute): "An Integrated Medical and Molecular Informatics Approach for Use in the Analysis of Nongenotoxic Pharmaceuticals"; Dr. Michael A. Pereira (Ohio State University): "A Mechanism of Nongenotoxic Carcinogens: DNA Hypomethylation, Histone Code and Hypermethylation of Tumor Suppressor." The Spring meeting was an overwhelming success due to the diversity and stature of the invited speakers, the generosity of MPI Research and the staff of the Brooks Lodge. There were 54 meeting participants including 20 members, 16 students and 18 non-members.

The Chapter again elected to support the Michigan Society for Medical Research (MISMR) by continuing our supporting institution membership.

## III. Financial Status

INCOME STATEMENT (For the year ended July 31, 2004)

### Income:

Deposits: \$14,015.00

These include dues and meeting registrations

### Expenses:

Meeting Expenses

Fall \$6,701.18

Spring \$1,808.14

Newsletter \$ 259.37

Travel award to SAC student \$ 250.00

Supporting Institution

(MISMR) \$ 350.00

Total Expenses \$9,368.69

Net Income: \$14,015.00

Fund Balance, July 31, 2003

\$10,808.16

Fund Balance, July 31, 2004

\$15,454.47

## IV. Future Plans

MISOT plans to continue to organize two scientific meetings each year; however, there is increasing awareness that it is difficult for

scientists, particularly academicians, to attend numerous extracurricular meetings. Consequently, MISOT may continue to organize jointly with other regional professional societies with mutual interests. A primary goal in the planning of these meetings will be to increase student involvement.

The immensely positive feedback from our efforts to include technical support staff in our annual meetings has led us to continue these efforts. The primary goal is to increase membership in the chapter and obtain a different perspective on toxicology related issues. In addition, the chapter has begun a recruiting drive to the less represented Michigan Universities and Colleges in an attempt to increase their participation.

MISOT also plans to continue to develop our newsletter and circulate it three times a year. The MISOT also plans on using the National website and its links to regional chapters to increase involvement in the chapter and the efficiency in communication with its members. Finally, the MISOT has begun planning a regional chapter reception at the National SOT. We hope to attract National members who have not joined our regional chapter and show them the benefits of contacts within Michigan through our regional chapter.

### **WINNING ABSTRACTS FROM FALL, 2004 MISOT MEETING:**

#### **First Place, Student:**

James P. Luyendyk, MSU

#### **Coagulation System Activation and Fibrin Deposition are Critical Factors in Idiosyncrasy-like Liver Injury from Lipopolysaccharide and Ranitidine Coexposure**

James P. Luyendyk, Jane F. Maddox, Patricia E. Ganey, and Robert A. Roth

Department of Pharmacology and Toxicology, Center for Integrative Toxicology, National Food Safety and Toxicology Center, Michigan State University, East Lansing, MI, USA

Coadministration of nonhepatotoxic doses of the histamine 2-receptor antagonist ranitidine (RAN) and bacterial lipopolysaccharide (LPS) results in hepatocellular injury in rats, the onset of which occurs in 3-6 h. This reaction resembles RAN idiosyncratic hepatotoxicity in humans. Recent studies have associated early hepatic fibrin deposition with liver injury in LPS/RAN-cotreated rats. We tested the hypothesis that inhibition of the coagulation system attenuates liver injury in LPS/RAN-cotreated rats. Rats were given LPS ( $44.4 \times 10^6$  EU/kg) or its

vehicle, then RAN (30 mg/kg) or its vehicle 2 h later. They were killed 3 or 6 h after RAN treatment, and liver injury was estimated from serum alanine aminotransferase (ALT) activity and liver histopathology. A modest elevation in serum hyaluronic acid, which was most pronounced in LPS/RAN-cotreated rats, suggested altered sinusoidal endothelial cell function. Hepatic fibrin deposition was observed in livers from LPS/RAN-cotreated rats 3 h after RAN. Liver injury in LPS/RAN-cotreated rats was abolished by the anticoagulant, heparin, and was significantly attenuated by the fibrinolytic agent, streptokinase. Taken together, the results suggest that the hemostatic system is activated after LPS/RAN cotreatment and that hepatic fibrin deposition is important for the genesis of hepatic parenchymal cell injury in this model. (Supported by NIH grant DK061315)

#### **Second Place, Student:**

Christopher A. Bradlee, U of M

#### **Assessing the Toxicity of n-Hexane, Toluene and Acetone Mixtures Using an Interactions-adjusted Physiologically Based Toxicokinetic Model**

Christopher A. Bradlee<sup>1</sup>, Stuart Batterman<sup>1†</sup>, and Melvin E. Andersen<sup>2</sup>

<sup>1</sup>Department of Environmental Health Sciences, School of Public Health, The University of Michigan, Ann Arbor, MI, USA. <sup>2</sup>Division of Computational Biology, CIIT Centers for Health Research, Research Triangle Park, NC, USA.

Exposure to solvent mixtures may result in toxicity differences, as compared to single solvent exposures, due to the possibility of interactive effects between the solvents. Physiologically-based toxicokinetic (PBTK) modeling is a means of quantifying interactions within chemical mixtures and can be used to develop mechanistic risk assessment methods for chemical mixtures. PBTK modeling predicts tissue dosimetry, while accounting for interactions between mixture components, through the use of mathematical representations of the processes of absorption, distribution, metabolism and excretion. The objectives of this study were to 1) develop an interactions-adjusted PBTK model for the combined inhalation exposures to n-hexane, toluene and acetone in humans; and 2) evaluate the effect of metabolic interactions on the toxicity of the mixture at occupationally relevant exposure concentrations. The PBTK model was developed using existing models for the individual solvents that were linked via metabolic interaction terms. Human volunteer exposure studies were used to validate the model. The results of the study show clear interactive effects between the solvents, with area under curve (AUC), clearance (half-life), and maximum concentration affected by varying exposure concentrations of the solvents.

## FIRST PLACE, RESEARCH STAFF:

Sandra Newport, MSU

### Lipopolysaccharide Potentiates Acetaminophen Hepatotoxicity

Sandra W. Newport, Christine M. Dugan, Xiaomin Deng, Patricia E. Ganey, Robert A. Roth and Jane F. Maddox

Department of Pharmacology and Toxicology, National Food Safety and Toxicology Center, Michigan State University, East Lansing, MI

The doses of acetaminophen (APAP) required to cause hepatotoxicity vary considerably in people. Previous studies in animals demonstrated that nontoxic doses of some xenobiotic agents are rendered hepatotoxic by a mild inflammatory episode, suggesting that modest inflammation may be a determinant of sensitivity to hepatotoxicity. Accordingly, we tested the hypothesis that cotreatment of mice with normally nonhepatotoxic doses of lipopolysaccharide (LPS) and APAP leads to development of liver injury. Fasted, C57BL/J6 mice were treated with either saline or LPS (44 x 10<sup>6</sup> EU/kg, ip), two hours before or two hours after treatment with APAP (100-250 mg/kg, ip) or saline. Mice were killed 24 hours after APAP-treatment, and hepatotoxicity was estimated from increased serum alanine aminotransferase (ALT) activity and evaluation of liver histopathology. No elevation in serum ALT activity was observed in mice that received vehicle or LPS alone. LPS cotreatment (either pre- or post-APAP) caused a leftward shift of the dose-response curve for APAP-induced hepatotoxicity. This effect was most pronounced in mice that received LPS 2 hours before APAP. Consistent with the increase in serum ALT activity, histopathology revealed centrilobular, oncotic necrosis only in livers of LPS/APAP-treated mice. Hepatic fibrin deposition was observed in livers of LPS/APAP-treated mice but not in livers from mice treated with either agent alone. The results suggest that normally noninjurious doses of APAP are rendered hepatotoxic by a modest inflammatory response. Furthermore, in APAP-treated mice, inflammation was associated with alterations in the hemostatic system. (Supported by NIH grant DK061315)

## MEMBERSHIP NEWS

*News items about activities involving our members are invited for this section.*

## APRIL ISSUE PREVIEW

The April, 2005 Issue of the Newsletter will feature a more details 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 April newsletter should be submitted no later than April 5, 2005.

## 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!*

## ASSISTANT PROFESSOR POSITION PHARMACOLOGY AND TOXICOLOGY MICHIGAN STATE UNIVERSITY

The Department of Pharmacology and Toxicology at Michigan State University is accepting applications for a tenure-track faculty position at the Assistant Professor or Associate Professor level. We are seeking candidates with an interest and expertise in inflammation as it relates to pathophysiological mechanisms or adverse consequences of drugs or other chemicals in living systems. Preference will be given to candidates who complement existing strengths in the areas of neurodegenerative, respiratory/airway or hepatic disease. Candidates should have a Ph.D. or equivalent in Pharmacology & Toxicology or related discipline, extensive postdoctoral research experience and demonstrated success in obtaining extramural funding. The candidate will have the opportunity to participate in dynamic and nationally-recognized interdisciplinary research and training programs including the Center for Integrative Toxicology, the National Food Safety and Toxicology Center, the Cell and Molecular Biology Program, the Center for Biological Modeling, the Genetics Program and the Neuroscience Program. The successful candidate will be expected to establish an independent and extramurally-funded research program and to contribute to teaching and other departmental activities. Interested individuals should

send their curriculum vitae, statement of research interests and future research plans, and 3 letters of recommendation. Electronic submission to [hummeld@msu.edu](mailto:hummeld@msu.edu) is encouraged; paper applications may be sent to: Chair, Faculty Search Committee, Department of Pharmacology and Toxicology, Michigan State University, B440 Life Sciences Building, East Lansing, MI 48824-1317. Review of applications will begin immediately and applications will be accepted until the position is filled. See our web site: <http://www.phmtox.msu.edu>. Michigan State University is an Equal Opportunity/Affirmative Action employer and encourages applications from women and minorities.

## POSITIONS AT THE DOW CHEMICAL COMPANY:

Toxicology & Environmental Research and Consulting function of The Dow Chemical company has the following openings. If interested, please visit Dow internet website ([www.dow.com](http://www.dow.com) <<http://www.dow.com>> ) and apply online or contact Bhaskar Gollapudi ([bhaskargollap@dow.com](mailto:bhaskargollap@dow.com) <<mailto:bhaskargollap@dow.com>>):

### Job # 0400544: Toxicology Specialist:

Description: Our Mammalian Toxicology group is currently seeking a Toxicology Specialist. Primary responsibilities of this job will be to serve as a Study Director on regulatory guideline studies as well as investigational research. Key activities include protocol development, oversight of study conduct, report writing and review, participation on project teams, and presentation/publication of study findings. Longer term opportunities include higher level of scientific leadership of laboratory studies and/or providing toxicology consulting services to Dow business units.

Qualifications: Successful candidates for this position must have a Ph.D. in toxicology or a related discipline and at least 2 years of post post-doctoral research experience. Excellent written and verbal communication, as well as interpersonal skills, are also essential.

### Job #0400529: Senior Toxicology Specialist:

Description: The Dow Chemical Company's Toxicology and Environmental Research & Consulting Department (TERC) is seeking a consulting toxicologist to assist in directing and conducting research on dioxin(s). This position will be a laboratory-based position within TERC. It will involve an interactive role with other TERC expertise areas (i.e., reproductive toxicology, molecular biology, carcinogenicity, risk assessment) in the design, coordination, and implementation of specific dioxin studies. It is anticipated that a number of studies will be conducted at outside contractor and academic institutions. The position will involve interactions with a variety of internal Dow teams, as well as extensive interactions outside of Dow with academic and regulatory scientists. It is also anticipated that the position will involve limited travel

for accomplishing study needs as well as presentations at a number of scientific meetings, including SOT.

Qualifications: Successful candidates for this position must have a Ph.D. in toxicology or a related discipline and at least 5 years of post post-doctoral research experience, preferably in the areas of dioxin research. Preference will be given to candidates certified by the American Board of Toxicology, and successful candidates will demonstrate a broad knowledge of international risk assessment procedures.

## 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: Lawrence H. Lash, Wayne State Univ., Dept. of Pharmacology, 540 East Canfield Ave., Detroit, MI 48201; Phone: (313) 577-0475 Fax: (313) 577-6739 E-mail: [l.h.lash@wayne.edu](mailto:l.h.lash@wayne.edu) or Randall J. Ruch, Medical College of Ohio, Dept. of Pathology, 3000 Arlington Ave. Toledo, OH 43699; Phone: (419) 383-4918 Fax: (419) 383-3089 E-mail: [rruch@mco.edu](mailto:rruch@mco.edu).

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c/o Lawrence H. Lash, Ph.D.  
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