The Post-y

Summer 2012

Semi-annual Newsletter of the Society of Toxicology Postdoctoral Assembly

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Message From the Chair

Enrique Fuentes-Mattei

As the 2012-2013 Chair of the SOT-PDA, my goal and commitment is to maintain and improve our SOT postdoctoral network, and foster the development of SOT future leaders from among our postdoctoral members. The PDA maintain a constant effort to improve the postdoctoral leadership structure, integrate all SOT postdoctoral representatives with the PDA representatives with the PDA board to serve better to our postdoctoral community. This year I have been honored with the opportunity to work in the PDA with very talented, dynamic and outstanding postdoctoral research fellows. Our goal is to continue the PDA outstanding job serving as a great resource for SOT postdoctoral scholars for scientific growth, networking, and career advancement. Our role now as leaders is to spread our passion, energy, and enthusiasm to benefit our postdoctoral fellow members, and discover and foster new outstanding leaders with the experience and the commitment to serve for the future of SOT. We all are essential components to build bridges with toxicology for a better world and for a less toxic environment for future generations.

The PDA Board has already begun to plan events for SOT postdoc members through the coming year as well as at the 52nd Annual Meeting. The PDA will continue to host career development as well as scientific sessions highlighting trainee research. The PDA will also continue hosting career development webinars. We are also working to host next August 2013 the first Gordon Research Seminar of Cellular and Molecular Mechanism of Toxicology to provide a forum for graduate students and postdoctoral scientists to present their work in toxicology, discuss cutting edge aspects of their research and build collaborative relationships with their colleagues at a critical time in their careers.

The PDA wants to keep in touch with you to bring you the information you need to succeed. Whether you are a SOT postdoc member or a Postdoctoral Representative for an SOT group, keep in touch via ToXchange or e-mail me at **efuentes1@mdanderson.org** to let the PDA know what you need to do your very best.

Message From the Outgoing Chair

Michele LaMerrill

The PDA has grown by leaps and bounds in the last year. We developed several new initiatives. The new PDA Career Task Force was charged with preparing an informational paper of relevance to the career development of postdoctoral fellows. The "Employment Benefits: A Primer for Postdocs" informational paper can be accessed on page 8. of this Posy-y. Poster Tours for Trainees is a new program that was piloted at our Annual Meeting in San Francisco. You can learn more about this successful program in the article on page 10. We also facilitated Trainee Discussions with Plenary Speakers, a program we developed at the 50th Annual meeting in 2011. If you did not have the opportunity to attend our annual luncheon this year, you missed some excellent door prizes, food, conversation, and the celebration of Postdoctoral Award winners. The PDA co-chaired a scientific symposium session, "Epigenetic and miRNA Regulations in Tumor Carcinogenesis: Toxicological Implications" to highlight the research of postdoctoral fellows and students at the Annual Meeting. The PDA also chaired an education-career development session "*The Art of Negotiation: a Fundamental Skill for Scientists" w*hich was followed by a webinar of the same title later in March. In October of 2011 the PDA hosted another webinar, *"K99-R00 Grants: Tips from the NIEHS Administrator, the Grantee and the Reviewer"*. While maintaining our previous programs for postdoctoral fellows, we have expanded to increase the number of services we provide to you throughout the year. I hope that you find these activities as beneficial as I have.

My best to you all in your endeavors,
Michele La Merrill,
PDA Chair 2011-2012

Best Postdoctoral Paper Award

David Szabo

The Postdoctoral Assembly (PDA) of the Society of Toxicology is pleased to announce the 2013 Best Postdoctoral Publication Awards (BPPA). These awards recognize talented and outstanding postdoctoral researchers who have recently published exceptional papers in the field of toxicology as a result of postdoctoral research. The PDA requests that all SOT members encourage qualified postdoctoral scholars to apply and support them with your nomination. Three awards, each consisting of a plaque and a $250 cash award will be presented at the PDA Luncheon during the 2013 SOT Annual Meeting. Further information and application are found at http://www.toxicology.org/ai/spd/PD-PubAwardAnn.asp. For any questions, please contact me at szabo.david@epa.gov.

Eligibility for 2013 Nominations

•The research reported in the paper was conducted while the applicant was engaged in a postdoctoral research experience

•Applicant should be a member of SOT or membership application submitted by award application deadline

•First author on a peer-reviewed paper published online, in print, or in press, between October 1, 2011, and September 30, 2012 in the year preceding the application deadline.

- Review articles will not be accepted unless they contain unique data, methods, and/or analysis (meta-analyses, decision analyses, etc.)
- Co-first authored papers will be accepted with clear delineation of applicant's effort

•Application supported by letter from the research advisor

•Only one publication may be submitted by each applicant

•Leaders of the PDA are eligible, but applicants will not participate in the award determination

Applications are due by midnight Eastern Time on October 9, 2012.

PDA: the Board

Enrique Fuentes-Mattei, PhD, Chair

Dr. Enrique Fuentes-Mattei received his BS from University of Puerto Rico Mayaguez Campus and a PhD from the University of Puerto Rico Medical Sciences Campus in February 2010. His graduate research focused in the effect of PXR in the regulation of Major Histocompatibility Complex Class II (MHC-II) gene expression and their association to pro-inflammatory cytokines in response to organic PM2.5. He is currently in his second year of postdoctoral training in the Department of Molecular and Cellular Oncology at the University of Texas M.D. Anderson Cancer Center. Dr. Fuentes-Mattei's main areas of research interest include immunotoxicology, molecular biology, receptor mechanisms, obesity, diabetes and carcinogenesis.

He joined the SOT in 2004 as a student member. He was student member of *In Vitro* and Immunotoxicology Specialty Sections, served as Graduate Student Representative to the Executive Committee of the Hispanic Organization of Toxicologists (HOT) Special Interest Group (2006–present) and to the Regional Chapter/Special Interest Group Graduate Committee (2007–2010) on behalf HOT. He has been very active in the SOT's Committee on Diversity Initiatives Undergraduate Minorities Program serving as Peer Mentor and staffing the SOT undergraduate prgram booth at ABRCMS Meetings. In 2009 he received the SOT Outstanding Graduate Student Representative Award. He had served as Chair and Co-Chair of platform and poster sessions, and as postdoctoral representative to HOT and the CDI Committee.

As the Vice Chair of the PDA last year, Enrique made a successful application to organize a Gordon Research Seminar (GRS) in conjunction with the Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference (GRC) to be held in August 2013. As the Chair of the PDA, it is his great interest to continue an active leadership role in SOT and contribute in the development of future toxicologists. His commitment is to continue the PDA effort to improve the postdoctoral leadership structure, integrate all SOT postdoctoral representatives with the PDA board to serve as a great resource for SOT postdoctoral scholars for scientific growth, networking, and career advancement. His goal in the SOT-PDA is to maintain and improve our SOT postdoctoral network, and foster the development of SOT future leaders from among our postdoctoral members.

PDA: the Board

David Szabo, PhD, Vice-Chair

Dr. David Szabo is currently an Oak Ridge Postdoctoral Fellow with the United States Environmental Protection Agency at the National Center for Environmental Assessment Division in Washington DC. He received a PhD in Toxicology from University of North Carolina-Chapel Hill in 2011, an MS in Environmental Engineering from Johns Hopkins University in 2005, and a BS in Biology from Plymouth State University in New Hampshire. He has authored several peer-reviewed articles, book chapters, and is a scientific reviewer for toxicology and environmental journals. Dr. Szabo is a past winner of the 2012 the Best Overall Mixture Abstract Award, 2010 SOT's Colgate Palmolive Award for Research in Alternative Methods, 2010 Best Presentation in Mixtures Student/Postdoctorate Award and the 2010 recipient of the Robert J. Rubin Endowment Award. His research interests include toxicokinetics of persistent organic pollutants, biological plausibility in mode-of-action analysis, developing methods/models/tools to identify human health effects and risks from environmental chemicals, and incorporating emerging science for the next generation of risk assessments. An SOT member since 2008, he is active in leadership roles, both with student/postdoctoral activities and CE courses. He has served on the Risk Assessment Specialty Section and the Mixtures Specialty Section as a student representative (2009-2011), Occupational and Public Health Specialty Section as a postdoctoral representative (2011-2012), and is actively involved with the Congressional Task Force (2010-2012).

Bethany Hannas, PhD, Councilor

Dr. Hannas received her BS from Marist College in 2003 and her PhD from North Carolina State University in 2009. She is currently a postdoctoral fellow in the Reproductive Toxicology Branch at the US Environmental Protection Agency (US EPA). Her research focuses on investigating the reproductive toxicity of environmental endocrine disruptor mixtures using both in vitro and in vivo models. Dr. Hannas has served as Host of the Endocrine Disrupting Contaminant Seminar Series at US EPA since 2010. She has most recently been active as a journal peer reviewer and NIH workshop Rapporteur. Dr. Hannas served in the positions of Treasurer, Vice-President and President in the Toxicology Department Graduate Student Association at NC State University from 2006–2009. She has been a member of the SOT since 2006 and a member of the Reproductive and Developmental Toxicology Specialty Section since 2009.

PDA: the Board

Ebany Martinez-Finley, PhD, Secretary

Dr. Martinez-Finley is currently a postdoctoral fellow in the laboratory of Dr. Michael Aschner at Vanderbilt University Medical Center in the Division of Pediatric Toxicology. For the past year, she has studied methylmercury neurotoxicity and neurodegeneration. Her work has always been "neurotoxic" in nature. Prior to joining VUMC, she completed her Ph.D. at the University of New Mexico School of Medicine in Biomedical Sciences with concentrations in Neurosciences and Toxicology. Her dissertation research project focused on the neurodevelopmental effects of perinatal exposure to arsenic. While at the University of New Mexico, she was a recipient of a Pfizer Predoctoral Fellowship and an F31NRSA from NIEHS.

Dr. Martinez-Finley began her involvement with SOT as an undergraduate, attending the Undergraduate Education Program in 2005. She serves as a peer mentor for the same program. Her service to the Society has also included the Spanish translation of a slide set about toxicology for the SOT Web site. From 2007–2009, she was the graduate student representative for the Mountain West Regional Chapter. As a graduate student she also held several institutional leadership roles including serving as the President of the Biomedical Sciences Student Society, Vice-Chair for the Graduate Research and Development Grant, and as a representative to the Graduate and Professional Student Association. Dr. Martinez-Finley has spent the past year representing postdoc interests at Vanderbilt as the Junior Co-chair to the Vanderbilt Postdoctoral Advisory Committee. She currently holds an adjunct teaching position teaching Anatomy and Physiology to undergraduates. As Secretary of the SOT PDA, she will draw upon what she has learned from previous leadership roles to enhance the experiences of SOT postdocs.

Kelly J. Chandler, PhD, Treasurer

Dr. Chandler is mentored by Dr. Sid Hunter in the National Health and Environmental Effects Research Laboratory and Dr. Tom Knudsen in the National Center for Computational Toxicology at the U.S. Environmental Protection Agency in Research Triangle Park. During her tenure with the EPA, she has worked to bridge experiments at the bench testing chemical effects on stem cell differentiation and experiments at the computer to build predictive models of impaired stem cell differentiation using ToxCast™ high-throughput screening data.

Before joining the EPA and SOT, Dr. Chandler was thrilled to pieces to call Nashville home where she used comparative genomics alongside transgenic mice and fish to identify an ancient developmentally regulated long-range enhancer of Bmp4 in Dr. Doug Mortlock's lab at Vanderbilt University.

In 2012, Dr. Chandler received the Best Mommy Award from her daughters who provide a daily dose of hilarity and humility.

Want to become a Representative?

Bethany Hannas

There are several vacancies for Postdoctoral Representatives for Regional Chapters, Specialty Sections, and Special Interest Groups. This is a great way for postdocs to acquire leadership experience and meet and interact with toxicologists of all ranks. Please let the specific group know if you would like to serve as their postdoc representative or contact Bethany Hannas (hannas.bethany@epa.gov) for more information.

Vacancies (as of June 2012)

Regional Chapters	Specialty Sections	Special Interest Groups
Lake Ontario	Clinical and Translational	Korean Toxicologists Association in America
Michigan	Dermal Toxicology	
South Central	Drug Discovery Toxicology	
	Ethical, Legal, and Social Issues	
	Medical Device	
	Occupational and Public Health	
	Ocular Toxicology	
	Risk Assessment	

National Postdoctoral Association Annual Meeting

Enrique Fuentes-Mattei

The 10th Annual Meeting of the National Postdoctoral Association (NPA) was held on March 2012 in San Francisco, California, just after our 2012 SOT Annual Meeting. As the only national venue dedicated solely to the postdoctoral community, this meeting provided a great opportunity to share ideas, problems and solutions with other professionals and organizations working on behalf of postdoctoral scholars. The NPA continues to demonstrate the commitment to address innovative concepts in postdoctoral programs, novel approaches to assess postdoctoral career development and progress, disparities in the postdoctoral community, and developing national standards that ensure postdoctoral fellowship success. This year the NPA is celebrating its 10th anniversary and put together most of the NPA founders to present their perspective after the first decade. The Keynote Address speaker was the Chief Executive Officer of the American Association for the Advancement of Science (AAAS), Dr. Alan I. Leshner. Dr. Leshner gave an outstanding and engaging presentation about current research funding and how to successfully develop a research idea that will be highly probable to be fundable. The new initiative of the development and implementation of a Postdoctoral Progress Assessment to the postdoctoral training curriculum was one among many excellent workshops and presentations. This initiative includes a standardized and web-base postdoctoral career development and progress assessment process, and brings together an external committee of faculty members (postdoc's mentoring team) from the same research institution to evaluate the postdoctoral scholar progress and the mentorship impact annually. The University of Pittsburgh and the AAAS are the first in implementing this initiative to improve the postdoctoral career development and training. The NPA also offers workshops and presentations targeting networking, international postdocts issues (e.g., visa issues, supporting international spouses), managing conflicts by interest-base negotiation, institutional strategies for advancing postdoc women's careers, among others. For instance, in 2012 the NPA is working in the development of the strategic plan. Officers developed an International Postdoc Fellowship Database, and are currently working on a white paper for the visa application of international postdocs. The 2012 National Postdoctoral Appreciation Week will be September 17-21.
You may review and download NPA Annual Meeting documents and presentations at:
http://toxchange.toxicology.org/p/do/sd/sid=4125&type=0

The NPA 2013 Annual Meeting will be held March 15-17 at the Medical University of South Carolina in Charleston, SC

NATIONAL POSTDOCTORAL ASSOCIATION

ToXchange It's YOUR Network

New Employee Benefits

Ebany Martinez-Finley

Last spring a Task Force of postdoctoral representatives focused on providing postdocs with timely career information. The result was an informational pamphlet, ***"Employee Benefits: A Primer for Postdocs,"*** written by Natalie Johnson, Sky Pike, Marie Bourgeois, Anne Loccisano. Here is a tidbit of what they came up with. You can download the full article at: http://www.toxicology.org/ai/spd/PDA_Docs/2012EmployBenef-Primer-Postdocs.pdf

Types of Benefits Offered and Questions to Ask

When considering a job offer, it is important to know what employee benefits are considered standard. The benefit plan you choose will depend on factors such as marital status, pre-existing medical conditions, the number of dependents you need to cover, and the nature of the job. Common types of employer-provided benefits include basic healthcare benefits, retirement/401(k) plans, life/disability insurance, flexible spending account, and paid time off for vacation, illness, holidays, bereavement, jury duty, and personal time.

It's important to take the time to evaluate your potential employer's benefits offering since it is likely to represent up to 40 percent or more of your total compensation package. While there are basic benefits that almost all employers provide, many benefits/perks may vary depending on the industry, company, and position. Sector-specific perks such as the amount of available start-up funds offered in the university setting or how lab space is assigned are examples of specific issues that may be important when seeking a an academic appointment.

How and When to Ask about Benefits

Learning the types of benefits a company, agency or institution offers is an important factor when assessing a position. Knowing how to inquire about a benefits package (and importantly, when the appropriate time to ask about benefits) will aid in a successful interview process. Most websites will post a general list of the benefit packages offered. This will give you a basic blueprint regarding health insurance, vacation days, retirement plans, etc. By researching the organization of interest online first, many of your questions may be answered. Usually toward the end of an interview, you will be asked if you have any questions. This is a prime opportunity to ask important questions regarding benefits. You may also want to check back with the HR representative or recruiter who originally contacted you.

Handling the Salary Negotiation

As a rule of thumb, it is a good idea not to mention salary until it is brought up to you. Take a trip to the local library or research on-line resources to find recent salary survey information in your industry and geographic location. Asking former postdocs or people working in your area of expertise to share their knowledge on the salary front may be the most valuable resource. Since there are often multiple interviews, you will want to determine at least a salary range for the position before you get too far into the interview process. Neither you nor the employer will be left feeling satisfied if you get through several rounds of interviews only to find you are miles apart on compensation. Don't forget to consider the total compensation package, which includes all insurance benefits, bonuses, 401(k) match, paid leave, etc. before judging the job on salary alone. In most cases, the potential employer will wait until the conclusion of the interviewing process to negotiate salary and to finalize details such as start date.

New Employee Benefits (continued)

Illegal Interview Questions

By law in the United States, only questions related to the capacity of an applicant to perform job-related duties are allowable during the interview process. Questioning what a person's age, date of birth, race, color, gender, religion, marital status, number of children, future family plans, former names, sexual orientation, residency status, or country-of-origin are off-limits during an interview. So are questions dealing with one's financial or socio-economic status or whether family or friends work for the company. However, it is legal for potential employers to ask you questions which relate to your ability to perform a particular job. For disabled persons, U.S. federal law requires that reasonable accommodations be given at the time employment is offered.

Beyond these, it is unlawful to ask for the lowest base salary a potential employee will accept. It is also illegal to mandate that an applicant take a polygraph (lie detector) test, although one may voluntarily submit to one. Questions regarding an applicant's branch of military service or the types of training received are legitimate. But questions regarding the circumstances of entering or leaving the military typically are not. It should also be noted that some federal and state agencies may be exempt from these laws, but typically most try to follow them. Potential employers may ask illegal questions out of ignorance, out of disregard for the law, or to test the applicant's knowledge and ability to correctly handle such situations. There are basically three ways to handle the situation. The best is to try to answer the legitimate question behind the illegal one. The second, depending on the circumstances, is to answer the question. The third, generally reserved for continual insistence for an answer by the interviewer, is refusal to answer.

*The PDA Board wants to include your research in the Post-y. Why? This is a great opportunity to share and gain recognition for your work with your peers. Your article may lead to new collaborations or an invitation to present your work at a conference or an institution where you want to work. Please contact Kelly Chandler (*chandler.kelly@epa.gov*) if you would like to write a 250-500 word essay on your research. Remember your audience is broad, and you should include the overarching relevance to public health and current events*.

The 2012 SOT Annual Meeting: A Golden Opportunity for Postdocs to Learn and Network

The 2012 Annual Meeting in San Francisco March 11-15 provided a numerous opportunities for SOT Postdocs to learn and network with fellow scientists. It began with the **Student-Postdoc Mixer, *Sunday, March 11.*** Sponsored by the GSLC, the informal gathering gave postdocs an ideal spot to reconnect with old friends and meet new ones Postdoc officers had a special table to greet postdoc members.

The Trainee Discussion with Plenary Speaker, Dr. Leroy Hood, was on *Monday, March 12.* Dr. Hood met informally for discussion with graduate students and postdoctoral scholars after his Plenary Opening Lecture. The event was filled to capacity as this small group of postdocs and grad students had the chance to speak directly with Dr. Hood.

At noon on Monday Postdocs were also invited to the ***In Vitro* Toxicology Lecture and Luncheon for Students**. Sponsored by the Colgate Palmolive Company and hosted by the Education Committee, Timothy J. Shafer from the US EPA spoke on "***Can In Silico and/or In Vitro Testing be used for Toxicity Assessment Instead of In Vivo Approaches?"*** Dr. Shafer presented young scientists with important information regarding research using alternative research techniques.

Postdocs were able to participate both as student s and experts in the **"Chat with an Expert"** sessions that ran, Sunday, March 11 through Thursday, March 15. Sponsored by the Graduate Student Leadership Committee, these informal and informative meetings, formerly known as Lunch with an Expert (LWAE), were expanded to include "Chat with an Expert" for postdoc and grad students, "Chat with a Postdoc" for grad students and undergrads, and "Chat with a Grad Student" for undergrads. These informal mentoring experiences prove valuable and postdocs enjoyed to chance to both serve as the mentee and the mentor.

This year the PDA initiated a pilot program, **Poster Tours for Trainees**. From Monday, March 12 through Thursday, March 15, groups gathered at the SOT Pavilion, and were guided by a senior toxicologist on a one-hour poster tour of poster that the expert found to be of particular significance. The events were well attended and well received and the PDA will definitely be sponsoring this activity again at the 2013 meeting.

The Annual Postdoctoral Assembly Luncheon, was held *on Tuesday, March 13th.* Amidst the scrambling to attend all of the events at the Annual Meeting, the luncheon provided postdocs a chance to kick back and relax! The luncheon highlights included recognition of the Best Postdoctoral Publication Awardees, introduction of PDA board members for 2012-3013, and some really wonderful door prizes!

Later on Tuesday the PDA hosted a standing-room-only **Education-Career Development Session: "The Art of Negotiation: A Fundamental Skill for Scientists,"** Chaired by PDA board members Larissa M. Williams and Ebany Martinez-Finley the session introduced scientists to the intricacies of negotiations in the workplace and the idiosyncrasies in negotiation tactics across toxicology sectors. The session included a formal lecture and a panel discussion delivered by speakers from academia, industry, and government.

Postdoctoral Activities at the 50th Annual Meeting (continued)

On Wednesday the Grad Student Leadership Committee and the PDA sponsored a joint Scientific Session: **"Epigenetic and miRNA Regulations in Carcinogenesis: Toxicological Implications."** The event was co-chaired by Jessica Placido of the GSLC and Enrique Fuentes-Mattei of the PDA. This too was a very popular and well attended event. The postdoctoral scholar and graduate student presentations included a wide variety of toxicants and research models to complement the diversity among SOT members. This symposium discussed experimental data regarding unique biological aspects of epigenetic regulations, case studies describing recent research on epigenetic mechanisms with relevance to carcinogenesis, and the impact of developing treatments. Overall, the symposium was well attended and well received. The PDA and GSLC will continue to develop scientific symposia to provide students and postdoctoral scholars future opportunities to inform the SOT community about their cutting-edge research. For the **2013 SOT Annual Meeting**, the PDA and GSLC are again working together to present another successful scientific symposium session entitled **"Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease"**. We are very excited and very proud of our outstanding postdoctoral scholar and graduate student research work and contribution to the toxicological sciences.

There is so much in store for Postdocs at each Annual Meeting and 2012 in San Francisco found expanded opportunities for postdoc involvement. There is not only the opportunity to participate in the many postdoc events, but also the chance to meet with peers, mentor students, network with experts, and hear the latest on cutting-edge science in whatever your area of expertise might be. It is all of this packed into a 4-day adventure that make the SOT Annual Meeting a truly valuable experience for SOT postdocs. Plan to be in San Antonio for the 2013 Annual Meeting March 10-14. The PDA Board will forward details to you as they become available.

Thank you to all postdocs, SOT staff, and meeting attendees who made these exciting events a success. Postdocs who have suggestions or ideas for events to implement at the 2013 Annual Meeting are invited to contact the PDA officers [http://www.toxicology.org/ai/spd/PD-Officers.asp.](http://www.toxicology.org/ai/spd/PD-Officers.asp)

Policies and Procedures Amendment Update

Due to expanded program offerings, the PDA Board recently requested that members vote on changes to the PDA Policies and Procedures that would allow for the addition of a second Councilor position on the PDA Board. PDA membership overwhelming endorsed the change and in **2013 there will be two Councilors on the ballot** in addition to Vice Chair, Secretary (elected every other year) and Treasurer. The PDA board thanks all members who took the time to vote in this election!

Chance to Win a FREE Subscription to ToxSci!

Each year the PDA conducts a survey of members in order to get feedback on current activities and determine priorities moving forward in the next year. Help us to serve you better by completing the **upcoming 2012 PDA Survey**.

Completion of the survey automatically qualifies you for the chance to win a FREE subscription to ToxSci!

2012 Best Postdoctoral Paper Award Abstracts

The abstracts for the papers receiving the three 2012 Best Postdoctoral Paper Awards (BPPA) follow. Deadline for applications is midnight October 9, 2012 (see page 2).

Predictive Models of Prenatal Developmental Toxicity from ToxCast High-Throughput Screening Data

Toxicological Sciences 2011, 124(1): 109-127 ***Sipes NS***, *Martin MT, Reif DM, Kleinstreuer NC, Judson RS, Singh AV, Chandler KJ, Dix DJ, Kavlock RJ and Knudsen TB.*

EPA's ToxCast™ project is profiling the *in vitro* bioactivity of chemicals to assess pathway-level and cell-based signatures that correlate with observed *in vivo* toxicity. We hypothesized that developmental toxicity in guideline animal studies captured in the ToxRefDB database would correlate with cell-based and cell-free *in vitro* high-throughput screening (HTS) data to reveal meaningful mechanistic relationships and provide models identifying chemicals with the potential to cause developmental toxicity. To test this hypothesis, we built statistical associations based on HTS and *in vivo* developmental toxicity data from ToxRefDB. Univariate associations were used to filter HTS assays based on statistical correlation with distinct *in vivo* endpoints. This revealed 423 total associations with distinctly different patterns for rat (301associations) and rabbit (122 associations) across multiple HTS assay platforms. From these associations, linear discriminant analysis with cross validation was used to build the models. Species specific models of predicted developmental toxicity revealed strong balanced accuracy (BA > 70%), and unique correlations between assay targets such as transforming growth factor beta (TGFβ), retinoic acid receptor (RAR), and G-protein-coupled receptor (GPCR) signaling in the rat and inflammatory signals, such as interleukins (IL1a and IL8) and chemokines (CCL2) in the rabbit. Species specific toxicity endpoints were associated with one another through common Gene Ontology (GO) biological processes, such as cleft palate to urogenital defects through placenta and embryonic development. This work indicates the utility of HTS assays for developing pathway level models predictive of developmental toxicity.

Exposure to Moderate Arsenic Concentrations Increases Atherosclerosis in ApoE$^{-/-}$ Mouse Model

Toxicological Sciences 2011, 122(1): 211-221 ***Lemaire M***, *Lemairé CA, Molina MF, Schiffrin EL, Lehoux S and Mann KK.*

Arsenic is a widespread environmental contaminant to which millions of people are exposed worldwide. Exposure to arsenic is epidemiologically linked to increased cardiovascular disease, such as atherosclerosis. However, the effects of moderate concentrations of arsenic on atherosclerosis formation are unknown. Therefore, we

utilized an *in vivo* ApoE$^{-/-}$ mouse model to assess the effects of chronic moderate exposure to arsenic on plaque formation and composition in order to facilitate mechanistic investigations. Mice exposed to 200 ppb arsenic developed atherosclerotic lesions, a lower exposure than previously reported. In addition, arsenic modified the plaque content, rendering them potentially less stable and consequently, potentially more dangerous. Moreover, we observed that the lower exposure concentration was more

atherogenic than the higher concentration. Arsenic-enhanced lesions correlated with several proatherogenic molecular changes, including decreased liver X receptor (LXR) target gene expression and increased proinflammatory cytokines. Significantly, our observations suggest that chronic moderate arsenic exposure may be a greater cardiovascular health risk than previously anticipated.

Involvement of N-6 Adenine-Specific DNA Methyltransferase 1 (*N6AMT1*) in Arsenic Biomethylation and Its Role in Arsenic-Induced Toxicity

Environmental Health Perspectives 2011, 119(6): 771-777 ***Ren X***, *Aleshin M, Jo WJ, Dills R, Kalman DA, Vulpe CD, Smith MT and Zhang L.*

In humans, inorganic arsenic (iAs) is metabolized to methylated arsenical species in a multistep process mainly mediated by arsenic (+3 oxidation state) methyltransferase (AS3MT). Among these metabolites is monomethylarsonous acid (MMA^{III}), the most toxic arsenic species. A recent study in *As3mt*-knockout mice suggests that unidentified methyltransferases could be involved in alternative iAs methylation pathways. We found that yeast deletion mutants lacking *MTQ2* were highly resistant to iAs exposure. The human ortholog of the yeast *MTQ2* is N-6 adenine-specific DNA methyltransferase 1 (*N6AMT1*), encoding a putative methyltransferase. We investigated the potential role of *N6AMT1* in arsenic-induced toxicity. We measured and compared the cytotoxicity induced by arsenicals and their metabolic profiles using inductively coupled plasma–mass spectrometry in UROtsa human urothelial cells with enhanced *N6AMT1* expression and UROtsa vector control cells treated with different concentrations of either iAs^{III} or MMA^{III}. *N6AMT1* was able to convert MMA^{III} to the less toxic dimethylarsonic acid (DMA) when overexpressed in UROtsa cells. The enhanced expression of *N6AMT1* in UROtsa cells decreased cytotoxicity of both iAs^{III} and MMA^{III}. Moreover, *N6AMT1* is expressed in many human tissues at variable levels, although at levels lower than those of *AS3MT*, supporting a potential participation in arsenic metabolism *in vivo*. Considering that MMA^{III} is the most toxic arsenical, our data suggest that *N6AMT1* has a significant role in determining susceptibility to arsenic toxicity and carcinogenicity because of its specific activity in methylating MMA^{III} to DMA and other unknown mechanisms.

Postdoctoral Assembly Representatives

Specialty Sections

Biological Modeling	**Open**	
Biotechnology	Fanny L. Casado-Pena	McMaster University
Carcinogenesis	Gayathri Chadalapaka	Texas A&M
Cardiovascular Toxicology	Alex Carll	University of North Carolina Chapel Hill
Clinical and Translational Toxicology	**Open**	
Comparative and Veterinary	Sachin Bhusari	National Toxicology Program
Dermal Toxicology	**Open**	
Drug Discovery Toxicology	**Open**	
Ethical, Legal, and Social Issues	**Open**	
Food Safety	Natalie Johnson	Johns Hopkins Bloomberg School of Public Health
Immunotoxicology	Teri Girtsman	University of Montana
In Vitro and Alternatives	Katie Beth Paul	University of North Carolina Chapel Hill
Inhalation and Respiratory	Jaime Cyphert	U.S. EPA
Mechanisms	John Clarke	University of Arizona
Medical Device	**Open**	
Metals	Rachel Person	NIEHS
Mixtures	Xianglu Han	DOW Chemical Company
Molecular Biology	Igor Koturbash	U.S. FDA-NCTR
Nanotoxicology	Tina Marie Sager	University of Montana
Neurotoxicology	Paul Eubig	University of Illinois Urbana-Champaign
Occupational and Public Health	**Open**	
Ocular Toxicology	Open	
Regulatory and Safety Evaluation	Michael Christopher Boyle	NIEHS Cell and Molecular Pathology Branch
Reproductive and Developmental Toxicology	Wei Wang	University of Illinois Urbana-Champaign
Risk Assessment	**Open**	
Stem Cells	Amy Skinner	Oregon Health & Sciences University
Toxicologic & Exploratory	Christopher Gibson	Rutgers University

Postdoctoral Assembly Representatives (continued)

Regional Chapters

Allegheny-Erie	Phoebe Stapleton	West Virginia University
Central States	Julia Yue Cui	University of Kansas Medical Center
Lone Star	Gayathri Chadalapaka	Texas A&M
Lake Ontario	**Open**	
Michigan	**Open**	
Mid Atlantic	Jason L. Blum	New York University
Midwest	Mary Jo Laws	University of Illinois
Mountain West	Samantha Whitman	University of Arizona
National Capital	Linnzi Wright	USAMRICD
North Carolina	Jonathan Henry Shannahan	East Carolina University
Northeast	Emily Notch	Dartmouth Medical School
Northern California	Kathryn Page	University of California Berkeley
Northland	Kellie Ann Fay	U.S. EPA
Ohio Valley	**Yi Tan**	University of Louisville
Pacific Northwest	Sean Michael Bugel	Oregon State University
South Central	**Open**	
Southeastern	Matthew Merrell	Emory University
Southern California	David Castro	Burnham Institute for Medical Research

Special Interest Groups

American Association of Chinese in Toxicology	Xi Yang	U.S. FDA-NCTR
Association of Scientists of Indian Origin	Sheetal Thakur	NIEHS-NTP
Hispanic Organization for Toxicologists	Azita Cuevas	New York University School of Medicine
Korean Toxicologists Association in America	**Open**	
Toxicologists of African Origin	Clarisse Muenyi	University of Louisville
Women in Toxicology (WIT)	Kristi Robin Kutanzi	U.S. FDA-NCTR

Society of Toxicology
1821 Michael Faraday Drive,
Suite 300, Reston, VA 20190
703-438-3115
sothq@toxicology.org
www.toxicology.org