

Interdisciplinary Toxicology Program

DIGEST



UNIVERSITY OF GEORGIA

Interdisciplinary Toxicology Program

Spring 2013



WWW.TOXICOLOGY.UGA.EDU

The Interdisciplinary Toxicology Program

Rm. 341 - Pharmacy South
Athens, GA 30602
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Brian Cummings, Director

Executive Committee

Brian Cummings
Mary Alice Smith
Jim Bruckner
Robert Bringolf
Nick Filipov
Raymond Noblet
Ron Riley
J.S. Wang

Admissions Committee

Mary Alice Smith
Qingguo Huang
Ralph Tripp
John Wagner
Jason Zastre

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Dear Colleagues,

As always, I would like to thank everyone for their dedication to the ITP. In particular, I would like to thank our faculty, who continue to maintain excellent international and national reputations in Toxicology. For example, last year ITP faculty published over 130 peer reviewed manuscripts. Their research was also funded by several nationally recognized sources, such as the Environmental Protection Agency (EPA), the National Institutes of Health and the National Science Foundation, and several other well respected entities. We also had 5 new faculty join ITP this year, which brings our total number up to 50. Thus, we continue to grow.

Our students also continued to excel. I am particularly proud that our students won several awards this year. This includes several Graduate Student Travel Awards, a UGA Presidential Honoree, a Provost Scholar, a Graduate Emerging Leaders Award, and several research awards at both Regional and National Meetings. Details can be found within this newsletter.

True to our dedication to our students, 66% of ITP budget last year went towards student stipends, with another 7% going towards student travel. Our graduate population currently numbers 35 students and we will welcome 6 new students for the Fall of 2013. Reflecting the interdisciplinary nature the ITP, our students represent 7 different UGA Colleges and 13 different departments. We also have supported student studies at several government agencies, including the EPA, USDA, the FDA and the CDC.

In the past year ITP continued to partner with the Southeastern Society of Toxicology to support their Regional Meeting in Athens, in October, 2012, and to host a Southeastern Society of Toxicology/UGA social at this year National Society of Toxicology Meeting in San Antonio. The social was a huge success and it was great to see several UGA Alumni there. ITP also had very successful Fall and Spring retreats. The Fall Retreat is always a highlight for me, as it's organized by the students and hosts the most competitive Toxicology Trivia game in the Southeast (albeit, probably the only game), complete with excellent prizes. The Spring retreat was a bit more formal and was highlighted by excellent presentations from EPA scientists, as well as our own students. I would also like to introduce the new ITP logo, which can be seen on this page. This logo is available for download from our website, which incidentally, has undergone an extensive review, and has a great new look (check it out at www.toxicology.uga.edu, comments are welcome).



As always, I would like to thank the tireless efforts of Joanne Mauro. One of the most important things that Ms. Mauro does is keep track of our Alumni. Please check it out at www.toxicology.uga.edu/Alumni. If you are an alumni and don't see your name, let us know.

Finally, we are always looking to increase our Foundation Funds, which allow both faculty and students to invite and support national and internationally known Toxicologists for seminars, and support programs that enhance ITP faculty and student experiences. Donations are tax-deductible and information on how to give can be found in this newsletter and at: <http://www.toxicology.uga.edu>

Dr. Brian S. Cummings
Director, ITP





Kwaku Agyekum



Manoj Amaraneni



Chen Chen



Ahmed El Zowalaty



John Finger



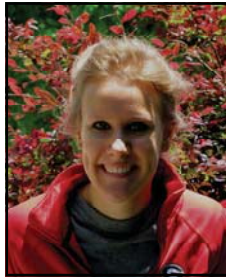
Eric Goolsby



Cory Gresham



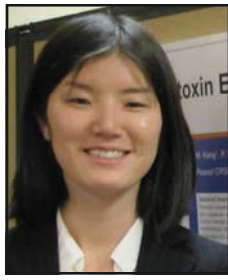
Peter Hazelton



Anna Hejl



Joe Iburg



Minsu Kang



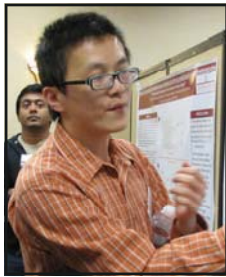
Kristen Kellock



Madhusudhan M. Keralapurath



Rong Li



Zhoumeng Lin



Maggie Liu



Lisa Luo



Emily McReynolds



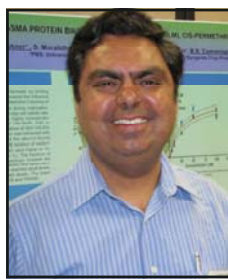
Dean Meyer



Palak Patel



Natalie Scholpa



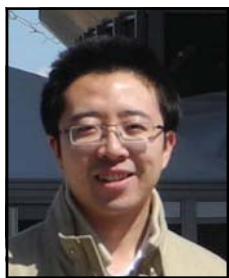
Pankaj Sethi



Chi-Yen Tseng



Rahat Desai-Wadhwa



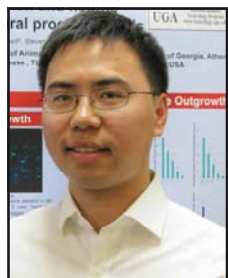
Jincheng Wang



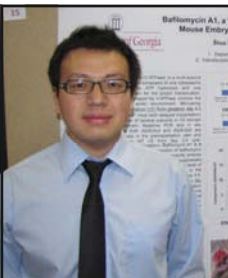
Yan Wang



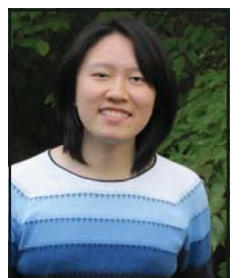
Rachel Worley



Xian Wu



Shuo Xiao



Kathy Xue



Fei Zhao

ITP 2012—2013 CLASS

ITP FACULTY

College of Agricultural and Environmental Sciences

Sayed Hassan, Crop & Soil Sciences
Qingguo (Jack) Huang, Crop & Soil Sciences
Raymond Noblet, Department Head, Entomology
Steve Stice, Director, Regenerative Bioscience Center
William Vencill, Crop & Soil Sciences
Roger Wyatt, Poultry Science

College of Public Health

Marsha Black, Environmental Health Science
Cham Dallas, Health and Policy Management
Travis Glenn, Environmental Health Science
Erin Lipp, Environmental Health Science
Kun Lu, Environmental Health Science
Luke Naeher, Environmental Health Science
Mary Alice Smith, Environmental Health Science
John Vena, Epidemiology & Biostatistics
Jia-Sheng Wang, Department Head, Environmental Health Science
Phillip Williams, Dean
John Yu, Environmental Health Sciences

College of Veterinary Medicine

Julie Coffield, Physiology & Pharmacology
Gaylen Edwards, Department Head, Physiology & Pharmacology
Rabindranath De La Fuente, Physiology & Pharmacology
Nikolay Filipov, Physiology & Pharmacology
Robert Gogal, Immunology & Immunotoxicology
Tai Guo, Veterinary Biosciences & Diagnostic Imaging
Jaroslava Halper, Pathology
Keith Harris, Department Head, Pathology
Steve Holladay, Department Head, Veterinary Biosciences & Diagnostic Imaging
Elizabeth Howerth, Pathology
S. Mark Tompkins, Infectious Diseases
Ralph Tripp, Infectious Diseases
Maria M. Viveiros, Physiology & Pharmacology
John J. Wagner, Physiology & Pharmacology
Xiaoqin Ye, Physiology & Pharmacology

FDA

Jeff Fisher, Food & Drug Administration
National Center for Toxicological Research

Franklin College of Arts and Sciences

Anne O. Summers, Dept. of Microbiology

Odum School of Ecology

Richard Shefferson, Plant Biology
Stacey Lance, Savannah River Ecology Lab

R. C. Wilson College of Pharmacy

James Bruckner, Pharmaceutical & Biomedical Sciences
Brian Cummings, Pharmaceutical & Biomedical Sciences
Arthur Roberts, Pharmaceutical & Biomedical Sciences
Randall L. Tackett, Clinical & Administrative Pharmacy
Catherine White, Pharmaceutical and Biomeical Sciences
Jason Zastre, Pharmaceutical & Biomedical Sciences

USDA

Ronald T. Riley, Toxicology & Mycotoxin Research
Kenneth A. Voss, Toxicology & Mycotoxin Research
Nik Zitomer, Toxicology & Mycotoxin Research

Warnell School of Forestry & Natural Resources

Robert Bringolf, Warnell School of Forestry & Natural Resources
Richard Winn, Warnell School of Forestry & Natural Resources

NEW ITP FACULTY



**Anne Summers, Franklin College
of Arts and Sciences, Microbiology**



**Arthur Roberts, Pharmacy,
Pharmaceutical and Biomedical**



**John Yu, Public Health,
Environmental Health Science**



**Kun Lu, Public Health,
Environmental Health Science**



Stacey Lance, Savannah River Ecology Lab

**ALSO: Roger Wyatt, College of
Agriculture and Environmental
Sciences, Adjunct Faculty**

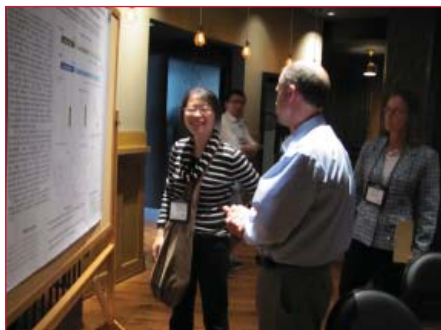
Excellence in graduate education is fostered by offering a dynamic, forwardlooking, interdisciplinary curriculum taught by a nationally and internationally respected faculty. A stimulating and challenging learning environment provides inspiration and encouragement for achieving the highest level of student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

We welcome these new faculty members!

EXECUTIVE COMMITTEE

The ITP Executive Committee members are: Brian S. Cummings; Nick Filipov; Mary Alice Smith; J.S. Wang, Jim Bruckner; Ray Noblet; Ron Riley

The Executive Committee was tasked with several Strategic Plan items this year. A Training Grant Working Group was organized and led by Nick Filipov. His findings were used to organize over 46 different research projects into 3 categories of either Mechanistic, Molecular or Ecological toxicology. 20 different funding sources were identified. Using key words of the research projects, we were further able to identify the current top areas of research among our faculty. These areas are:



Developmental and Reproductive Toxicology

Ecotoxicology

Mechanisms of Toxicity

Immunotoxicology

Naturally Occuring Toxins

Genotoxicity

Neurotoxicology

Toxicokinetics

We also spent considerable time in updating our alumni database this year. These efforts, along with a complete update of our web site are part of an ongoing effort to strengthen ITP and ensure future readiness to serve the evolving needs of toxicologists.

ADMISSIONS COMMITTEE

Many thanks to our Admissions Committee for 2012-2103. Members are: Mary Alice Smith; Marsha Black, Jack Huang, Richard Shefferson, Ralph Tripp, John Wagner, and Jason Zastre.

This Academic Year has been very busy. We have updated our web page with Alumni information and have completed an assessment of our graduates' progress in earning a Toxicology Ph.D. or M.S. The average time to complete a Ph. D. is 52.8 months, and to complete an M.S. is 32.8 months. We have graduated 47 M.S.'s and 66 Ph.D.'s since 1997. 44 came from Public Health; 19 from Pharmacy; 16 from Vet Med; 12 from Ecology; 9 from SREL; 3 from CAES; and 2 from Forestry.

We continue to expand our recruiting efforts. This year we implemented a correspondence campaign to thank references of successful students and to offer updates on their former students progress in our program. We also reached out to peers of our faculty and made contact with local science departments of several Georgia colleges. Recruiting trips this year included Georgia College and State University, Morehouse, Spellman, Clark, Georgia Tech, Georgia Southern, Georgia – Gwinnett, and the SOT Undergraduate Program at San Antonio, TX.. We welcome new incoming students in these departments:

Animal and Dairy Science

Pharmaceutical and Biomedical Sciences

Environmental Health Science

Physiology and Pharmacology

Veterinary Biosciences and Diagnostic Imaging

Fish Biology and Ecotoxicology.



UGATOX



2012-2013 UGATOX OFFICERS. Pictured, L to R:

FEI ZHAO, TREASURER, SHUO XIAO, PRESIDENT, NATALIE SCHOLPA, COMMUNICATIONS COORDINATOR, RAHAT WADHWA-DESAI, SECRETARY; KRISTEN KELLOCK, VICE-PRESIDENT

Dear UGATOX friends, it has been a great year since last summer. Our UGATOX committee did our best to serve all ITP students. Last fall, we held a wonderful bowling night for all students in the 2012 SESOT annual meeting. I believe everybody enjoyed the game very much. Of course, our ITP students also did a great job in academia.

Congratulations to all students who were awarded in the oral and poster competition.

Another exciting thing is that we finally have a UGATOX logo after a long time of negotiation and more than 6 different candidate versions. Here, we would like to thank all the help and support from Michael (our principle designer), Joanne and Dr. Cummings. All the ITP students and faculty are welcome to use it when participating in local, national or international meetings. Contact the Tox Office for a usable copy.

Since the next round of elections and nominations (2013-2014 academic year) will open soon, every ITP student is encouraged to serve in the UGATOX. Your support will be a distinct honor and will make our UGATOX community more productive and supportive!

Shuo

FACULTY RESEARCH HIGHLIGHTS



Luke Naeher

Luke P. Naeher is an Associate Professor in the Department of Environmental Health Science at The University of Georgia's (UGA) College of Public Health. Dr. Naeher's research focus is on exposure assessment and environmental epidemiology with a particular focus on health effects related to air pollution.

Dr. Naeher has current research projects on exposures related to woodsmoke in Peru (pregnant women) and the southeastern US (forest firefighters). Dr. Naeher also has a current research project on exposures related to second hand smoke in downtown Athens, GA.

Dr. Naeher's research interests overlap with the focus areas of the Inhalation and Respiratory Specialty Section and the Occupational and Public Health Specialty Section of the Society of Toxicology. Dr. Naeher teaches undergraduate and graduate classes in environmental science, environmental health science, and air pollution at UGA, and is currently the major professor for several PhD, and DrPH graduate students.

There are two research directions in Dr. Ye's laboratory: 1) molecular mechanisms of embryo implantation (supported by NIH R15HD066301 & R01HD065939) and 2) reproductive toxicology (currently unfunded). The focus in the first direction is on uterine preparation for embryo implantation. Defective uterine receptivity is a contributing factor for female infertility in the general population and low pregnancy rate in patients undergoing in vitro fertilization. The understanding of how the uterus transiently transforms into a receptive state for embryo implantation remains far from complete.

The focus in the second direction is on two public health issues: endocrine disruptors on puberty and early pregnancy. Puberty and early pregnancy are controlled by hormones and thus can be influenced by endocrine disruptors. We use mouse models to study molecular mechanisms, including epigenetic mechanisms, of uterine preparation for embryo implantation and endocrine disruptors on puberty and early pregnancy. Current grants:

1. NIH R01HD065939 Ye (PI) 09/01/2011– 08/31/2016 Title: Molecular mechanism of LPA3-mediated uterine receptivity. Total cost: \$1,577,815.00.

2. NIH R15HD066301 Ye (PI) 09/01/2010 – 08/31/2013 Title: Luminal epithelial microenvironment in *Lpar3*(-/-) peri-implantation uterus. Total cost: \$371,250.00.



Xiaoqin Ye

STUDENT RESEARCH

LOCAL

THE UNIVERSITY OF GEORGIA-COLLEGE OF VETERINARY MEDICINE SCIENCE OF VETERINARY MEDICINE RESEARCH DAY

Zhoumeng Lin Development of comprehensive physiologically based pharmacokinetic models of the herbicide atrazine in the rat dam, fetus, and neonate. Lin, Z., Fisher, J. W., and Filipov, N. M. **Advisor: N. Filipov**

GEORGIA ONE SYMPOSIUM

Augustine K. Agyekum Probiotics in the prevention of illness from exposure to foodborne pathogens. Augustine K. Agyekum^{1, 2,3} Gabriele Gross⁴, Kendra M. Edwards¹ and Mary Alice Smith^{1, 2,3} **Advisor: M. A. Smith**

REGIONAL

SOUTHEASTERN REGION OF THE SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SESETAC). ATHENS, GA

Zhoumeng Lin Estimation of placental transfer and tissue distribution of atrazine and its main metabolites in the rat dam and fetus with physiologically based pharmacokinetic modeling. Lin, Z., Fisher, J. W., and Filipov, N. M. **Advisor: N. Filipov**

SOUTHEASTERN SOCIETY OF TOXICOLOGY, ATHENS, GA

Kwaku Agyekum Probiotic protection against Cronobacter sakazakii invasion and neonatal death in a CD-1 mouse model. **Advisor: M. A. Smith**

Chen Chen Toxicokinetics of low doses of the pyrethroid, deltamethrin in rats **Advisor: J. Bruckner**

Ahmed El Zowalaty Expression of FXYD family of small ion transport regulators in wild type and Lpar3^{-/-} periimplantation mouse uterus **Advisor: X. Ye**

Rong Li Effects of genistein diet exposure on vaginal opening and spermatogenesis. **Advisor: X. Ye**

Zhoumeng Lin Estimation of placental transfer and tissue distribution of atrazine and its main metabolites in the rat dam and fetus with physiologically based pharmacokinetic modeling. **Advisor: N. Filipov**

Natalie Scholpa **THIRD PLACE PLATFORM** Nephrotoxicity of epigenetic inhibitors used for the treatment of cancer. **Advisor: B. S. Cummings**

Pankaj Sethi Age related differences in plasma protein binding of pyrethroids. **Advisor: J. Bruckner**

Rachel Worley **SECOND PLACE PLATFORM** Application of NHANES data to evaluate exposure via three exposure routes using physiologically-based pharmacokinetic (PBPK) modeling **Advisor: J. W. Fisher**

Shuo Xiao **FIRST PLACE POSTER.** Bafilomycin A1, a V-ATPase inhibitor, inhibits embryo implantation via local uterine fat pad injection. **Advisor: X. Ye**

Fei Zhao Postweaning exposure to dietary zearalenone (ZEA), a mycotoxin, advances puberty and disrupts early pregnancy events in female mice. **Advisor: X. Ye**

NATIONAL

AMERICAN FISHERIES SOCIETY MEETING, ST. PAUL, MN

Kristen Kellock Investigation for potential factors for high intersex rates of largemouth bass in small impoundments. **Advisor: R. Bringolf**

AMERICAN MOSQUITO CONTROL ASSOC., AUSTIN, TX

Joe Iburg The effect of seston on the susceptibility of black fly larvae to Bti. **Advisor: R. Noblet**

STUDENT RESEARCH

NATIONAL

CENTER FOR FOOD SAFETY, ATLANTA, GA

Rahat Wadhwa-Desai Comparison of *Listeria monocytogenes* strains from the 2011 cantaloupe outbreak in an invasion assay.
Advisor: M. A. Smith

ENVIRONMENTAL MUTAGEN SOCIETY MEETING, BELLEVUE, WA

Cory Gresham Male germ cells mediate untargeted mutations to the maternal genome of offspring.
Comparison of transgenic rodent and fish models. **Advisor: R. Winn**

GORDON RESEARCH CONFERENCE: OCEANS AND HUMAN HEALTH, BIDDEFORD, ME

Emily McReynolds Bioaccumulation and maturation delay in an estuarine crustacean, *Americamysis bahia*, following chronic exposure to multi-walled carbon nanotubes. **Advisor: M. Black**

Emily McReynolds Comparison of multi-walled carbon nanotube chronic toxicity and bioaccumulation in two crustaceans: freshwater and estuarine. **Advisor: M. Black**

NEUROBIOLOGY OF STRESS WORKSHOP, PHILADELPHIA, PA

Madhusudhanan Mathilakath Keralapurath Persisting effects of intermittent, minor stressors or cocaine on long-term potentiation in dorsal and ventral hippocampus. **Advisor: J. Wagner**

NORTH AMERICAN BLACK FLY ASSOC.

Joe Iburg Larval black fly mortality following bti exposure, implications for post treatment evaluations.
Advisor: R. Noblet

THE SOCIETY OF NEUROSCIENCE, NEW ORLEANS, LA

Madhusudhanan Mathilakath Keralapurath Evoked IPSCs in hippocampal CA1 pyramidal neurons are reduced in rats following extended access to cocaine self-administration. **Advisor: J. Wagner**

SOCIETY FOR THE STUDY OF REPRODUCTION, STATE COLLEGE, PA

Rong Li Effects of post-weaning genistein exposure on uterine development and spermatogenesis. **Advisor: X. Ye**

Shuo Xiao Bafilomycin A1, a V-ATPase inhibitor, inhibits embryo implantation via local uterine fat pad injection.
Advisor: X. Ye

SOCIETY OF TOXICOLOGY 2013 ANNUAL MEETING, SAN ANTONIO, TX

Zhoumeng Lin Gestational and lactational physiologically-based pharmacokinetic (PBPK) models for the herbicide atrazine in rats: development and optimization. (This poster was also selected for a special SOT Poster Session for Visiting Undergraduate Students.) **Advisor: N. Filipov**

Natalie Scholpa Nephrotoxicity of epigenetic inhibitors used for the treatment of cancer. **Advisor: B. S. Cummings**

Chen Chen Toxicokinetics of low doses of the pyrethroid, deltamethrin in rats. **Advisor: N. Filipov**

Pankaj Sethi Effect of age on plasma protein binding of deltamethrin, cis-permethrin and trans-permethrin in rats.
Advisor: J. Bruckner

Liyun Liu ERK1/2 Pathway inhibition attenuates BoNT/A-induced neurite outgrowth in motor neurons.
Advisor: J. Coffield

Manoj Amaraneni Partition coefficients of deltamethrin (DLM) and cis-permethrin (CIS) in male Sprague-Dawley rats.
Advisor: J. Bruckner

TERATOLOGY SOCIETY 2012 ANNUAL MEETING, BALTIMORE, MD

Kwaku Agyekum Mechanisms of probiotic-induced growth inhibition of *Listeria monocytogenes*. **Advisor: M. A. Smith**

STUDENT RESEARCH

INTERNATIONAL

FRESHWATER MOLLUSK CONSERVATION SOCIETY, GUNTERSVILLE, AL

Peter Hazelton

Happy as a clam? Behavioral and physiological effects of the antidepressant fluoxetine on freshwater mussels. **Advisor: R. Bringolf**

INTERNATIONAL SOCIETY OF EXPOSURE SCIENCE CONFERENCE, SEATTLE, WA

Adwoa Commodore

A pilot study characterizing real time exposure to particulate matter and carbon monoxide from cookstove related woodsmoke in rural Peru. **Advisor: L. Naeher**

STUDENT PUBLICATIONS

Kwaku Agyekum

Journal of Food Protection (Accepted May 2012) Susceptibility to *Cronobacter sakazakii* changes with increasing age in neonatal CD-1 Mice Arena N. Richardson, Elizabeth A. Pollak, Denita Williams, Kwaku Agyekum, and Mary Alice Smith

John Finger

A review of innate immune functions in crocodylians. Finger, J.W. Jr. and S.R. Isberg. 2012. CAB Reviews 7:67:1-11. doi: 10.1079/PAVSNNR20127067

John Finger

In ovo and in vitro susceptibility of American alligators to avian influenza virus infection. Journal of Wildlife Diseases. Temple, B.L., J.W. Finger Jr., T. Jelesijevic, E.W. Uhl, R.J. Hogan, T.C. Glenn, S.M. Tompkins. 2013.

Joe Iburg

A spectrophotometric technique for measuring particle ingestion by black fly (Diptera: Simuliidae) larvae. Iburg, J.P., E.W. Gary, R.D. Wyatt, R. Noblet. 2012. Entomologia Experimentalis et Applicata 146: 293-301

Zhoumeng Lin

Differentiation state-dependent effects of in vitro exposure to atrazine or its metabolite diaminochlorotriazine in a dopaminergic cell line. Lin, Z., Dodd, C. A., and Filipov, N. M. Life Sciences. 2013 Jan 17;92(1):81-90.

Fei Zhao

Postweaning exposure to dietary zearalenone, a mycotoxin, promotes premature onset of puberty and disrupts early pregnancy events in female mice. Zhao F, Li R, Xiao S, Diao H, Viveiros MM, Song X, Ye X Toxicol Sci 2013.

FACULTY PUBLICATIONS

Please visit our website for a complete list of faculty publications during the last year.

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

TOXICOLOGY 2012-13 SEMINARS



Dr. Ankley discusses EPA's approach to screening and testing of endocrine disruptors.



Dr. Knudsen discusses "Computational Toxicology and in silico Modeling in a Virtual Embryo."



Dr. Jones, Professor of Medicine, Emory University presents seminar, "Universal Environmental Chemical Exposure Surveillance."



Dr. Hassan, Dr. Gogal and Dr. Riley view posters at the Spring Retreat.

The Interdisciplinary Toxicology Program in conjunction with UGATOX and several other departments hosted three seminars this academic year. These seminars serve a dual purpose, in that they bring top researchers to campus to discuss their latest research and it is also an opportunity for students to network with potential future employers.

Please contact the Tox Office if you are interested in bringing a researcher to campus.

ITP SPRING RETREAT 2013

PLATFORMS

Peter Hazelton

SECOND PLACE: Happy as a clam? Behavioral and physiological effects of the antidepressant fluoxetine on freshwater mussels. **Advisor: R. Bringolf**

Rong Li

FIRST PLACE: Effects of post-weaning dietary genistein exposure on mammary gland development in C57bl/6 mice. **Advisor: X. Ye**

Qi Luo

Remediation of perfluorooctane acid contamination by using immobilized laccase on soil. **Advisor: J. Huang**

Rahat W. Desai

Why were there so few pregnancy-related cases from the 2011 multistate outbreak of *Listeria monocytogenes*-contaminated cantaloupes? **Advisor: M. A. Smith**

POSTERS

Kwaku Agyekum

Probiotics in the prevention of illness from exposure to foodborne pathogens. **Advisor: M. A. Smith**

Manoj Amaraneni

Partition coefficients of deltamethrin (Dlm), cis-permethrin (Cis) and transpermethrin (Trans) in adult male Sprague-Dawley rats **Advisor: J. Bruckner**

Chen Chen

Toxicokinetics of low doses of the pyrethroid, deltamethrin (DLM), in rats. **Advisor: J. Bruckner**

Ahmed E. El Zowalaty

Localization of BSCL2 in the reproductive system by in situ hybridization. **Advisor: X. Ye**

Eric Goolsby

Interactive effects of diphenhydramine and sertraline in *Ceriodaphnia dubia*. **Advisor: R. Shefferson**

Minsu Kang

Aflatoxin exposure in human populations of Uganda **Advisor: J. S. Wang**

Kristen Kellock

Factors associated with intersex largemouth bass (*Micropterus salmoides*) in Georgia USA **Advisor: R. Bringolf**

Madhusudhanan M. Keralapurath

Evoked IPSCs in hippocampal CA1 pyramidal neurons are reduced in rats following extended access to cocaine self-administration **Advisor: J. Wagner**

Zhoumeng Lin

Development and optimization of physiologically-based pharmacokinetic models for the herbicide atrazine in the rat dam, fetus and neonate **Advisor: N. Filipov**

Liyun Liu

ERK1/2 Pathway partially mediates BoNT/A-induced neurite outgrowth in motor neurons **Advisor: J. Coffield**

Emily R. McReynolds

Exposure to carbon nanotube contaminated-sediment increases morbidity in juvenile fat head minnow (*Pimephales promelas*). **Advisor: M. Black**

Natalie Scholpa

SECOND PLACE: Nephrotoxicity of epigenetic inhibitors used for the treatment of cancer **Advisor: B. S. Cummings**

Pankaj Sethi

SECOND PLACE: Effect of age on plasma protein binding of deltamethrin, cis-permethrin and trans-permethrin in rats. **Advisor: J. Bruckner**

Chi-Yen Tseng

Effects of hydroxylated fullerenes and silver nanoparticles on early life stages of the fat head minnow (*Pimephales promelas*). **Advisor: M. Black**

Shuo Xiao

Acidification of uterine luminal epithelium is critical for embryo implantation. **Advisor: X. Ye**

Xian Wu

Quantification of neuron maturation and neurite outgrowth in vitro using human neural progenitor cell. **Advisor: S. Stice**

Kathy Xue

Mitigation of fumonisin biomarkers by green tea polyphenols. **Advisor: J. S. Wang**

Fei Zhao

FIRST PLACE: Effects and mechanisms of multigenerational exposure to zearalenone, a mycotoxin, on female reproduction. **Advisor: X. Ye**

STUDENT AWARDS

KWAKU AGYEKUM - Advisor: **Mary Alice Smith**. Center for Food Safety (CFS) Outstanding Poster Award 3/2012 Probiotic inhibition of bacterial pathogens in vivo and in vitro

ZHOUMENG LIN - Advisor: **Nick Filipov**. American Association of Chinese in Toxicology (AACT) and Charles River - Best Abstract Award; Biological Modeling Specialty Section (BMSS) Perry J. Gehring Student Award

SHUO XIAO - Advisor: **Xiaoqin Ye**. Graduate School Dissertation Completion Award

PETER HAZELTON - Advisor: **Robert Bringolf**. Graduate School Dissertation Completion Award; UGA Presidential Honoree

RAHAT WADHWA-DESAI - Advisor: **Mary Alice Smith**. Best poster award for the maximum public health impact at the Thinc UGA Entrepreneurial Week event, Women at the Frontier Exhibit, 2013

5 DOCTORAL CANDIDACY AWARDS:

Liyun Liu, Advisor: **Julie Coffield**

Rong Li, Advisor: **Xiaoqin Ye**

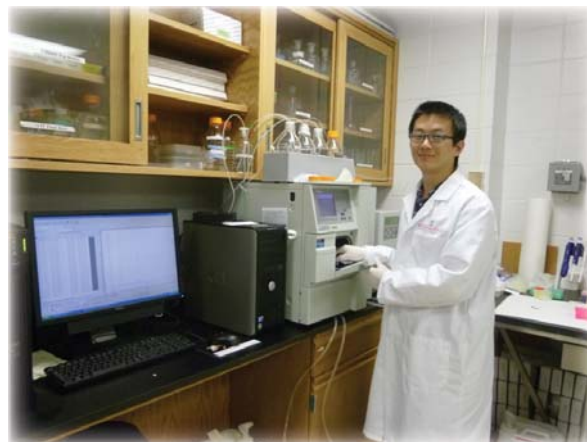
Madhu K. Mathilakath, Advisor: **John Wagner**

Emily McReynolds, Advisor: **Marsha Black**

Dean Meyer, Advisor: **Phil Williams**



Pete Hazelton in the lab.



Zhoumeng Lin in the lab.

ALUMNI OF THE YEAR AWARD

The Interdisciplinary Toxicology Program announces the creation of the Alumni of the Year Award. The first recipient of this award will be announced at the 2014 Annual Spring Retreat, Spring 2014, at the Georgia Center in Athens, GA. Nominations recognize UGA Toxicology graduates who have made significant contributions to the field. This award will include all travel expenses to the UGA Toxicology Spring Retreat. We are seeking nominations from you! These nominations can be for yourself or for another UGA Toxicology Alum. Nominations should include a nomination letter describing his/her accomplishments and a CV or Resume, and one supporting letter. The nominee must be able to attend the Spring Retreat and give a short presentation about their career in toxicology and/or a current topic related to their work. The nomination form can be found on our website under Alumni.

2012 - 2013 GRADUATES

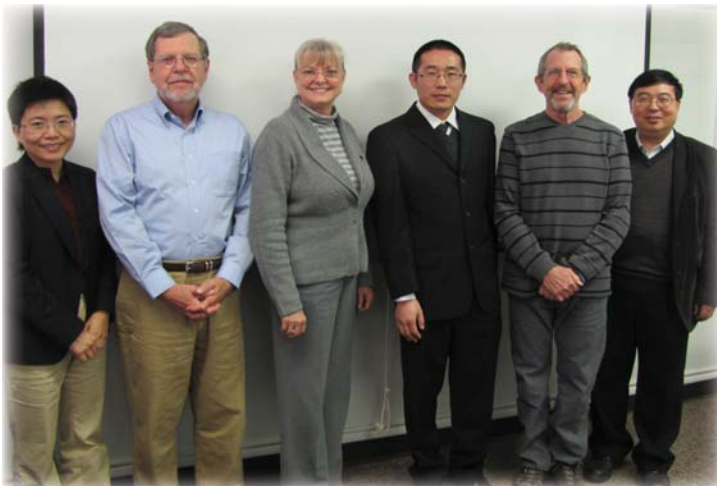
WHERE ARE THEY GOING NEXT?

ADWOA COMMODORE (PhD 2012) I am currently an independent contractor in Athens, GA. Advisory Committee Members: L to R: Daniel B. Hall, Major Advisor Luke Naehar, (Adwoa Commodore), John E. Vena, and Jia-Sheng Wang.



GUOQING QIAN (PhD 2012) I have accepted a position as a Research Fellow at Emory University, Atlanta, GA.

Advisory Committee Members: L to R: Xiaoqin Ye, James Bruckner, Mary Alice Smith, (Guoqing Qian), Ron Riley, and Major Advisor Jia-Sheng Wang



CONGRATULATIONS!!!

ALUMNI UPDATES

WHAT ARE THEY DOING NOW?

| | |
|------------------------------|--|
| Tara Almekinder Vogeliën | Director Toxicology and Clinical Safety, Business and Research Administration NC Research Campus, Kannapolis, NC |
| Suzanne Baird | MACTEC, Amherst, MA |
| Windy Boyd | NIEHS - Biomolecular Screening - Worm Tox Group, Research Triangle Park, NC |
| Jason Boyd | USRA Division of Space Life Sciences, Universities Space Research Association Division of Space Life Sciences, Houston, TX |
| Jerry Campbell | Assoc. Director Center for Human Health Assessment, The Hamner Institute for Health Sciences, Research Triangle Park, NC |
| Deborah Cartwright-Iwanowicz | US Geological Survey - Leetown Science Center, Kearneysville, WV |
| Deanna Conners | Earthsky, http://earthsky.org/contact , Austin, TX |
| Eva Daneke-McLanahan | US EPA, LCDR, USPHS, Raleigh Durham, NC |
| Amy Dixon Delinsky | US EPA Human exposure and Atmospheric Sciences, RTP, NC |
| Gregory Dooley | Dept of Environmental & Radiological Health Sciences, Fort Collins, CO |
| Nikolay Filipov | College of Veterinary Medicine Dept. of Physiology and Pharmacology, Athens, GA |
| Xianglu Han | Dow Chemical, Midland, MI |
| Quanren He | Director Toxicology and Clinical Safety, Biothera, Saint Paul, MN |
| William Matthew Henderson | Research Toxicologist, Ecosystems Research Division, US EPA, Athens, GA |
| Ofia Hodoh | US EPA Region 4, Atlanta, GA |
| Victor Johnson | Toxicology and Molecular Biology Branch, Health Effects Laboratory Division, Centers for Disease Control and Prevention, Morgantown, WV |
| Angel Kelsey Wall | Savannah River Nuclear Solutions, Aiken, SC |
| Sang Hyun Kim | Drug Metabolism Team, NITR Korea Food & Drug Administration, Seoul, Korea |
| Jiyoung Kim | Institute of Toxicology, School of Public Health, Nanjing Medical University, Nanjing People's Republic of China. |
| Brad Konwick | Postdoctoral Fellow / KADAS Environmental & Engineering, Richland, VA |
| Soo Kwang Lee | Food and Drug Administration Johns Creek, GA |
| Michael Lumpkin | Environ, Atlanta, GA |
| Hongbo Ma | Assistant Professor, Univ of Wisconsin, Env & Occ Health, Milwaukee/Zilber School of Public Health, Milwaukee, WI |
| Audrey Majeske | Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX |
| Leena Malayil | Research Tech Ctr Trop Emerging Diseases, Athens, GA |
| Kristi Manning Folden | Technical Sales, OLIS, Inc., Bogart, GA |
| Carrie Marr | Wildlife Biologist, US Fish and Wildlife Service, Phoenix, AZ |
| Sheppard Martin | National Health and Environmental Effects Research Laboratory, RTP, NC |
| Judy Mathew | Director Clinical Operations, RFS Pharma, Tucker, GA |
| Brooks McPhail | ORISE Post-doctoral Fellow at Centers for Disease Control, Atlanta, GA |
| Paul C. Melstrom | Epidemiologist/Toxicologist, CDC and Prevention, Atlanta, GA |

| | |
|----------------------|---|
| Jay Overmyer | Syngenta, Research Triangle Park, NC |
| Christopher Peredney | Toxics Cleanup Program, Washington State Department of Ecology, Olympia, WA |
| Brianna Peterson | Forensics Toxicologist, Washington State Patrol, Seattle, WA |
| Jennifer Peterson | Firehall 4 Animal Hospital, Athens, GA |
| Guoqing Qian | Research Fellow, Emory, Atlanta, GA |
| Junshan Qiu | Staff Fellow FDA Center for Veterinary Medicine, Rockville, MD |
| Bradley Reinhart | Instructor and Lab Manager, University of South Carolina, Aiken, SC |
| Arena Richardson | Postdoctoral Fellow, Food & Sci Technology College, Athens, GA |
| Emily Rogers | Research Assistant, University of Tennessee, Knoxville, TN |
| Suparna Sarkar | Instructor, Barbara Davis Center for Diabetes, University of Colorado Anschutz Medical Campus, Aurora, CO |
| Neelesh Sharma | Faculty, Division of Veterinary Clinical Medicine, Jammu-181 102. INDIA |
| Patricia Shaw-Allen | U.S. Environmental Protection Agency, Cincinnati, OH |
| Gideon St. Helen | Cardiovascular Research Institute University of California, San Francisco, CA |
| Bin Sun | The Hamner Institute, Durham, NC |
| Matthew Taylor | Ashland, Inc. , Covington, KY |
| Glenn E. Tillman | USDA FSIS OPHS Eastern Laboratory, Athens, GA |
| Masashi Tsunoda | Professor, Graduate School of Medicines, Kitasato University, Sagamihara, Kanagawa 228-8555, Japan |
| Olga Tsyusko | Faculty, Univ. of Kentucky, Lexington, KY |
| Jason Unrine | Faculty, Univ. of Kentucky, Lexington, KY |
| Aswani Vunnava | Department of Microbiology and Immunology, Emory, Atlanta, GA |
| Bob Wentworth | Emergency Preparedness Manager, Barrow Hall, UGA , Athens, GA |
| Denita Williams | OISE Fellowship, CDC, Atlanta, GA |
| Lonnie W. Williams | Kimberly Clark – Roswell, GA; Burdock Group, Vero Beach, FL |
| Li Xu | Postdoctoral Fellow, Univ. of Texas MD Anderson Cancer Center, Houston, TX |
| Neera Chhabra Young | Science Teacher, Lakeside HS, Augusta, GA |
| Xiaoling Zhang | Postdoctoral Fellow, Duke University, Durham, NC |

**This list represents the latest placement info we have on our graduates.
If you have additional information, please send it to
toxinfo@uga.edu or call (706) 583-0058**



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: <https://www.externalaffairs.uga.edu/os/makegift>. When doing so, please select "Other" as the Unit and type Toxicology Program in the form space given. 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 this form, print it and mail it to our address below. All contributions are tax deductible.

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, Rm. 341, Pharmacy South, Green St., Athens, GA 30602. You may also make a secure credit card donation via our website at <http://www.toxicology.uga.edu>.

Thank you!!

TOXICOLOGY SNAPSHOTS



INTERDISCIPLINARY TOXICOLOGY PROGRAM ALUMNI

1997

Kelley Ann Boyle Van Vreede, M.S.

1998

Ilho Cho, M.S.

Nikolay Miltchev Filipov, Ph.D.

Wu Li, Ph.D

Slawomir Jacek Rzucidlo, Ph.D.

Daniel John Schoeffner, 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 Schleppei Arnold-Hill, 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.

Ofia B. Hodoh, M.S.

Vic Johnson, Ph.D.

2002 continued:

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 Connors, Ph.D.

Amy Dixon Delinsky, Ph.D.

Amber Lynn Graves, M.S.

Xianglu Han, M.S.

Quanren He, Ph.D.

Jiyoung Kim, Ph.D.

Elizabeth Ann Richardson, M.S.

Emily Dawn Rogers, M.S.

Olga Vasyliyva 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 Visser Schaefer, M.S.

Denita Williams, M.S.

Lonnie Dwayne Williams, Ph.D.

2007

Deborah Iwanowicz, Ph.D.

Kristen Kellock, M.S.

Kyu-Bong Kim, Ph.D.

Sookwang Lee, Ph.D.

Eva Daneke McLanahan, Ph.D.

Paul Melstrom, Ph.D

Brianna Peterson, Ph.D.

Glenn Tillman, M.S.

Aswani Vunnava, M.S.

2008

Tantiana Donata Burns, Ph.D

Curtis Andrew Harris, Ph.D

Elizabeth Irvin, Ph. D.

Lakshmi Kelamangalath, Ph.D.

2008 continued:

Brooks McPhail, 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.

Bin Sun, Ph.D.

Denita Williams, Ph.D.

Li Xu, Ph.D.

2011

Olorunfemi Adetona, Ph.D.

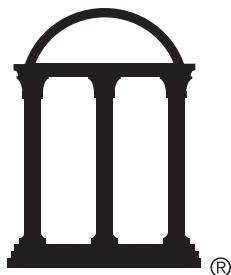
Gideon St. Helen, Ph.D.

Shirley Zhang, Ph.D.

2012

Adwoa A. Commodore, Ph.D.

Quoging Qian, Ph.D.



The University of Georgia
Interdisciplinary Toxicology Program
Rm 341, Pharmacy South
Green St.
Athens, GA 30602