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The University of Georgia

Spring 2010

Interdisciplinary Toxicology Program DIGEST



The Interdisciplinary Toxicology Program, ITP, at the University of Georgia is comprised of graduate students, faculty, staff scientists, and post-doctoral fellows from several departments within the University. The ITP is dedicated to the advancement of biomedical and environmental knowledge through research and scholarly activities in ecological, computational and mechanistic toxicology. The ITP promotes and enhances collaborative interdisciplinary toxicology research and provides high quality training and mentoring to graduate students from multiple disciplines. The ITP also serves as a resource for toxicology-related information for the public, government agencies and the private sector. This is accomplished by encouraging cooperation and sharing of resources and faculty in the Colleges of Public Health, Pharmacy, Veterinary Medicine, Agricultural and Environmental Sciences, and the Warnell School of Forestry and Natural Resources.

www.toxicology.uga.edu

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Fellow Colleagues,

Welcome to the annual newsletter from the Interdisciplinary Toxicology Program at the University of Georgia. This year we have seen growth in faculty participation in the program. We welcome Dr. Rusty Arnold from the Department of Pharmaceutical and Biomedical Sciences, College of Pharmacy; Dr. Sayed Hassan from the Laboratory for Environmental Analysis, Department of Crop and Soil Sciences; and Dr. Robert Gogal from the Department of Anatomy and Radiology, College of Veterinary Medicine.

This year we revisited our curriculum and our program goals – with an emphasis on making the UGA Toxicology Program better situated to serve the needs of today’s students and tomorrow’s toxicologists. We also started the Student Liaison Committee, which consists of four students Peter Hazelton, from the Warnell School of Forestry; Kwaku Agyekum, from the College of Public Health; Xiaoling Zhang from the College of Pharmacy and Shuo Xiao representing the College of Veterinary Medicine. These representatives are an ambitious group who will help further align our program to meet the needs of our students.

We welcome Joanne Mauro, the Administrative Assistant to the ITP program. Joanne comes to us from the public sector having worked with Public Health in Dalton GA. She retired from the U.S. Navy Reserves and has worked for the National Guard Challenge Program and the Todd M. Beamer Foundation. She is coordinating all committees, supporting the new student liaison committee, and the graduate coordinator and director.

Our seminar series this year included representatives from the EPA’s National Health and Environmental Effects Research Laboratory, The Hamner Institute of Health Sciences, the Center of Toxicology & Environmental Health in Little Rock, and the University of New Brunswick, Saint John. Topics ranged from, “roles for toxicologists” to “dose metrics of pesticides.”

An alumnus, Michael Lumpkin (Ph.D. 2002), spoke at our annual spring retreat on finding a job after graduation. Dr. Lumpkin is a board-certified toxicologist at Environ International Corporation. He provides human health risk assessment analysis and guidance to clients in industry, trade associations, law firms, and the federal government.

Our students won several national awards this year. We are very proud of their level of dedication and abilities! A list of awards can be found on Page 9.

Lastly I would like to recognize a young faculty who was recently tenured and promoted to Associate Professor, Brian Cummings. Over the last two years Brian has obtained multi-year funding from Syngenta (\$250,000), American Water Works Assoc. (\$160,000) and in collaboration with a new ITP faculty member, Robert (Rusty) Arnold, an NIH grant (\$408,000). Kudo’s for Brian and his colleagues!

Kind Regards,

Dr. Jeff Fisher

Director, ITP Program, UGA



2009-2010 INTERDISCIPLINARY TOXICOLOGY PROGRAM CLASS



Femi Adetona



Kwaku Agyekum



Adwoa Agyepong



Peter Hazelton



Ghanashyam (Sam) Joshi



Kristen Kellock



Shuang Li



Zhoumeng Lin



Liyun Liu



Suyang Liu



Shep Martin



**Madhusudhanan
M.Keralapurath**



Guoqing Qian



Arena Richardson



Emily Roberts



Sethi Pankaj



Gideon St. Helen



Bin Sun



Denita Williams



Shuo Xiao



Li Xu



Xiaoling Zhang



Fei Zhao

**Not photographed:
Cory Gresham and
Franklin Wang**

ACADEMIC FALL RETREAT



New students meet new faculty at the ITP Academic Fall Retreat

The ITP faculty and students welcomed each other to a new session with the 2009 Fall Retreat at Flinchum's Phoenix - cabin courtesy of the Warnell School of Forestry and Natural Resources. The event was well attended by faculty and students, and it served as a good opportunity for new persons in the program to share experiences and learn more about each other.

All attendees enjoyed the relaxed atmosphere of the cabin and a beautiful Friday afternoon, and chatted over food and drinks. This fall retreat was, as usual, a stimulating way to start another academic year.

TOXICOLOGY SEMINARS

The ITP sponsored a series of very interesting seminars over the past year, delivered by accomplished researchers from across the country. Seminar topics captured important current and emerging issues in toxicology. Receptions were hosted by the program after each seminar, and students and faculty took advantage of the opportunity to chat with the presenters in a more casual setting.

- /// **Dr. Michael F. Hughes**, Research Toxicologist, EPA's National Health and Environmental Effects Research Laboratory, Research Triangle Park, NC, "Disposition & Dose Metrics of Pyrethroid Pesticides", September 21, 2009.
- /// **Dr. Mel Andersen**, Director, Program in Chemical Safety Sciences, The Hamner Institutes of Health Sciences, RTP, NC, "Toxicology Testing in the 21st Century", October 16, 2009.
- /// **Dr. Paul A. Nony**, Manager of Toxicology, Center of Toxicology & Environmental Health, (CTEH), Little Rock, AR, "Reporting from the Front Lines: Uncommon Roles for Toxicology in Public Health and Chemical Emergency Response", November 13, 2009.
- /// **Dr. Karen Kidd**, Canada Research Chair and Biology Professor at the University of New Brunswick, Saint John, NB, Canada. "Is the Birth Control Pill an Acceptable form of Contraception for Wild Fishes?", April 28, 2010.

Poster Presentations

Femi Adetona: Hydroxy-PAHs as Biomarkers of PAH Exposure in Pregnant Women Using Different Cooking Fuels

Adwoa Agyepong: Kitchen and Personal Particulate Matter (PM_{2.5}) and Carbon Monoxide Exposure Levels in San Marcos, Peru: Preliminary Analysis

Kwaku Agyekum: Probiotics Reduce *Listeria* Monocytogenes Tissue Invasion and Stillbirths in Guinea Pigs

Celia Dodd: Differential Effects of Manganese on LPS Induction of HO-1 in Microglia and Neuronal Cell Lines

Peter Hazelton: Sublethal Effects of PFOS on Early Life Stages of Freshwater Mussels **2nd PLACE**

Ghanashyan Joshi: Tissue Partition Coefficients for Nonane and ITS Isomers

Richard Kerr: Acute Lead Pellet Exposure in Northern Bobwhite (*Colinus virginianus*) Altered Hematologic Profiles, Reduced Weight Gain, and Increased Mortality

Shuang Li: A BBDR-HPT Axis Model for the Lactating Rat and Nursing Pup: Evaluation of Iodide Deficiency

Zhoumeng Lin: A Preliminary PBPK Model of Atrazine and its Main Metabolites in Mice

Suyang Liu: Downwind Real-time PM_{2.5} and CO Monitoring during Prescribed Burns at Fort Benning, GA: Implications for Community Exposures

The ITP hosted its annual one-day spring retreat on March 3rd, 2010 at the Georgia Center. The retreat is used as a platform to showcase the program and as an opportunity for students to present their research. The retreat was opened by a welcome address given by the Dean of the Graduate School, Dr. Maureen Grasso, followed by an update on ITP given by the program's Director, Dr. Jeff Fisher. This year's keynote speaker was Dr. Michael Lumpkin, Manager, ENVIRON International Corporation. Dr. Lumpkin gave a presentation titled, "The Art of Getting From Here to There: Thoughts on Launching a Toxicology Career." After the keynote address, three doctoral students gave platform presentations and nineteen students presented posters. Platform presenters were:

///**Shep Martin**, College of Public Health, Department of Environmental Health Science, "Progress in Development of a Physiologically-Based Pharmacokinetic Model of Jet Fuels in the Rat". **Advisor: Dr. Jeff Fisher**

///**Shuo Xiao**, College of Veterinary Medicine, Department of Physiology & Pharmacology, "Effect of Bisphenol-A Exposure on Uterine Receptivity in Mice". **Advisor: Dr. Xiaoqin Ye**

///**Xiaoling Zhang**, College of Pharmacy, Department of Pharmaceutical and Biomedical Science, "Bromate Induces Epigenetic Alterations in Human and Rat Kidney Cells". **Best Platform Award. Advisor: Dr. Brian Cummings**

TOXICOLOGY SPRING RETREAT



Emily Roberts, Peter Hazelton, and Kwaku Agyekum

After the platform presentations, the retreat broke up for a group photo and a poster viewing session, followed by a sit-down dinner. During dinner, awards were presented for best oral presentation and posters. Certificates of Appreciation were presented to ITP friends and supporters from across the campus.

Shep Martin: Progress in Development of a Physiologically-Based Pharmacokinetic Model for Aviation Fuels

Guoqing Qian: Development of a Non-Antibody Method for Rapid Detection of Serum Aflatoxin B₁-Lysine Adduct

Gideon St. Helen: Assessment of Volatile Organic Compounds (VOCs) Exposure Among Pregnant Women Living in Trujillo, Peru

Bin Sun: Inhibition of Calcium-Independent Phospholipase A₂ Activates MAP Kinase Signaling Pathways During Cytostasis in Prostate Cancer Cells **3rd PLACE**

Raphael Tremblay: Determination of Tissue Blood Partition Coefficients for Non-Volatile Herbicides and Fungicides using Negligible Depletion Solid Phase Microextraction (nd-SPME)

Shuo Xiao: Effect of Bisphenol-A Exposure on Uterine Receptivity in Mice

Li Xu: Oxidative DNA Damage and Human Esophageal Cancer Risk in Huaian, China **1st PLACE**

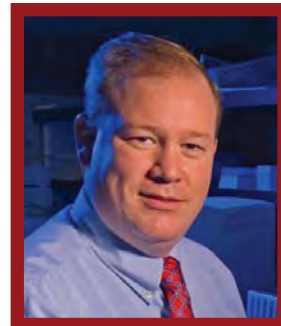
Xiaoling Zhang: Epigenetic Alterations Induced by Bromate in Kidney Cells.

Fei Zhao: Lpar 3 is Transcribed /by Progesterone Receptors /in vivo and vitro

NEW FACULTY

DR. RUSTY ARNOLD

Dr. Arnold is an Assistant Professor in the Department of Pharmaceutical and Biomedical Sciences and a Georgia Cancer Coalition Scholar. He joined the ITP in the Fall 2009 and is currently serving on its admissions committee. A primary goal of his laboratory is to design multifunctional nanoparticulate drug-carriers that can be used to modulate drug disposition to improve therapeutic efficacy and minimize non-target tissue toxicity. Dr. Arnold uses pharmacokinetic (PK) and pharmacodynamic (PD) principles, including modeling and simulation, to assist in the development of optimal dosing schedules and elucidation of mechanisms underlying drug/drug-carrier action and toxicity.



DR. ROBERT GOGAL

I have recently joined the UGA faculty community in the College of Veterinary Medicine. My background is in clinical immunology, developmental and environmental immunotoxicology and tumor immunology. A large number of my publications are in the field of toxicology. I have and currently serve on a number of graduate student committees and have an active research program.



DR. SAYED HASSAN

My background as a pharmacist puts me in good understanding of the toxicologic aspects of environmental pollutants whether organic or non-organic. My training as an analytical chemist is instrumental in developing customised procedures depending on the unique circumstances of each sample or set of samples. Our lab for environmental analysis is equipped with up-to-date instrumentation that cover most types of analytical problems that affect human, animal or plant well being.



Excellence in graduate education is fostered by offering a dynamic, forward-looking, interdisciplinary curriculum taught by a nationally and internationally respected faculty. A stimulating and challenging learning environment provides inspiration and encouragement for achieving the highest level of student success.

We welcome these new faculty members!

FACULTY RESEARCH HIGHLIGHTS

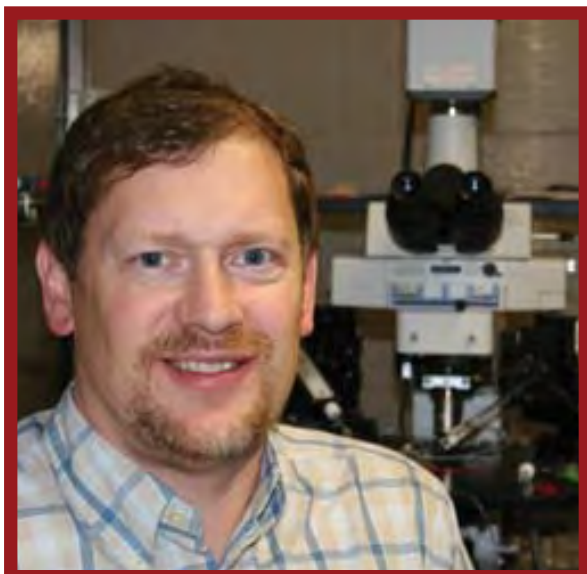
Dr. Brian Cummings, Pharmaceutical and Biomedical Sciences

My research interests are diverse but center around mechanisms of cell death. I am especially interested in the role that lipids play in cell pathologies. For the last 10 years I have studied the role of phospholipases A2 in cell death. I was initially interested in a specific class of these proteins that are calcium-independent, but in recent years my interest grew to include calcium-dependent members as well. Some of our recent studies suggest that these proteins may be valuable for targeting drugs encapsulated in nanoparticles to specific organs. My laboratory takes a multi-disciplinary approach to research. We are a fully functional molecular biology laboratory performing techniques as basic as PCR and immunoblot analysis as well as cDNA array microanalysis, siRNA and have even started measuring



epigenetic changes in cells and whole tissues. We also have some experience in analytical toxicology, which is mainly centered on lipids. We do a lot of immunohistochemistry and microscopy as well. One of my favorite things about the Interdisciplinary Toxicology Program is its diversity. We have members from several different departments, from several different colleges that represent broad ranges of interests. I like the fact that at any one meeting I can get perspectives from biochemists, pharmacologists, epidemiologists, ecologists, entomologists, veterinarians, as well as people from the world of agriculture. This diversity always makes for some interesting discussions, and makes you think about the broad applicability of your work. Another thing I like about ITP is its focus on students. Most of our students are enthusiastic about toxicology and are not shy at all. They, like the faculty, are quite diverse and it's great to watch them give their presentations and posters at meetings and ask questions about each other's work. I also like the fact that several former students are now faculty at UGA and ITP members. I think that says a lot about the dedication and drive of our students.

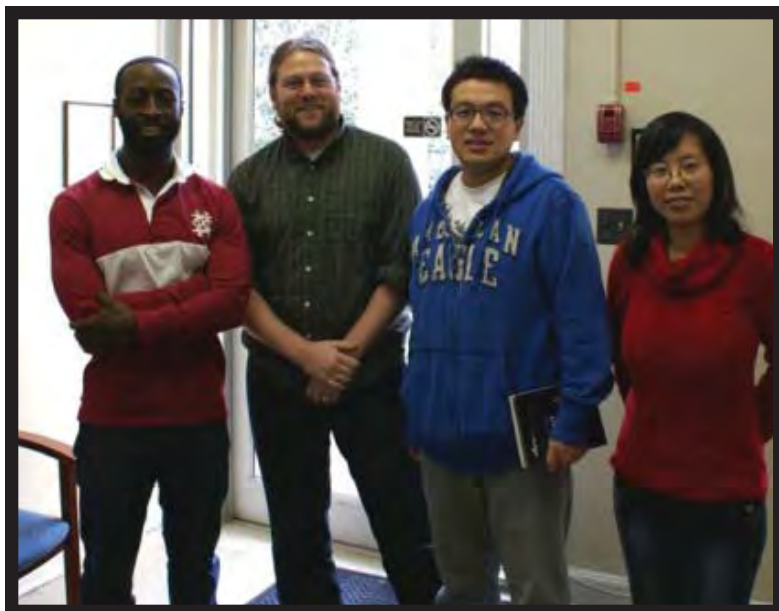
Dr. John Wagner, Physiology and Pharmacology Reprinted with permission - hfosgate@uga.edu



Dr. John Wagner was published in the early online November edition of the journal *Neurobiology of Learning and Memory*. His research, funded by the National Institutes of Health and UGA's Interdisciplinary Toxicology Program, found that D-Serine, an amino acid being tested for the treatment of schizophrenia and other psychotic conditions, may also be useful in treating addiction. Dr. Wagner, graduate student Lakshmi Kelamangalath and postdoctoral fellow Claire Seymour, found that D-Serine promoted learning during drug withdrawal. Wagner said overcoming an addiction requires not only a withdrawal from the substance, but new learning that "extinguishes" the need or desire for it. "Preventing relapse is a critical component of treating addiction," said Wagner, "especially given that so many factors - stress, surroundings, familiar sights, smells, personal habits - can trigger cravings." Dr. Wagner's lab is the first to look at the potential of D-Serine for treating addiction.

"For most people, addiction means dealing with uncontrolled drug-seeking behavior, which, when acute, can result in devastating consequences - job loss, financial ruin, damaged personal relationships and other destructive behaviors," said Wagner. Assuming that the results of these initial studies, obtained from laboratory rats, are relevant to the human condition, their findings suggest that D-Serine may be beneficial in treating addiction. In future studies, Wagner hopes to establish a time course for the effectiveness of D-Serine. He also would like to investigate whether D-Serine is effective in treating other addictions.

STUDENT NEWS



The ITP elected our first Student Liaison Committee (SLC). Members are, (L to R): Kwaku Agyekum, Peter Hazelton, (President), Shuo Xiao, and Xiaoling Zhang.

Currently ITP students come from five different colleges across campus. The SLC will play a vital role in developing programs and events that provide the ITP students opportunities to interact and socialize with one another. Check us out on Facebook - UGA Toxicology Program!!

WE NEED TO NAME OUR NEWSLETTER!! ANYONE WITH IDEAS EMAIL THEM TO THE STUDENT LIAISON COMMITTEE IN CARE OF: toxinfo@uga.edu

UNDERGRADUATES

Krelin Naidu is an undergraduate student conducting research in Dr. Brian S. Cumming's lab with CURO (Center for Undergraduate Research Organization) funding support. His research focuses on assessing the epigenetic alterations of bromate, a ground water disinfection byproduct. Bromate has been demonstrated to cause cancer in rodent models and therefore the EPA has set regulations for its presence in drinking water. Krelin's research involves epigenetic modifications correlated with cell signaling, cell growth, and tumor suppressor proteins after bromate exposure. While not working in the lab, Krelin enjoys volunteering with the Special Olympics and eating in downtown Athens.



NEW GRADUATES

WHERE ARE THEY GOING NEXT?

Susan Baird is now in Amherst, Massachusetts working as an environmental consultant for MACTES Engineering and Consulting, Inc. She is working on ecological risk assessment and water quality projects.

Suzy Ritger Crowell is now a Post Doctorate Research Associate with Pacific Northwest National Laboratory's Biological Monitoring and Modeling Group, in the Fundamental and Computational Sciences Directorate. Her research focuses on the development of the first comprehensive PBPK model for dibenzo[def,p]chrysene (DBC), a polycyclic aromatic hydrocarbon (PAH) which has been shown to be a transplacental carcinogen in the mouse.

Ghanashyam (Sam) Joshi will be headed north to Canada after graduation where he will continue his studies.

Suyang Liu will be continuing his studies.

Leena Malayil has accepted a position at the Center for Emerging Tropical Disease, at UGA.

Shep Martin has accepted a post-doctoral position at the USEPA National Health and Environmental Effects Research Laboratory (NHEERL) in Research Triangle Park, NC.

Arena Richardson has accepted a position as a Post-doctoral Fellow with the Department of Food Science and Technology, University of Georgia. She will be working with Dr. Mark A. Harrison researching Salmonella contamination of fresh tomatoes during transport.

CONGRATULATIONS!!!

ALUMNI UPDATES

WHAT ARE THEY DOING NOW?

Jerry Campbell, Jr., (Ph.D, 12/04) is an Associate Director with the Center for Human Health Assessment, at The Hamner Institutes for Health Sciences, in Research Triangle Park, NC.

Michael Lumpkin, (Ph.D. 12/02) is a board-certified toxicologist at ENVIRON International Corporation. He provides human health risk assessment analysis and guidance to clients in industry, trade associations, law firms, and the federal government.

Dave Rouse, (M.S. 12/08) is working with the U.S. Fish & Wildlife Service in Helena, MT. He provides technical assistance on any contaminant issue that may impact an endangered/threatened species or refuge land.

Aaron Shoults-Wilson, (Ph.D. 12/08) is finishing up a post-doctoral position with Dr. Jason Unrine, (also a Tox graduate) at the University of KY where he is working on the toxicity of metal oxide nanomaterials. In August 2010 he will start his new job as Assistant Professor of Environmental Science (tenure track) at Roosevelt University in Chicago, IL.

STUDENT AWARDS

FEMI ADETONA was the winner of the 2009 AIHF – American Industrial Hygiene Foundation Scholarship and the Georgia Local Section AIHA Scholarship. **Advisor: Dr. Luke Naecher**

KWAKU AGYEKUM won a travel award to the Teratology meeting in June in Lexington, KY. **Advisor: Dr. Mary Alice Smith**

PETER HAZELTON was awarded Best Student Platform Presentation at the 2010 Southeastern Regional meeting of the Society of Environmental Toxicology & Chemistry. Pete represented Warnell and the UGA Interdisciplinary Toxicology Program among talks from 16 students from 9 universities across the southeast (in GA, FL, AL, NC, SC). His novel and innovative research with contaminant effects on freshwater mussels has recently been well received at state, regional and national meetings and was recognized at the 2009 North American International SETAC meeting in New Orleans, as groundbreaking research in aquatic ecotoxicology. Peter also won a Toxicology Student Travel Award and a Graduate School Doctoral Student Travel Award to the North American International SETAC meeting in New Orleans, November 2009, He was the runner up for Best Student Poster at the UGA Toxicology Spring Retreat, March 2010. **Advisor: Dr. Robert Bringolf**

SHUANG LI won an Honorary Mention for the Perry J. Gehring Student Award for Excellence in Biological Modeling, from the Biological Modeling Specialty Section (BMSS) of the Society of Toxicology in 2010. **Advisor: Dr. Jeff Fisher**

SHEP MARTIN won the Perry J. Gehring Student Award for Excellence in Biological Modeling from the Biological Modeling Specialty Section (BMSS) in 2010. Shep also won a Graduate Student Travel Award from the Society of Toxicology to travel to the 2010 Meeting in Salt Lake City. Shep served as the Chairman of the Specialty-Section Graduate Committee and Secretary-Treasurer of the Student Advisory Council for the Society of Toxicology. **Advisor: Dr. Jeff Fisher**

BROOKS MCPHAIL received her Ph.D. in 2009, and was subsequently awarded an Oak Ridge Institute for Science and Education Fellowship, which has enabled her to work as a postdoctoral fellow at the ATSDR/CDC in Atlanta. **Advisor: Dr. James Bruckner**

BIN SUN received a Graduate Student Travel Award from the Society of Toxicology to travel to the 2010 Meeting in Salt Lake City. He also received the Best Student Abstract Award from the Southeastern Regional Society of Toxicology. **Advisor: Dr. Brian Cummings**

RAPHAEL TREMBLAY received a 2010 Regulatory and Safety Specialty Section Postdoctoral Travel Award for Society of Toxicology. **Advisor: Dr. Jeff Fisher**

DENITA WILLIAMS received a Travel Award from the Teratology Society. She is also the 2009 Recipient of James C. Bradford Memorial Poster Award, and the Marie W. Taubeneck Award, Teratology Society. **Advisor: Dr. Mary Alice Smith**

XIAOLING ZHANG won the Mechanisms of Renal Toxicology Award for her poster titled “Bromate Induces Renal Cell Cycle Arrest via DNA Damage-Dependent and -Independent Pathways” and was an Honorable Mention for the Carl C. Smith Mechanisms Award from the Mechanisms Specialty Section of the National Society of Toxicology. Xiaoling also won a Society of Toxicology Travel Award. **Advisor: Dr. Brian Cummings**

STUDENT RESEARCH

This past year, many graduate students and post docs in the ITP received travel support and gave platform and poster presentations of their research at various conferences.

SOUTHEASTERN REGIONAL MEETING OF THE SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY 2010, ATHENS GA

Kristen Kellock Poster title: Assessment of Endocrine Disruption in Fish and Estrogenic Potency of Waters in Georgia.

Peter Hazelton Effects of PFOS on Early Life Stages of Freshwater Mussels.

SOCIETY OF TOXICOLOGY 2010 ANNUAL MEETING, SALT LAKE CITY, UT

Ghanashyan Joshi Poster title: Tissue Partition Coefficients for Nonane and Its Isomers.

Shuang Li Poster title: A BBDR-HPT Axis Model for the Lactating Rat and Nursing Pup: Evaluation of Iodide Deficiency.

Shep Martin Poster title: Progress in Development of a Physiologically-Based Pharmacokinetic Model for Aviation Fuels.

Guoqing Qian Poster title: Development of a Non-antibody Method for Rapid Detection of Serum Aflatoxin B1-Lysine Adduct.

Bin Sun Poster title: Inhibition of Calcium-Independent Phospholipase A2 Activates MAP Kinase Signaling Pathways During Cytostasis in Prostate Cancer Cells.

Platform presentation title: Inhibition of Calcium-Independent Phospholipase A2 Alters Phospholipid Profiles During Cytostasis in Prostate Cancer Cells.

Raphael Tremblay Poster title: Determination of Tissue Blood Partition Coefficients for Non-Volatile Herbicides and Fungicides using Negligible Depletion Solid Phase Microextraction (nd-SPME).

Shuo Xiao Poster title: Effect of Bisphenol-A Exposure on Uterine Receptivity in Mice.

Li Xu Poster title: Oxidative DNA Damage and Human Esophageal Cancer Risk in Huaian, China.

Xiaoling Zhang Poster title: Bromate Induces Renal Cell Cycle Arrest via DNA Damage-dependent and -independent Pathways.

2010 AMERICAN INDUSTRIAL HYGIENE ASSOCIATION CONFERENCE, TORONTO, CANADA

Olorunfemi Adetona Poster title: Forest Firefighter PM_{2.5} Exposure and Pulmonary Function During Prescribed Forest Burns in the Southeastern United States.

SOCIETY FOR ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY 2009 ANNUAL MEETING, NEW ORLEANS, LA

Suzanne Baird Poster title: Toxicity of Fipronil to Fathead Minnow.

Peter Hazelton Poster title: Sublethal Effects of PFOS on Early Life Stages of Freshwater Mussels.

Kristen Kellock Poster title: Toxicity of Triadimefon to Black Flies.

PROFESSIONAL SOCIETIES



*Celebrating 50 Years
of Service in Science*

Southeastern Society of Toxicology Annual Meeting, Georgia Center, Athens, GA. October 11-12, 2010. Primary Speakers will be Dr. Cheryl Walker of The University of Texas MD Anderson Cancer Center and Dr. Harvey Clewell of The Hamner Institute for Health Sciences.

Society of Environmental Toxicology and Chemistry North America 31st Annual Meeting, "Bridging Science With Communities," Oregon Convention Center, Portland, OR. November 7-11 2010.

Society of Toxicology 50th Annual Meeting, Washington Convention Center, Washington, D.C. March 6–10, 2011.

The Society of Toxicologic Pathology (STP) 30th Annual Symposium, Hyatt Regency Denver, Denver, CO. June 19–23, 2011.

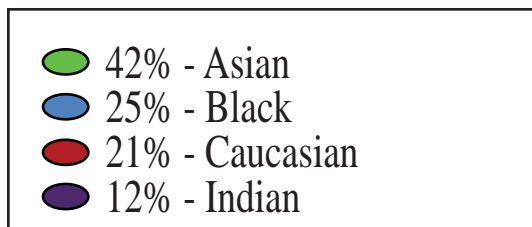
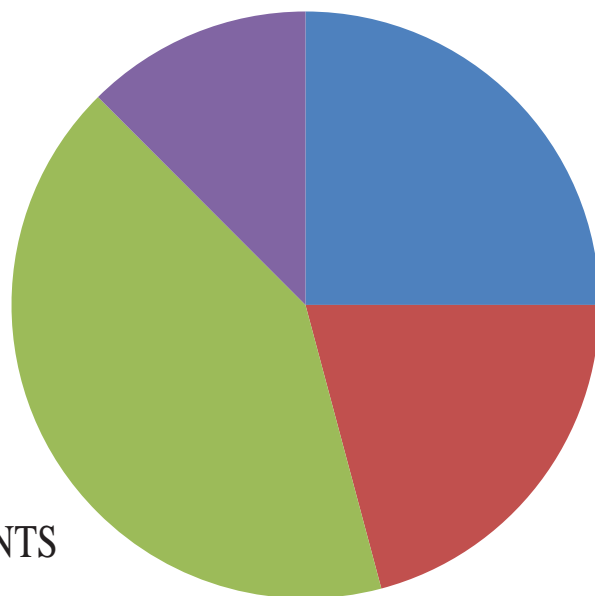
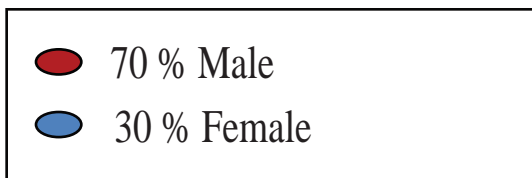
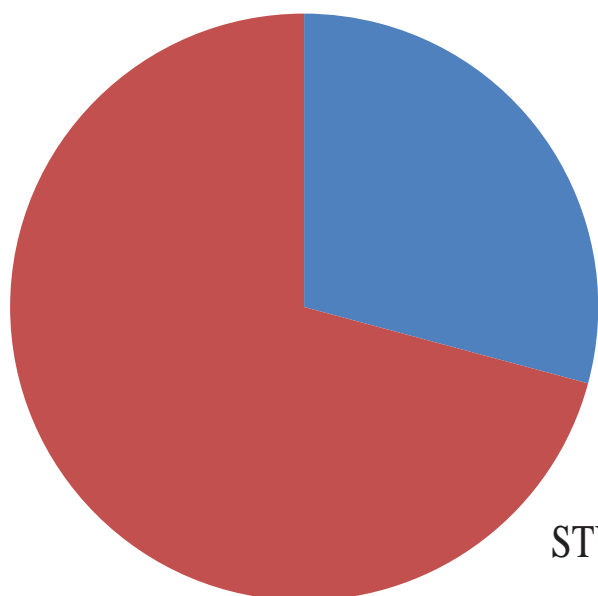
The Teratology Society 50th Annual Meeting, "Healthy Lifestyles for Parents and Children," Marriott Louisville Downtown in Louisville, KY. June 26-30, 2010, 51st Annual Meeting will be at the Loews Coronado Bay Resort, Coronado, CA. June 25-29, 2011.



ITP Snapshots!

PROGRAM INFORMATION

The ITP is a truly interdisciplinary and diverse graduate program. The program, which is administered through the Graduate School of the University of Georgia is supported by resources and faculty from five colleges within the university. Forty-seven professors across the various colleges and departments affiliate with the program, teach toxicology classes, and/or supervise ITP graduate students. Currently, there are 22 PhD and 2 masters students from several countries in the program. Students' classroom, field and laboratory experiences are enriched by the diversity of backgrounds of their colleagues and faculty that participate in classes and research in the ITP.



STUDENTS

Affiliated Faculty by College

College/ School	College of Agricultural and Environmental Science	Warnell School of Forestry and Natural Resources	College of Pharmacy	College of Public Health	College of Veterinary Medicine	Outside Agencies
Number of Faculty	4	2	10	11	16	4

Support the Interdisciplinary Toxicology Program

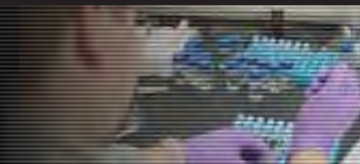
We would like to take this opportunity to invite you to make a financial contribution to the UGA Toxicology Program. You can make a secure credit card contribution online (www.toxicology.uga.edu/contact.asp). When doing so, please type Toxicology Program in the form where it says "Specify other/multiple gift areas and dollar amounts benefiting each." Doing so will ensure that your gift is directed to the Toxicology Program.

The Interdisciplinary Program in Toxicology Fund is a University of Georgia Foundation discretionary account supporting the activities of the Interdisciplinary Toxicology Program. It enables the Program to host internationally recognized speakers, hold conferences and workshops and provide support for graduate students to attend national meetings and present scientific results.

If you prefer to make a donation the old-fashioned way, please fill out our form on the opposite page, print it and mail it to:

**Interdisciplinary Toxicology Program
Environmental Health Science Bldg.
Room 142
The University of Georgia
Athens, GA 30602**

Thank you!!



Name: _____

Address: _____

Phone: _____

Email: _____

I would like to contribute to the University of Georgia Foundation. My gift will be designated for the Interdisciplinary Program in Toxicology Fund.

The Interdisciplinary Program in Toxicology Fund is a University of Georgia Foundation discretionary account supporting the activities of the Interdisciplinary Toxicology Program. It enables the Program to host internationally recognized speakers, hold conferences and workshops and provide support for graduate students to attend national meetings and present scientific results.

Funds of this type are essential to the expansion and success of this campus-wide interdisciplinary training program.

Enclosed is my gift for \$ _____

Signature: _____

Please send this form with your check, made payable to the University of Georgia Foundation, to the Interdisciplinary Toxicology Program, Environmental Health Science Bldg., Room 142, Athens, GA 30602.

You may also make a secure credit card donation via our website at

<http://www.toxicology.uga.edu>.

Thank you for your support of the program!

INTERDISCIPLINARY TOXICOLOGY PROGRAM ALUMNI

1997
Kelley Ann Boyle Van Vreede, M.S.

1998
Ilho Cho, M.S.
Nikolay Miltchev Filipov, Ph.D.
Slawomir Jacek Rzucidlo, Ph.D.
Jeannie Lee Stephenson, M.S.
Masashi Tsunoda, Ph.D.
Robert Wesley Wentworth, Ph.D.

1999
Judy S. Mathew, M.S.
Christopher Lee Peredney, M.S.
Karen Marie Zepp, M.S.

2000
Beverly Schleppe Arnold-Hall, Ph.D.
Kevin Anthony Holloman, Ph.D.
Carrie Hamilton Marr, M.S.

2001
Taras K. Oleksyk, Ph.D.
Suparna Ajoy Sarkar, Ph.D.

2002
Windy Ann Boyd, Ph.D.
Gregory Patrick Dooley, M.S.
Neera Vintra Gopee, Ph.D.

2002 continued:
Ofia B. Hodoh, M.S.
Vic Johnson, Ph.D.
Michael Harrison Lumpkin, Ph.D.
Jay Paul Overmyer, Ph.D.
Sarah Suzanne Rentz, M.S.
Patricia Lynn Shaw-Allen, Ph.D.
Lonnie Dwayne Williams, M.S.

2003
Jason Lamar Boyd, Ph.D.
Russell David Cole, M.S.
James Claude Cumbee Jr., M.S.
Shashank Dravid, Ph.D.
Kristi Manning Folden, M.S.
Sang Hyun Kim, Ph.D.
Audrey Jean Majeske, M.S.
Bradley David Reinhart, M.S.

2004
Tara Lynn Almekinder, M.S.
Heather A Brant, M.S.
Jerry Lamar Campbell Jr., Ph.D.
Deanna Erin Conners, Ph.D.
Amber Lynn Graves, M.S.
Xianglu Han, M.S.
Quanren He, Ph.D.
Jiyoun Kim, Ph.D.
Elizabeth Ann Richardson, M.S.

2004 continued:
Emily Dawn Rogers, M.S.
Olga Vasylivna Tsyusko, Ph.D.
Jason M. Unrine, Ph.D.
Angel K. Wall, M.S.
Neera Chhabra Young, M.S.

2005
Kathy Dietzel, M.S.
Ryan Richard Holem, M.S.
Catherine J King, M.S.
Brad Konwick, M.S.
Gregory N Oquinn, M.S.
Tonia Marie Parrott, Ph.D.
Jennifer Hoffman Peterson, M.S.
Neelesh Sharma, Ph.D.

2006
William Matthew Henderson, Ph.D.
Carey C Hines, Ph.D.
Molly Catherine Visser, M.S.
Denita Williams, M.S.
Lonnie Dwayne Williams, Ph.D.

2007
Elizabeth Irvin, Ph.D.
Deborah Iwanowicz, Ph.D.
Kristen Kellock, M.S.
Kyu-Bong Kim, Ph.D.

2007 continued:
Sookwang Lee, Ph.D.
Brianna Peterson, Ph.D.
Glenn Tillman, M.S.
Aswani Vunnava, M.S. 2008

2008
Brooks McPhail, Ph.D.
Tantiana Donata Burns, Ph.D.
Curtis Andrew Harris, Ph.D.
Elizabeth Irvin, Ph.D.
Lakshmi Kelamangalath, Ph.D.
Michelle Warner Norris, M.S.
Junshun Qiu, Ph.D.
David Robert Rouse, M.S.
Matthew Aaron Taylor, Ph.D.
William Shoults-Wilson, Ph.D.

2009
Susan Baird, M.S.
Suzy Ritger Crowell, Ph.D.
Hongbo Ma, Ph.D.
Leenal Malayil, M.S.

2010
Ghanashyam Joshi, M.S.
Suyang Liu, M.S.
Sheppard Martin, Ph.D.
Arena Richardson, Ph.D.



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