

Environmental & Molecular Toxicology

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Department Of Environmental & Molecular Toxicology Newsletter

Issue 15

December, 2008

EMT in the News



Dr. Dave Williams

[Mom's pregnancy diet may set table for child's cancer risk](#) (The Oregonian)

Everyone's heard the adage that you are what you eat. But what if you also are, in part, what your mother ate while she was carrying you? Or even before she got pregnant? The idea that your mom's diet can help program you for disease, or protect you against it, drives a group of health researchers in Oregon and elsewhere. "There are definitely a number of chemical carcinogens that are capable of crossing the placenta during pregnancy and then causing cancer later on in the offspring," said David Williams, one of several scientists studying cancer prevention at Oregon State University's Linus Pauling Institute.

Dr. Dave Williams

[Pollutants in the womb can trigger adult cancers](#) (Science News)

Mouse moms exposed late in pregnancy to heavy doses of a carcinogen gave birth to pups that inevitably developed lymphomas and lung cancers, a new study shows. The malignancies generally didn't show up until the offspring reached the human equivalent of adulthood. The good news: Breast milk from carcinogen-treated moms posed little added risk. This demonstration "that very short early-life exposures can have major consequences is very important," observes toxicologist Linda S. Birnbaum of the Environmental Protection Agency in Research Triangle Park, N.C. In 2006, David E. Williams and his colleagues at Oregon State University in Corvallis developed an animal model of cancer formation triggered by fetal exposure to pollutants. The team laced the diets of mice with the carcinogen dibenzo[a,l]pyrene — also known as DBP — during just the final two or three days of their three-week pregnancies. This chemical is one of the most toxic of many thousands of polycyclic aromatic hydrocarbons, or PAHs, that form during the incomplete burning of fuels, cigarettes and other carbon-rich materials.

Dr. Siva Kolluri

[OSU Helps Turn Cancer Cell Bodyguard Into Killer](#) (OSU Press Release)

CORVALLIS, Ore. – If you're a cancer cell, you want a protein called Bcl-2 on your side because it decides if you live or die. It's usually a trusted bodyguard, protecting cancer cells from programmed death and allowing them to grow and form tumors. But sometimes it turns into their assassin.

Scientists knew it happened, but they didn't know how to actually cause such a betrayal. Now they do. And it may lead to the development of new cancer-fighting drugs.

Researchers at Oregon State University and the Burnham Institute for Medical Research in La Jolla, Calif., have developed a peptide that converts the Bcl-2 protein from a cancer cell's friend to a foe.



Recent Graduates from EMT Labs



Kerri Stanley
Ph.D. in Toxicology

Simonich Lab

Thank You and Goodbye



Kari Christiansen, NPIC

Kari be working as a Public Health Educator for the Department of Human Services, in the Public Health Department, Toxicology, Assessment and Tracking Services Division. My office will be in the state building on 800 NE Oregon St in Portland.

New Faces in the Department



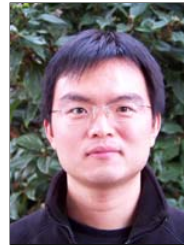
Humberto Nation

Faculty Research Assistant
NPIC



Tamara Tal

Research Associate Post-doc
Tanguay Lab



Wentao Wang

Visiting Scholar
Simonich Lab

EMT Holiday Potluck

Welcome to the annual EMT Holiday Potluck "Over the TOP Festive" Sweater Competition!

Jill Franzosa, Dan Koch, Norman Forsberg (1st place), Shannon Wenig (2nd place), Lyndsey Shorey



Twass the Night Before Christmas in the Tanguay Lab

Away to the zebrafish room she flew like a flash,
threw open the door, and put booties on in a dash.
The moon on the breast of the new-fallen snow,
Gave the luster of night to objects below. When, what to her
wondering eyes should appear?
But a group of 16 lab members in gear.
With a thin old driver, so lively and alert,
She knew in a moment it must be Robert
More rapid than grant submissions his group they came,
And he whistled, and shouted, and called them by name;



"Now, Stacey! Now, Tamara T! Now, Mike, Now Sumitra, Now Kate S., Now Jill and Lisa! On, Joe, On Galen, On Kate C.! On Partiban, On Eric, On Greg, On Cari, On Tamara F. and on Sheila. To the bottom of the stairs! To the top of the racks! Now work away! work away! work away pack!"
 And then, in a twinkling, Jane heard on the roof,
 The clicking and clacking of each little hoof. As Jane drew in her hand, and was turning around,
 Through Tank Room C Robert came with a bound. He was dressed all in Dockers, from his head to his shoe,
 And his clothes were all tarnished with water and fish pooh;
 A bundle of manuscripts he had flung on his back,
 And he looked like a bum just opening his pack.
 His eyes -- how they sparkled His dimples, how scary!
 His hands were like tools, his cheeks like a berry
 He spoke not a word but went straight to his work,
 And filled all the tanks, then turned with a jerk.
 And laying his arm aside in a pose,
 And giving a nod, up the ladder he rose.
 He sprang to his sleigh, to his team gave a whistle
 And away they all flew like the down of a thistle.
 But she heard him exclaim, as he drove out of sight,
 "Merry Christmas to all, and to all a good night!"

'Twas the night before Christmas, and all through the lab,
 Not a creature was stirring, not even a crab.
 The pipettes were hung by the tips with care,
 In hopes that another R01 would soon would be there.
 The embryos were nestled all snug and without pain,
 While visions of miRNAs danced in their brain
 And Jane in her 'kerchief, and Sumitra in her cap,
 Had just settled down for a long winter's nap
 When out in the SARL there arose such a clatter,
 Jane sprang from the desk to see what was the matter.



Thank you to all of you who shared in the wonderful food and conversation! Have a happy and safe Holiday Season and Best Wishes for the New Year!

EMT Fall Picnic





Happy Halloween



Norman Forsberg
1st year EMT Grad Student
Anderson Lab Fall Term

Awards

College of Ag Sciences Faculty and Staff Awards





ARF Distinguished Faculty Award: David Williams, Environmental and Molecular Toxicology Department (**Left**)

James and Mildred Oldfield/E.R. Jackman Team Award:

Organic Potato Project:

Team members: **Mario Ambrosino**, Nicholas Andrews, **Gwendolyn Ellen**, Don Horneck, **Paul Jepson (not pictured)**, John McQueen, Alvin Mosley, Lane Selman, Alexandra Stone, Dan Sullivan, Isabel Vales, Soloman Yilma (**Above**)

Lab News

Anderson Lab

Sower, G. and Anderson, KA "[Spatial and temporal variation of bioaccessible PAHs in an urban river undergoing Superfund remediation](#)" *accepted for publication, 2008*.

Anderson, K.A.*, Sethajintanin, D, Sower, G. and Quarles, L. "[Field trial and modeling of uptake rates of in situ lipid free polyethylene membrane passive sampler](#)" *Environ. Sci Tech.* 2008, 42, 4486-4493.

Kolluri Lab

Grant Award:

Siva Kolluri has been awarded a three-year, \$300,000 dollar research grant by the US Army Medical Research program for his project entitled: 'Small Molecules That Convert Bcl-2 from Protector of a Killer for Breast Cancer Treatment'.

NPIC News

NPIC Website offered in Spanish

The National Pesticide Information Center (NPIC) recently unveiled a Spanish language version of its website, offering Spanish-speaking visitors easy access to pesticide information in their preferred language. In its first month of availability, NPIC received over five thousand hits to the new Spanish website and for the first time, Mexico became one of the top ten countries to access the NPIC web-based content. The website can be viewed at: <http://npic.orst.edu/es> or by clicking on the "En Espanol" button on the main home page.

Veterinarian Adverse Effects Reporting

NPIC recently launched a new portal for veterinarians to report animal incidents involving pesticides. The site is housed at NPIC, is for use by veterinarians only, and can be accessed by American Veterinary Medical Association (AVMA) members via a link on the AVMA's site: http://www.avma.org/animal_health/reporting_adverse_events.asp#vets

The reporting site was developed by NPIC with input from the EPA Office of Pesticide Programs, the AVMA Clinical Practitioners Advisory Committee and the AVMA Council on Biologic and Therapeutic Agents. The site is designed to capture the optimal amount of relevant information while providing a form that is quick for busy practitioners to fill out.

Recent Publications:

Stone D, Hope BK, Harding AK and Slaughter-Mason S (2008). Exposure Assessment and Risk of Gastrointestinal Illness Among Surfers. *Journal of Toxicology and Environmental Health Part A* 71, 1603-1615.

Donohue J, Orme-Zavaleta J, Burch M, Dietrich D, Hawkins B, Llyod T, Munns W, Steevens J, Steffensen D, **Stone D**, Tango P. (2008). Chapter 35: Risk Assessment Workgroup Report, In: *Cyanobacterial Harmful Algal Blooms: State of the Science and Research needs*, Hudnell KL, Ed., pp. 759-829, Advances in Experimental Medicine and Biology Vol. 619, Springer, New York.

Tanguay Lab



Stacey Harper hosted a NanoBioInformatics Workshop at the National Institutes of Standards and Technology on October 10th in Gaithersburg, Maryland. The one-day workshop established an International Collaboration for NanoEHS Informatics that seeks to develop a global resource of knowledge on nanomaterial characteristics and their biological interactions that can be systematically queried from multiple sites within an interoperable, federated system of databases.

Grants:

Robert Tanguay and Stacey Harper, along with collaborator Shiwoo Lee (Engineering) received an RO1 from the National Institutes of Health (PAR-07-270 - Nanoscience and Nanotechnology in Biology and Medicine) for their proposal entitled "Defining nanomaterial-biological interactions to enhance biocompatibility and biomedical applications".

Robert Tanguay and Stacey Harper received a grant from the AFRL/ONAMI/Safer Nanomaterials and Nanomanufacturing Initiative for their proposal entitled "Probe the Biological Impacts of Functionalized Nanoparticles".

Stacey Harper and Shiwoo Lee (PI, Engineering) were awarded an AFRL/ONAMI/Safer Nanomaterials and Nanomanufacturing Initiative grant entitled "Computational and Analytic Tools to Support the Development of Environmentally-Benign Nanomaterials".

Manuscripts:

Harper, S.L., C.Y. Usenko, J. Hutchison, B.L.S. Maddux and R.L. Tanguay. 2008. *In vivo* biodistribution and toxicity depends on nanomaterial composition, size, surface functionalization and route of exposure. *Journal of Experimental Nanoscience* 3: 195-206.

Vercruyse, K.P., S.L. Harper, D.M. Ivory, M.M. Whalen, K.S. Sailli and R.L. Tanguay. 2008. Potential anti-inflammatory properties of biologically-synthesized nanoparticles of gold or silver. *Nanotech* 2008 2: 501-504.

Welsh, L., Tanguay, R.L. and Svoboda, K.R. Uncoupling nicotine mediated motoneuron axonal pathfinding errors and muscle degeneration in zebrafish, (In Press, *Toxicol Appl Pharmacol*).

Mathew, L.K., Simonich, M.T., and Tanguay, R.L. AHR-dependent misregulation of Wnt signaling disrupts tissue regeneration. (In Press *Biochem Pharmacol*)

Book Chapters:

Usenko, C.Y., S.L. Harper and R.L. Tanguay. 200X. Fullerene C60 Toxicology. *In Handbook of Nanophysics. In press.*

Truong, L., S.L. Harper and R.L. Tanguay. 2008. Evaluation of embryotoxicity using the zebrafish model. *In Methods in Molecular Medicine*. Editor Jean-Charles Gautier. *In press* Humana Press, Totowa, NJ. Pp. pending.

Presentations:

Annual EPA STAR Grantee workshop "A Rapid In Vivo System for Determining the Toxicity of Nanomaterials" Tampa Florida November 20, 2008.

29th Annual Meeting of the Society of Environmental Toxicology and Chemistry "Using zebrafish as a platform to integrate and advance human and ecological research" Tampa, FL November 18th, 2008.

Developmental Neurotoxicity Testing 2 "Fishing for a rapid in vivo DNT testing platform using zebrafish" Reston Virginia, November 13, 2008.

University of Delaware Symposium on Nanotechnology research, impact and policy "Fishing for safer nanomaterials using rapid in vivo testing strategies, University Delaware November 10-11, 2008.

Harper, S.L., J.E. Hutchison, B.L.S. Maddux, and R.L. Tanguay. 2008. Integrative strategies to understand nanomaterial-biological interactions. International Environmental Nanotechnology Conference: Applications and Implications hosted by the EPA in Chicago, IL on October 7th.

Harper, S.L., K.S. Sailli, L. Truong, S. Lee and R.L. Tanguays. 2008. Integrative research strategies to evaluate environmental health and safety of nanomaterials. 29th Annual Meeting of the Society of Environmental Toxicology and Chemistry in Tampa, FL on November 18th.

Harper, S.L. 2008. The emerging role of academic institutions in standards development. Nanotechnology Workshop: Enabling Standards for Nanomaterial Characterization, hosted by NIST in Gaithersburg, MD on October 8-9th.

Harper, S.L. 2008. A systems biology approach to nanotoxicology. Annual Environmental Health Sciences Core Centers Meeting in Philadelphia, PA on October 20th.

Williams Lab

New Publications

Castro, DJ, C Lohr, KA Fischer, CB Pereira and DE Williams. **Lymphoma and lung cancer in offspring born to pregnant mice dosed with dibenzo[a,h]pyrene: The importance of *in utero* versus lactational exposure.** [Toxicology and Applied Pharmacology \(2008\) Volume 233, Issue 3, Pages 454-58](#)

Also, in October this article was highlighted in Environmental Health News:

<http://www.environmentalhealthnews.org/ehs/news/science/exposure-to-carcinogens-in-the-womb-or-through-breast-milk-can-have-long-term-deadly-consequences>

Henderson MC, Siddens LK, Morr e JT, Krueger SK, Williams DE. [Metabolism of the anti-tuberculosis drug ethionamide by mouse and human FMO1, FMO2 and FMO3 and mouse and human lung microsomes.](#) *Toxicol Appl Pharmacol.* 2008 Oct 1. [Epub ahead of print]

Past Issues

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If there is any information that YOU would like to include in the next newsletter, which is scheduled for the end of spring term please send it via email to Kerry.Thomas@oregonstate.edu



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