

Lindsey Van Tiem Garner

Nicholas School of the Environment
Duke University, Durham, NC 27708
919-423-9315
lav3@duke.edu

EDUCATION

Doctor of Philosophy, 2011

Nicholas School of the Environment

Certificate in Integrated Toxicology and Environmental Health

Duke University, Durham, North Carolina

Dissertation: Molecular Mechanisms of Polycyclic Aromatic Hydrocarbon-induced Teratogenesis in Zebrafish (*Danio rerio*)

Advisor: Richard T. Di Giulio

Committee: David Hinton, Margaret Kirby, Joel Meyer, Heather Stapleton

Bachelor of Science, 2005

Department of Biology

Minor: Chemistry

Aquinas College, Grand Rapids, MI

Magna Cum Laude

RESEARCH INTERESTS

Aquatic Toxicology, Environmental Toxicology, Developmental Toxicology, Oxidative Stress

RESEARCH EXPERIENCE

Associate in Research, Duke University, September 2011 - present

- Studying the developmental toxicity of polycyclic aromatic hydrocarbon in zebrafish in the laboratory of Dr. Richard Di Giulio.

Superfund Research Program Research Assistant, Duke University, 2007 – 2011

- Examined the molecular mechanisms of polycyclic aromatic hydrocarbon toxicity in zebrafish.

National Institute of Environmental Health Sciences Training Fellow, Duke University, 2005-2007

- Examined the toxicity of androgens in dopamine cells in the laboratory of Dr. Cynthia Kuhn.
- Examined the toxicity of alpha-naphthylisothiocyanate (ANIT) in the medaka hepatobiliary system in the laboratory of Dr. David Hinton.

Undergraduate Independent Research with Dr. James Doyle, Aquinas College, 2004

- Developed primers and created a set up and protocol for PCR at Aquinas College to survey campus soil samples for the presence of archaeobacteria.

Microbiology Research & Development Intern, Amway, 2004

- Examined the anti-bacterial efficacy of bathroom water filtration systems to be sold in Japan.

TEACHING AND MENTORING EXPERIENCE

Guest Speaker, Junior Leadership Durham Day, Duke University, 2010
Teaching Assistant, Food and Energy (ENV 171), Duke University, 2009
Howard Hughes Medical Institute Precollege student mentor, Duke University, 2007, 2008, 2009
Teaching Assistant, Environmental Toxicology (ENV 212), Duke University, 2007, 2008
Teaching Assistant, Mechanisms of Environmental Toxicology (ENV 319), Duke University, 2008
Teaching & Laboratory Assistant, Microbiology (BY 231), Aquinas College, 2003, 2004

HONORS & AWARDS

James B. Duke Fellow, Duke University, 2005-2011
Graduate Student Travel Award, Nicholas School of the Environment, November, 2010
12th IUPAC International Congress of Pesticide Chemistry Travel Award, July, 2010
Graduate Student Travel Award, Duke University Graduate School, July, 2010
Graduate Student Travel Award, Nicholas School of the Environment, November, 2009
Graduate Student Travel Award, Duke University Graduate School, November, 2009
Graduate Student Travel Award, Nicholas School of the Environment, May, 2009
Graduate Student Travel Award, Duke University Graduate School, May, 2009
Travel Award, 29th Annual Meeting of the Society of Environmental Toxicology and Chemistry, 2008
NIH Training Fellow, Duke University, 2005-2007
Jerome C. Byrne Full Tuition & Room Scholarship, Aquinas College, 2001-2005
Outstanding Senior Biology Student, Aquinas College, 2005
Outstanding Freshman Biology Student, Aquinas College, 2002

PAST AND PRESENT PROFESSIONAL/HONORS SOCIETY AFFILIATIONS

Society of Environmental Toxicology and Chemistry
Society of Toxicology
Tri-Beta National Biological Honors Society
Alpha Epsilon Delta Premedical Honor Society
Aquinas College Insignis Honors Program

PUBLICATIONS

Garner, L.V.T. and R.T. Di Giulio. "Glutathione transferase pi class 2 (GSTp2) protects against the cardiac deformities caused by exposure to PAHs but not PCB-126 in zebrafish embryos." Accepted. *Comparative Biochemistry and Physiology-Part C*.

Van Tiem, L.A. and R.T. Di Giulio. "AHR2 knockdown prevents PAH-mediated cardiac toxicity and XRE- and ARE-associated gene induction in zebrafish (*Danio rerio*)." *Toxicology and Applied Pharmacology*. 254(3): 280-287.

Noyes P.D., M.K. McElwee, H.D. Miller, B.W. Clark, **L.A. Van Tiem**, K.C. Walcott, K.N. Erwin, E.D. Levin. 2009. "The toxicology of climate change: Environmental contaminants in a warming world." *Environment International*. 35(6): 971-986.

Timme-Laragy, A.R., **L.A. Van Tiem**, E.A. Linney, R.T. Di Giulio. 2009. "Antioxidant Responses and NRF2 in Synergistic Developmental Toxicity of PAHs in Zebrafish." *Toxicological Sciences*. 109(2): 217-227.

In preparation

- Garner L.**, D. Brown, R. Di Giulio. The role of zebrafish AHR1 isoforms in PAH- and PCB-126-induced toxicity.
- Garner L.**, J. Meyer, K. Erwin, H. Tsai, M. Kirby, R. Di Giulio. Heart-specific microarray identification of AHR-dependent and AHR-independent genes involved in the synergistic developmental toxicity of PAHs.
- Fleming C., **L. Garner**, E. Cooper, H. Stapleton, R. Di Giulio. Teratogenic effects of photomodified carbazole on zebrafish (*Danio rerio*) embryos are mediated by the aryl hydrocarbon receptor (AhR).
- Brown D., B. Clark, **L. Garner**, K. Johnson, R. Di Giulio. The effect of CYP1A inhibition on embryotoxicity of weak aryl hydrocarbon receptor agonists in *Danio rerio*.

PRESENTATIONS

- Garner L.**, J Meyer, M Kirby, K Erwin, Huai-Jen Tsai, R Di Giulio. Heart-specific microarray identification of AHR2-dependent and AHR2-independent genes involved in the synergistic developmental toxicity of PAHs." Poster. 32nd Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2011. Boston, MA.
- Brown D, B Clark, **LVT Garner**, K Johnson, R Di Giulio. "The effect of CYP1A inhibition on embryotoxicity of weak aryl hydrocarbon receptor agonists in *Fundulus heteroclitus* and *Danio rerio*." Oral Presentation. 32nd Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2011. Boston, MA.
- Brown D, B Clark, **LVT Garner**, K Johnson, R Di Giulio. "The effect of CYP1A inhibition on embryotoxicity of weak aryl hydrocarbon receptor agonists in *Fundulus heteroclitus* and *Danio rerio*." Poster. Superfund Research Program Annual Meeting, October 2011. Lexington, KY.
- Van Tiem L.**, J Meyer, M Kirby, K Erwin, Huai-Jen Tsai, R Di Giulio*. "Heart-specific microarray identification of AHR2-dependent and AHR2-independent genes involved in the synergistic developmental toxicity of PAHs." Oral Presentation, *presenting author. 16th International Symposium on Pollutant Responses in Marine Organisms, May 2011. Long Beach, CA.
- Brown D, B Clark, **L Van Tiem**, K Johnson, R Di Giulio. The effect of CYP1A inhibition on embryotoxicity of weak aryl hydrocarbon receptor agonists in *Fundulus heteroclitus* and *Danio rerio*. Poster. 16th International Symposium on Pollutant Responses in Marine Organisms, May 2011. Long Beach, CA.
- Van Tiem L.**, D Brown, R Di Giulio. "The role of AHR1 isoforms in polycyclic aromatic hydrocarbon toxicity." Poster. 31st Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2010. Portland, OR.
- Van Tiem L.**, J Meyer, P Hurban, Huai-Jen Tsai, M Kirby, R Di Giulio. "Heart-specific microarray identification of AHR-dependent and independent genes involved in the synergistic developmental toxicity of PAHs." Poster. 31st Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2010. Portland, OR.
- Van Tiem L.**, P Noyes, B Clark, H Miller, M McElwee, K Erwin, K Walcott, E Levin. "The toxicology of climate change: Pesticide toxicity in a warming world." Invited Oral Presentation. 12th IUPAC International Congress of Pesticide Chemistry, July 2010. Melbourne, Australia.
- Van Tiem L.**, R Di Giulio. "Synergistic induction of cardiac toxicity and redox-responsive genes in zebrafish embryos after co-exposure to benzo[k]fluoranthene and fluoranthene." Oral Presentation. 30th Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2009. New Orleans, LA.
- Van Tiem L.**, R Di Giulio. "Synergistic developmental toxicity and expression of biotransformation and redox-responsive genes in zebrafish after PAH exposure." Poster. 15th International Symposium on Pollutant Responses in Marine Organisms, May 2009. Bordeaux, France.
- Van Tiem L.**, C Matson, J Meyer, E Lobenhofer, R Di Giulio. "Microarray identification of genes involved in the synergistic developmental toxicity of PAHs in zebrafish." Poster. 29th Annual Meeting of the Society of Environmental Toxicology and Chemistry, November 2008. Tampa, FL.

Van Tiem L, A Timme-Laragy, R Di Giulio. "NRF2 plays a protective role in response to pro-oxidant exposure of zebrafish (*Danio rerio*)." Poster. 47th Annual Meeting of the Society of Toxicology, March 2008. Seattle, WA.

Timme-Laragy A, **L Van Tiem**, R Di Giulio. "Does oxidative stress occur in the synergistic developmental toxicity of polycyclic aromatic hydrocarbons?" Poster. 47th Annual Meeting of the Society of Toxicology, March 2008. Seattle, WA.

Van Tiem L, A Timme-Laragy, R Di Giulio. "NRF2 plays a protective role in response to pro-oxidant exposure of zebrafish (*Danio rerio*)." Poster. Fourth Aquatic Animal Models Meeting, January 2008. Durham, NC.

Van Tiem L, A Timme-Laragy, R Di Giulio. "NRF2 plays a protective role in response to pro-oxidant exposure of zebrafish (*Danio rerio*)." Poster. 20th Annual Meeting of the Superfund Basic Research Program, December 2007. Durham, NC.

REFERENCES

Dr. Richard Di Giulio
Professor
Nicholas School of the Environment
Integrated Toxicology and Environmental Health Program
Duke University
Durham, North Carolina 27708-0328
Phone: 1-919-613-8024
Fax: 1-919-668-1799
E-mail: richd@duke.edu

Dr. Joel Meyer
Assistant Professor
Nicholas School of the Environment
Integrated Toxicology and Environmental Health Program
Duke University
Durham, North Carolina 27708-0328
Phone: 1-919-613-8109
Fax: 1-919-668-1799
E-mail: joel.meyer@duke.edu

Dr. James Doyle
Formerly: Professor
Biology Department
Aquinas College
Grand Rapids, Michigan
Currently: Professor
Science Division
Paradise Valley Community College
Phoenix, Arizona 85032
Phone: 1-602-787-6591
Fax: 1-602-787-6675
E-mail: jim.doyle@pvmail.maricopa.edu