

ALICIA R. TIMME-LARAGY, PH.D.

*Assistant Professor
of Environmental Health Science*

Research Interests: Environmental &
developmental toxicology, oxidative stress,
antioxidant defenses

University of Massachusetts Amherst

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EDUCATION

PH.D., Duke University, Durham, NC (2002- 07)

Integrated Toxicology and Environmental Health Program
Nicholas School of the Environment

Dissertation: Mechanisms of synergistic developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*)

Advisor: Richard Di Giulio

B.A., cum laude, Franklin and Marshall College, Lancaster, PA, (1996- 2000)

Majors: Biology and Anthropology *Minor:* Environmental Studies

Thesis: Maple syrup urine disease in Old Order Mennonites of Lancaster County, PA

Study Abroad: King's College, University College London, London, England, 1999

PROFESSIONAL APPOINTMENTS

2014-present – **FACULTY MEMBER**, Molecular and Cell Biology Graduate Program, University of Massachusetts, Amherst, MA

2014-present – **ADJUNCT FACULTY MEMBER**, Biology Department, University of Massachusetts, Amherst, MA

2013- present – **ASSISTANT PROFESSOR** of Environmental Health Science, Division of Environmental Health Sciences, Department of Public Health, School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA

2013- present – **GUEST INVESTIGATOR**, Woods Hole Oceanographic Institution, Biology Department, Woods Hole, MA. Host: Mark Hahn

2007- 13. **POSTDOCTORAL FELLOW/SCHOLAR**, Woods Hole Oceanographic Institution, Biology Department, Woods Hole, MA. Advisor: Mark Hahn

Research topic: Mechanisms of toxicity underlying differential sensitivity to oxidative stress during embryonic development in zebrafish (nrf2, glutathione, mitochondria)

Summary: Independently design, perform, supervise, coordinate, and author original investigative studies of mechanisms of toxicity in piscine models of vertebrate embryonic development. Received training in microarray analysis, glutathione biology, molecular biology, bioinformatics, mitochondria biology, and pathway analysis.

2002-07: **PHD. CANDIDATE/RESEARCH ASSISTANT/TEACHING ASSISTANT**, Duke University, Durham, NC

Advisor: Richard Di Giulio

Research topics: Mechanisms of synergistic developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (aryl hydrocarbon receptor pathway, cyp1 enzymes, nrf2, epigenetics, behavioral toxicology, oxidative stress)

Summary: Independently design, perform, and author original investigative studies of mechanisms of toxicity in zebrafish. Received training in embryology, toxicology, physiology, molecular biology, redox biology, imaging, and statistics.

2000-02 **RESEARCH TECHNICIAN**, University of Rochester, Dept. of Biomed. Genetics, Rochester, NY

Mentor and supervisor: Mark Noble

Summary: Designed and conducted experiments examining the role of methyl mercury and oxidative stress in glial precursor cell fate in the developing rat brain.

FUNDING

Current

2015-16 UMASS Public Service Endowment Grant (PI), \$15k
“A new source of PCBs to MA waterways- does this pose a health risk?”

Completed

2015 Trevi Systems Inc., Zebrafish embryo toxicity testing of a soluble polymer.
2013-14 The Andrew W. Mellon Foundation Mutual Mentoring Team Grant (PI), University of Massachusetts Amherst, \$10k
2009-12 National Institutes of Health NRSA F32 Postdoctoral Fellowship #F32ES017585, \$154k
2007-09 Woods Hole Oceanographic Institution Postdoctoral Scholar Award, \$86k
2007 Duke University RJR-Leon Golberg Memorial Postdoctoral Training Program in Toxicology
2005-07 US Environmental Protection Agency Science to Achieve Results (STAR) Fellowship #F5D40841. Highly competitive national award for graduate research, \$103k
2000 Franklin & Marshall College Nissley Student Scholar Research Grant for independent study, competitive internal grant, \$500
1996-2000 Franklin & Marshall Presidential merit scholarship, \$20k

AWARDS & HONORS

2015 – National Institutes of Health Early Career Reviewer Program, Systemic Injury of Environmental Exposures Grant Review Panel, June 2015.
2014 – National Institute of Aging, Butler-Williams Scholars Program. Nationally competitive fellowship to spend a week at the NIH learning about aging research.
2012 – 1st Place, Society of Toxicology Reproductive and Developmental Toxicology Specialty Section Postdoctoral research competition.
2011 – Gordon Research Conference on Cellular and Molecular Mechanisms of Toxicity, travel award
2011 – Postdoctoral Scholar Research Integrity Ambassador Award, National Postdoc Association. (Institution-nominated, national competitive award to attend the U.S. Office of Research

- Integrity's conference on Responsible Conduct of Research (RCR) to receive training in RCR education).
- 2011 – 1st Place, Society of Toxicology Molecular Biology Specialty Section Postdoc Award
- 2007 – Pollutant Responses in Marine Organisms (PRIMO) Conference Travel Grant to Florianapolis, Brazil
- 2006 – Superfund Basic Research Program 9th Annual Karen Wetterhahn Memorial Award
- 2006 – 1st Place, Best Student Poster Presentation, EPA STAR Conference, Washington DC
- 2006 – 1st Honorable Mention , Best Student Platform Presentation, Society of Environmental Toxicology and Chemistry (SETAC), Montreal, Quebec, Canada
- 2006 – Student Poster Award. North Carolina Society of Toxicology, Durham, NC
- 2005 – 2nd Place, Best Student Poster Presentation, SETAC, Baltimore, MD
- 2005 – PRIMO Conference Travel Grant to Alessandria, Italy
- 2000 – Franklin & Marshall (F&M) Environmental Studies Award, faculty nominated for outstanding research.
- 1998 – F&M Hackman Scholar, faculty nominated research fellow

BIBLIOGRAPHY (UMASS Trainees mentored by AT-L are underlined; reverse chronological order)

Peer Reviewed Publications

Timme-Laragy AR, Sant KE, Rousseau ME, dilorio PJ. (2015). Deviant development of pancreatic beta cells from embryonic exposure to PCB-126 in zebrafish. *Comparative Biochemistry and Physiology, Part C- Toxicology*. 178: 25-32. doi:10.1016/j.cbpc.2015.08.012

Rousseau ME, Sant KE, Borden LR, Franks DG, Hahn ME, **Timme-Laragy AR**. (2015). Regulation of Ahr signaling by Nrf2 during development: Effects of Nrf2a deficiency on PCB126 embryotoxicity in zebrafish (*Danio rerio*). *Aquatic Toxicology*. 167:157-171. doi: 10.1016/j.aquatox.2015.08.002.

Hahn ME, **Timme-Laragy AR**, Karchner SI, Stegeman JJ. (2015). Nrf2 and Nrf2-related proteins in development and developmental toxicity: Insights from studies in zebrafish (*Danio rerio*). *Free Radical Biology and Medicine*. 88(Pt B):275-89. doi: 10.1016/j.freeradbiomed.2015.06.022.

Hahn ME, McArthur AG, Karchner SI, Franks DG, Jenny MJ, **Timme-Laragy AR**, Stegeman JJ, Woodin BR, Cipriano MJ, Linney E. (2014). The transcriptional response to oxidative stress during vertebrate development: effects of tert-butylhydroquinone and 2,3,7,8-tetrachlorodibenzo-p-dioxin. *PLoS One*. 2014 Nov 17;9(11):e113158.

Timme-Laragy AR, Goldstone JV, Imhoff BR, Stegeman JJ, Hahn ME, Hansen JM. (2013). Glutathione redox dynamics and expression of glutathione-related genes in the developing embryo. *Free Radical Biology and Medicine* 65:89-101.

Williams LM, **Timme-Laragy AR**, Goldstone JV, McArthur AG, Stegeman JJ, Smolowitz R, Hahn, ME. (2013). Developmental expression of the Nfe2-related factor (Nrf) transcription factor family in the zebrafish, *Danio rerio*. *PLoS ONE* 8(10): e79574. doi:10.1371/journal.pone.0079574

Harbeitner RC, Hahn ME, **Timme-Laragy AR**. (2013). Differential sensitivity to pro-oxidant exposure in two populations of killifish *Fundulus heteroclitus*). *Ecotoxicology*. 22(2):387-401.

Zhao B; Bohonowych JES; **Timme-Laragy AR**; Jung D; Affatato AA; Rice RH; Di Giulio RT; Denison MS. (2013) Common Commercial and Consumer Products Contain Activators of the Aryl Hydrocarbon (Dioxin) Receptor. *PLoS One*. 8(2):e56860.

Timme-Laragy AR, Karchner SI, Franks DG, Jenny MJ, Harbeitner, RC, McArthur AG, Goldstone JV, Hahn ME. (2012) Nrf2b: novel zebrafish paralog of the oxidant-responsive transcription factor NF-E2-related factor 2 (NRF2). *Journal of Biological Chemistry*. 287(7):4609-27.

Jonsson ME Kubota A, **Timme-Laragy AR**, Woodin B, Stegeman JJ. (2012) Ahr2-dependence of PCB126 effects on the swimbladder in relation to expression of CYP1 and cox-2 genes in developing zebrafish. *Toxicology and Applied Pharmacology*. 265(2):166-74.

Timme-Laragy AR, Van Tiem LA, Di Giulio RT. (2009). Antioxidant responses and NRF2 in synergistic developmental toxicity of PAHs in zebrafish. *Toxicological Sciences*. 109(2):217-27.

Timme-Laragy AR, Noyes PN, Buhler D, Di Giulio RT. (2008). CYP1B1 knockdown does not alter developmental toxicity of polycyclic aromatic hydrocarbons. *Marine Environmental Research* 66(1): 85-87.

Bohonowych JE, Zhao B, **Timme-Laragy AR**, Jung DJ, Di Giulio RT, Denison MS. (2008). Newspaper and newspaper ink contain agonists for the Ah receptor. *Toxicological Sciences* 102(2): 278-290.

Matson CW, **Timme-Laragy AR**, Di Giulio RT. (2008). Fluoranthene, but not benzo[a]pyrene, interacts with hypoxia resulting in pericardial effusion and lordosis in developing zebrafish. *Chemosphere* 74(1): 149-54.

Timme-Laragy AR, Cockman CJ, Matson CW, Di Giulio RT. (2007). Synergistic induction of AHR regulated genes in developmental toxicity from co-exposure to two model PAHs in zebrafish. *Aquatic Toxicology* 85(4): 241-250.

Billiard SM* and **Timme-Laragy AR***, Wassenberg DM, Cockman C, Di Giulio RT. (2006). The role of the aryl hydrocarbon receptor pathway in mediating synergistic developmental toxicity of polycyclic aromatic hydrocarbons to zebrafish. *Toxicological Sciences* 92(2):526-526. *Share first authorship.

Timme-Laragy AR, Levin ED, Di Giulio RT. (2006). Developmental and behavioral effects of embryonic exposure to the polybrominated diphenylether mixture DE-71 in the killifish (*Fundulus heteroclitus*). *Chemosphere* 62:1097-1104.

Timme-Laragy AR, Meyer JN, Waterland RA, Di Giulio RT. (2005). Analysis of CpG methylation in the killifish CYP1A promoter. *Comparative Biochemistry and Physiology, Part C*, 141:406-411

Invited Chapter- Peer reviewed

Timme-Laragy AR, Karchner SI, Hahn ME. (2012). Gene knockdown by morpholino-modified oligonucleotides in the zebrafish model: applications for developmental toxicology. In Methods in Molecular Biology: Developmental Toxicology. Hansen and Harris Eds. Springer/ Humana Press.

Other Publications (non-Peer Reviewed)

Timme-Laragy AR. Sept. 18, 2012. "Doing what's right even when no one is watching" invited Society of Toxicology blog post <http://toxchange.toxicology.org/p/bl/et/blogid=9&blogaid=326>

CONFERENCE ABSTRACTS & PRESENTATIONS (UMASS Trainees mentored by AT-L are underlined)

Conference Presentations-Platform

Timme-Laragy AR. What's in your toolbox? Zebrafish: a model for oxidative stress during embryonic development. *Gordon Research Conference: Cellular and Molecular Mechanisms of Toxicity*, Aug., 2015. Andover, NH.

Timme-Laragy AR, Sant KE, Rousseau ME, di Iorio PJ. Pancreatic beta cell development and function are affected by exposure to PCB-126 and oxidative stress in the zebrafish embryo. *North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry*, June, 2015. Freeport, ME.

Timme-Laragy AR, Rousseau ME, di Iorio PJ. Pancreatic beta cell development and function are affected by exposure to PCB-126 and oxidative stress in the zebrafish embryo model. *7th Aquatic Animal Models of Human Disease Meeting*, Dec., 2014. Austin, TX.

Timme-Laragy AR, Hahn ME. Molecular Evolution of the Transcription Factor Nrf2 in Zebrafish and Killifish. *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov., 2014. Vancouver, Canada.

Timme-Laragy AR, Rousseau ME, di Iorio PJ. Does Nrf2 play a role in endocrine disruption? Altered insulin regulation in zebrafish embryos. *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov., 2014. Vancouver, Canada.

Hahn ME, Karchner SI, Aluru N, **Timme-Laragy AR**, Williams LM. Diversity as Opportunity: Using fish models to understand the role of conditional transcription factors in mechanisms of developmental toxicity A Collaborative *Workshop on Aquatic Models and 21st Century Toxicology: Leveraging Small Aquarium Fishes to Advance Understanding of Environmentally Influenced Human Disorders and Diseases*. May, 2014. Research Triangle Park, NC.

Timme-Laragy AR, Hahn ME. Molecular evolution of transcription factors: implications for biomedical and environmental toxicology. *Society of Toxicology Annual Meeting*, Mar., 2014. Phoenix, AZ.

Timme-Laragy AR. How do embryos respond to oxidative stress? Nrf2 and the regulation of the oxidative stress response during embryonic development. *Connecticut Valley Zebrafish Meeting*, Jan., 2013. Northampton, MA.

Harbeitner R, **Timme-Laragy AR**, Hahn ME. Altered Responsiveness to Oxidative Stress in Killifish from a Superfund Site. *Florida Chapter of the American Fisheries Society Annual Conference*. Jan., 2011. Tampa, FL.

Hahn ME, Karchner SI, Jenny MJ, Franks DG, Reitzel AM, **Timme-Laragy AR**, Aluru N, Nacci DE, Oleksiak MF. Gene-Environment Interactions and Dioxin Sensitivity in Natural and Laboratory Populations of Fish. *Society of Toxicology Annual Meeting*, Mar., 2011. Washington DC.

Timme-Laragy AR, Goldstone JV, Stegeman JJ, Hansen JM, Hahn ME. Glutathione redox dynamics in the developing zebrafish. *New England Membrane Enzyme Meeting (NUTMEG)*, Oct., 2009. Woods Hole, MA.

Timme-Laragy AR, Di Giulio RT. Oxidative stress and the AHR: mechanisms underlying synergistic developmental toxicity of PAHs in zebrafish. *Pollutant Responses in Marine Organisms (PRIMO) Conference*, May, 2007. Florianapolis, Brazil.

Timme-Laragy AR, Billiard S, Wassenberg D, Cockman C, Di Giulio RT. Mechanisms of synergistic developmental toxicity of polycyclic aromatic hydrocarbons in the zebrafish. *Superfund Basic Research Program (SBRP) Annual Meeting*, Dec., 2006. San Diego, CA.

Award- 9th Annual Karen Wetterhahn Memorial Award

Timme-Laragy AR, Billiard S, Wassenberg D, Cockman C, Di Giulio RT. A morpholino approach to understanding synergistic developmental toxicity of polycyclic aromatic hydrocarbons in the zebrafish (*Danio rerio*). *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov., 2006, Montreal, Canada.

Award - 1st Honorable Mention , Best Student Platform Presentation

Billiard, SM, **Timme-Laragy, AR**, Wassenberg, DM, Jung D, Di Giulio, RT. The role of the aryl hydrocarbon receptor pathway in developmental toxicity of polycyclic aromatic hydrocarbons to zebrafish. *Pollutant Responses in Marine Organisms (PRIMO) Conference*, June, 2005. Alessandria, Italy.

Timme-Laragy AR, Levin ED, Di Giulio RT. The developmental and behavioral effects of embryonic exposure to DE-71 in *Fundulus heteroclitus*. *The International Workshop on Brominated Flame Retardants*, June 2004. Toronto, Canada.

Meyer, JN, **Timme-Laragy, AR**, Waterland R, Di Giulio RT. Analysis of CpG methylation in the promoter region of the CYP1A gene in *Fundulus Heteroclitus* from creosote-contaminated and reference sites. *Pollutant Responses In Marine Organisms (PRIMO) Conference*, May. 2003. Safety Harbor, FL.

Conference Presentations- Posters

2015

Sant KE, **Timme-Laragy AR**. Does embryonic PFOS exposure alter pancreatic development? *Society of Redox Biology and Medicine*, Nov. 2015, Boston, MA.

Brown S, Melendez K, **Timme-Laragy AR**. Measuring tissue-specific glutathione utilization in the developing embryo. *Society of Redox Biology and Medicine*, Nov. 2015, Boston, MA.

Jacobs H, Sant K, Williams LM, Timme-Laragy AR. Mono-2-ethylhexyl Phthalate (MEHP) alters embryonic growth and pancreatic organogenesis in zebrafish. *Society of Redox Biology and Medicine*, Nov. 2015, Boston, MA.

Selected as one of two undergraduate poster presentations sponsored by the Strategic Alliances and Outreach committee of SFRBM.

Sant KE, Timme-Laragy AR. Does embryonic PFOS exposure alter pancreatic development? *Northeast Chapter Society of Toxicology Meeting*, Oct. 2015, Boston, MA

Poster award – 1st Place, Postdoctoral research competition.

Brown S, Melendez K, Timme-Laragy AR. Measuring tissue-specific glutathione utilization in the developing embryo. *Northeast Chapter Society of Toxicology Meeting*, Oct. 2015, Boston, MA

Poster award – 3rd Place, Graduate student research competition.

Sant KE, Timme-Laragy AR. Does embryonic PFOS exposure alter pancreatic development? *Gordon Research Conference: Cellular and Molecular Mechanisms of Toxicity*, Aug., 2015. Andover, NH.

Brown S, Melendez K, Timme-Laragy AR. Measuring tissue-specific glutathione utilization in the developing embryo. *North Atlantic Chapter of Society of Environmental Toxicology and Chemistry*, June, 2015. Freeport, ME.

Rousseau ME, Hahn ME, Timme-Laragy AR. The Role of Nrf2a in the Transcriptional Response to PCB-126 in Zebrafish Embryos. *University of Massachusetts Undergraduate Research Day*, April, 2015. Amherst, MA.

Brown S, Melendez K, Timme-Laragy AR. Measuring tissue-specific glutathione utilization in the developing embryo. *University of Massachusetts School of Public Health and Health Sciences Research Day*, April 2015. Amherst, MA.

Luthi D, Timme-Laragy AR. Does Nrf2a play a role in wound healing? *University of Massachusetts School of Public Health and Health Sciences Research Day*, April, 2015. Amherst, MA.

Rousseau ME, Hahn ME, Timme-Laragy AR. The Role of Nrf2a in the Transcriptional Response to PCB-126 in Zebrafish Embryos. *Society of Toxicology Annual Meeting*, Mar., 2015. San Diego, CA.

2014

Marin M, Timme-Laragy AR. Does Chemical Exposure History Affect Zebrafish Fin Regeneration? *University of Massachusetts Summer Program for Undergraduate Research (SPUR) poster session*, August 2014. Amherst, MA

Rousseau ME, Borden L, Hahn ME, Timme-Laragy AR. The role of nrf2a in the transcriptional response to PCB-126 in zebrafish embryos. *North Atlantic Chapter of Society of Environmental Toxicology and Chemistry*, June, 2014. Amherst, MA.

Rousseau ME, Borden L, Timme-Laragy AR. The role of nrf2a in the transcriptional response to PCB-126 in zebrafish embryos. *University of Massachusetts Undergraduate Research Day*, April 2014. Amherst, MA.

Rousseau ME, Borden L, Hahn ME, Timme-Laragy AR. The role of nrf2a in the transcriptional response to PCB-126 in zebrafish embryos. *University of Massachusetts School of Public Health and Health Sciences Research Day*, April, 2014. Amherst, MA.

Hahn ME, Karchner SI, Franks DG, **Timme-Laragy AR**, McArthur AG. Chemical-Specific Oxidative Stress Response in Zebrafish Embryos. *Society of Toxicology Annual Meeting*, Mar., 2014, Phoenix, AZ

2013

Timme-Laragy AR, Karchner SI, Harbeitner RC, MacArthur AG, Hahn ME. Nrf2 gene regulation during oxidative stress in embryonic development *Gordon Research Conference on Cellular and Molecular Mechanisms of Toxicity*, Aug., 2013. Andover, NH.

Karchner SI, Franks DG, **Timme-Laragy AR**, McArthur AG, Hahn ME. Chemical-specific oxidative stress response in zebrafish embryos. *Pollutant Responses In Marine Organisms (PRIMO) Conference*, May, 2013. Faro, Portugal.

Timme-Laragy AR, Karchner SI, Harbeitner RC, MacArthur AG, Hahn ME. Nrf2 Gene Regulation during Oxidative Stress in Embryonic Development. *Society of Toxicology Annual Meeting*, Mar., 2013. Austin, TX.

Wincent E, Kubota A, **Timme-Laragy AR**, Hahn ME, Rannug A, Stegeman J. Biological Impact of a Dysfunctional CYP1/AhR Auto-Regulatory Feedback Loop. *Society of Toxicology Annual Meeting*, Mar., 2013; San Antonio TX.

2012

Timme-Laragy AR, Harbeitner RC, Karchner SI, Hahn ME. Mechanisms of response to oxidative stress in fish embryos. *Superfund Research Program Annual Meeting*, Dec., 2012. Raleigh, NC.

Timme-Laragy AR, Goldstone JV, Hansen JM, Stegeman JJ, Hahn ME. Glutathione dynamics and differential sensitivity to pro-oxidants during zebrafish development. *Society of Toxicology Annual Meeting*, Mar., 2012, San Francisco, CA.

Poster award – 1st Place, Society of Toxicology Reproductive and Developmental Toxicology Specialty Section Postdoctoral research competition.

Williams LM, **Timme-Laragy AR**, Franks DG, Jenny MJ, Hahn ME. Developmental expression of the Nfe2-related factor (Nrf) transcription factor family and regulation by Ahr2. *Society of Toxicology Annual Meeting*, Mar., 2012, San Francisco, CA.

2011

Jönsson M, Kubota A, **Timme-Laragy AR**, Woodin B, Stegeman J. AHR2-dependance of effects on the swimbladder in relation to CYP1 and COX-2 gene expression in PCB126-exposed developing zebrafish. *Centre for Reproductive Biology in Uppsala Workshop: Reproductive Disorders in Baltic Vertebrate Wildlife*, Dec, 2011. Uppsala, Sweden.

Timme-Laragy AR, Goldstone JV, Hansen JM, Stegeman JJ, Hahn ME. Glutathione dynamics and differential sensitivity to pro-oxidants during zebrafish development. *Woods Hole Oceanographic Institution Postdoctoral Retreat*. Nov. 2011. Woods Hole, MA.

Timme-Laragy AR, Goldstone JV, Hansen JM, Stegeman JJ, Hahn ME. Glutathione dynamics and differential sensitivity to pro-oxidants during zebrafish development. *Gordon Research Conference on Cellular and Molecular Mechanisms of Toxicity*, Aug., 2011, Andover, NH.

Timme-Laragy AR, Karchner SI, Franks DG, Jenny MJ, Hahn ME. Nrf2b: a novel *nrf2* paralog in zebrafish. *Society of Toxicology Annual Meeting*, Mar., 2011. Washington DC.

Poster award - 1st Place, Society of Toxicology Molecular Biology Specialty Section, Postdoctoral research award

2010

Jonsson M, Kubota A, **Timme-Laragy AR**, Woodin B, Stegeman J. Effects of PCB126 on the swim-bladder and expression of *cyp1* and *cox2* genes in developing zebrafish. *Cytochrome P450 Biodiversity and Biotechnology*, 2010. Woods Hole, MA

Timme-Laragy AR, Karchner SI, Franks DG, Jenny MJ, Hahn ME. Nrf2b: a novel *nrf2* paralog in zebrafish. *New England Membrane Enzyme Meeting (NUTMEG)*, Oct., 2010. Woods Hole, MA.

Timme-Laragy AR, Karchner SI, Franks DG, Jenny MJ, Hahn ME. Nrf2b: a novel *nrf2* paralog in zebrafish. *Woods Hole Oceanographic Institution Postdoctoral Retreat*. Nov. 2010. Woods Hole, MA.

2009

Timme-Laragy AR, Smith PJS, Hahn ME. A new approach to measure oxygen consumption in individual live zebrafish embryos. *New England Membrane Enzyme Meeting (NUTMEG)*. Oct., 2009. Woods Hole, MA.

Timme-Laragy AR, Smith PJS, Hahn ME. A new approach to measure oxygen consumption in individual live zebrafish embryos. *Woods Hole Oceanographic Institution Postdoctoral Retreat*. Oct. 2009. Woods Hole, MA.

2008

Van Tiem L, **Timme-Laragy AR**, Di Giulio RT. NRF2 plays a protective role in response to pro-oxidant exposure of zebrafish embryos (*Danio rerio*). *Society of Toxicology Annual Meeting*, Mar., 2008. Seattle, WA.

Di Giulio RT, **Timme-Laragy AR**, Van Tiem L, Jung D. Is oxidative stress a significant factor in the synergistic developmental toxicity of model PAHs in zebrafish? *Society of Toxicology Annual Meeting*, Mar., 2008. Seattle, WA.

2007

Timme-Laragy AR, Cockman CJ, Matson CW, Di Giulio RT. mRNA expression of aryl hydrocarbon receptor pathway members during polycyclic aromatic hydrocarbon synergistic developmental toxicity in zebrafish. *North Carolina Society Of Toxicology*. 2007. Research Triangle Park, NC.

Timme-Laragy AR, Cockman CJ, Matson CW, Di Giulio RT. mRNA expression of aryl hydrocarbon receptor pathway members during polycyclic aromatic hydrocarbon synergistic developmental toxicity in zebrafish. *Pollutant Responses in Marine Organisms (PRIMO) Conference*, June, 2007. Alessandria, Italy.

Timme-Laragy AR, Cockman CJ, Matson CW, Di Giulio RT. Aryl hydrocarbon receptor regulated gene expression during synergistic developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *Society of Toxicology Annual Meeting*, Mar., 2007. Charlotte, NC

Matson CW, Fleming CR, **Timme-Laragy AR**, Jung D, Battle LP, Di Giulio RT. Developmental and molecular interactions between the hypoxia and aryl hydrocarbon receptor (AHR) pathways in zebrafish. *Society of Toxicology Annual Meeting*, Mar., 2007. Charlotte, NC

2006

Timme-Laragy AR, Billiard SM, Wassenberg DM, Cockman CJ, Jung D, Linney E, Di Giulio RT. Mechanisms of interactive developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *Superfund Basic Research Program Annual Meeting*, Dec., 2006. New York, NY.

Timme-Laragy AR, Cockman CJ, Matwon CW, Di Giulio RT. Aryl hydrocarbon receptor regulated gene expression during synergistic developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov., 2006, Montreal, Canada.

Timme-Laragy AR, Billiard SM, Wassenberg DM, Cockman CJ, Jung D, Linney E, Di Giulio RT. Mechanisms of interactive developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *North Carolina Society Of Toxicology*. 2006. Research Triangle Park, NC.

* **Poster Award** – 1st Place

Timme-Laragy AR, Billiard SM, Wassenberg DM, Cockman CJ, Linney E, Di Giulio RT. Mechanisms of interactive developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *U.S.EPA Science To Achieve Results (STAR) Graduate Fellowship Conference*, 2006. Washington DC.

* **Poster Award** - 1st Place, Best Student Poster Presentation

Di Giulio RT, Billiard SM, **Timme-Laragy AR**, Wassenberg DM, Cockman CJ, Linney E. Role of the aryl hydrocarbon receptor pathway in the synergistic developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish. *Society of Toxicology Annual Meeting*, Mar., 2006. San Diego, CA.

2005

Timme-Laragy AR, Billiard SM, Wassenberg DM, Cockman CJ, Jung D, Linney E, Di Giulio RT. Mechanisms of interactive developmental toxicity of polycyclic aromatic hydrocarbons in zebrafish (*Danio rerio*). *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov., 2005. Baltimore, MD.

* **Poster Award** - 2nd Place, Best Student Poster Presentation

Billiard, SM, **Timme-Laragy, AR**, Wassenberg, DM, Linney, E, Di Giulio, RT. The role of the aryl hydrocarbon receptor pathway in developmental toxicity of polycyclic aromatic hydrocarbons to zebrafish. *Carolina Society of Environmental Toxicology and Chemistry*, April, 2005. Raleigh, NC

2004

Timme-Laragy, AR, Levin, ED, Di Giulio, RT. The developmental and behavioral effects of embryonic exposure to DE-71 in *Fundulus heteroclitus*. *Society of Environmental Toxicology and Chemistry (SETAC)*, Nov. 2004. Portland, OR.

Timme-Laragy, AR, Meyer, JN, Wassenberg, D, Waterland, RA, Karchner, SI, Hahn, ME, Di Giulio, RT. Analysis of CpG methylation in the promoter region of the CYP1A gene in *Fundulus Heteroclitus* from creosote-contaminated and reference sites. *North Carolina Society Of Toxicology*. Mar., 2004. Research Triangle Park, NC

2003

Timme-Laragy, AR, Meyer, JN, Wassenberg, D, Waterland, RA, Karchner, SI, Hahn, ME, Di Giulio, RT. Analysis of CpG methylation in the promoter region of the CYP1A gene in *Fundulus Heteroclitus* from creosote-contaminated and reference sites." *Society of Environmental Toxicology And Chemistry*, Nov. 2003. Austin, TX.

Invited Seminars- Extramural

Understanding the Oxidative Stress Response during Embryonic Development, U.S. Coast Guard Academy. April 23, 2015. Groton, CT.

Nrf2 and the oxidative stress response during embryonic development, University of Rochester Medical Center. April 12, 2012. Rochester, NY.

Nrf2 and the regulation of the oxidative stress response during embryonic development, University of Massachusetts Amherst, School of Public Health and Health Sciences. Feb. 17, 2012. Amherst, MA.

Glutathione redox dynamics in the developing zebrafish, Woods Hole Toxicology Round Table, August 5, 2011. Woods Hole, MA.

Nrf2b, a novel paralog of the antioxidant response element transcription factor in zebrafish. Duke University, Integrated Toxicology and Environmental Health seminar. April 8, 2011. Durham, NC.

Invited Seminars- Intramural

How do embryos respond to oxidative stress and what are the consequences? University of Massachusetts Junior Fellows in Life Sciences,. Feb., 2015. Amherst, MA.

Introduction to the National Institute on Aging- Lessons from the Butler-Williams Summer Institute. University of Massachusetts School of Nursing. October 30, 2014. Amherst, MA.

Nrf2 and the oxidative stress response during embryonic development. University of Massachusetts Fish and Friends Nov 2013. Amherst, MA.

Mechanisms affecting pollutant toxicity in the developing zebrafish. Woods Hole Oceanographic Institution, Biology Department seminar. April 16, 2009. Woods Hole, MA.

Pollutants and embryotoxicity in the zebrafish model. Woods Hole Oceanographic Institution Postdoctoral Retreat. Oct. 2008. Woods Hole, MA.

Mechanisms underlying synergistic developmental toxicity of PAHs in zebrafish. Duke University, Integrated Toxicology and Environmental Health Program Seminar Series. April 20, 2007. Durham, NC.

MENTORING & TEACHING

Teaching

University of Massachusetts Amherst

Developed two new courses, guided students through independent study projects

PHS 390TL: Ecotoxicology and Public Health, Spring 2014, 2015

3-credit seminar for upper level undergraduate students

PHS 590TL: Developmental Origins of Disease, Spring 2013, Fall 2013, Fall 2014

3-credit seminar for graduate and upper level undergraduate students

Independent Study: Developmental Origins of Disease, Spring 2013

Mentored a Senior Undergraduate student through a literature review, 1-credit.

Independent Study: Zebrafish mutants, Spring 2014

Mentored a Senior Undergraduate student through a literature review, 1-credit.

Independent Study: Oxidative preconditioning and the role of Nrf2 in fin regeneration, 2014-2015, 6 credits.

Woods Hole Oceanographic Institution

Professional non-credit short course on topics in Oceanography for BP executives, 2011.

Presented lecture Introduction to Marine Toxicology

Duke University.

Teaching Assistant

Environmental Toxicology, 2004

Presented lecture on developmental toxicology, wrote exams, graded papers and exams, designed in-class debates on controversial topics.

Environmental Chemistry, 2005

Led weekly recitation sessions, graded exams

Guest lecturer

Toxicology, U.S. Coast Guard Academy, 2015

BIO 103 (Human Biology) Rhode Island College, 2012

ENV 181 (Feminism and Ecology) Duke University, 2005

ENV 212 (Environmental Toxicology) Duke University, 2004

Outreach

Eureka! Girls' Inc., Holyoke, MA. 2015

Organized and led a developmental toxicology workshop for teenage girls.

Expanding Your Horizons Workshop. Raleigh, NC, 2004

Organized and led a developmental biology workshop for 7&8th grade girls.

Mentoring:

Current Trainees, University of Massachusetts Amherst:

Dr. Karilyn Sant (2015-present), postdoctoral trainee. Project: Deviant development of the pancreatic islet in embryos exposed to oxidative stress and common contaminants.

Sarah Brown (2014-present), Masters of Science student, School of Public Health and Health Sciences. Project: Spatial distribution of glutathione in the developing embryo.

Undergraduate trainees (2014-present): Projects: fish husbandry, genotyping, various laboratory skill development. Jiali Xu, Shana Fleishman, Katrina Borofski, Christopher Sparages, Kaylee-Anna Williams, Gabriella McClellan, Haydee Jacobs, Julia Bergh

Previous students and mentoring experience:

Michelle Rousseau (2013-2015), undergraduate, Commonwealth Honors College and College of Natural Sciences. Project: Does Nrf2 play a role in PCB embryotoxicity? Received \$1k research grant from Commonwealth Honors College (2014, 2015).

Derek Luthi (2014-present), Commonwealth Honors College and School of Public Health and Health Sciences. Project: The role of Nrf2a in zebrafish fin regeneration.

Marjorie Marin (summer 2014), undergraduate, Universidad de Florianopolis, Brazil. Project: Oxidative preconditioning and Nrf2 in the zebrafish fin regeneration model of wound healing.

Karen Melendez (2013-2014). Undergraduate, Northeast Louis Stokes Alliance for Minority Participation (LSAMP), College of Natural Sciences. Project: Spatial distribution of glutathione in the developing embryo.

Sonia Filipczak (2013-2014), undergraduate, School of Public Health and Health Sciences.

Linnea Borden (2013), undergraduate, School of Public Health and Health Sciences. Project: Crosstalk between the Ahr and Nrf2 pathways during embryonic development.

Duke University masters student (Crystal Cockman, 2005-6), a WHOI summer undergraduate fellow (Rachel Harbeitner, 2010), and a WHOI research technician (Rachel Harbeitner, 2011). I have also trained WHOI visiting scientists, graduate students at Duke University and University of Rochester, and 3 Howard Hughes high school summer students.

SERVICE

University Service, University of Massachusetts Amherst

- 2015 - Member, Environmental Health Science Chair Faculty Search Committee
- 2014- present Member, Environmental Health Science Personnel Committee
- 2014 Participant, CEPH Accreditation self study committee on academic instructional programs
- 2014 Member, Dept. Public Health Curriculum Committee
- 2013- present School of Public Health and Health Sciences Curriculum Committee
- 2013-14 Member, Environmental Health Science/CHC Faculty Search Committee
- 2013- present Member, Environmental Health Science Graduate Admissions Committee

Advisory Board

2014-present US EPA Scientific Advisory Board for the Narragansett Bay Watershed

Grant Review

National Institutes of Health SIEE Review Panel (June 2015)
National Science Foundation grant review panel (IOS, 2014, 2015)
National Science Foundation Postdoctoral Fellowship grant review panel (2015)
Wellcome Trust/DBT India Alliance Grant Review (2015)
Michigan Diabetes Research Center Grant Review (2014)
NOAA Wisconsin Sea Grant Review (2013)

Editorial Service

Ad hoc reviewer for:

<i>Antioxidants and Redox Signaling</i>	<i>Environmental Science & Technology</i>
<i>Annals of the New York Academy of Sciences</i>	<i>Fish Physiology and Biochemistry</i>
<i>Aquatic Toxicology</i>	<i>Gene</i>
<i>Chem-biont Signaling</i>	<i>Pesticide Biochemistry and Physiology</i>
<i>Chemico-Biological Interactions</i>	<i>PLoS ONE</i>
<i>Chemosphere</i>	<i>Soil and Sediment Contamination</i>
<i>Dose Response</i>	<i>Toxicological Sciences</i>
<i>Endocrine Disruptors</i>	<i>Toxicology Letters</i>

Society Memberships and Activities

2007- present	Society of Toxicology (Full Member 2013- present) 2012 Molecular Biology Specialty Section Postdoc Award Selection Committee
2011- present	Society of Free Radical Biology & Medicine 2015 Women in Science Committee 2011 Annual Conference abstract award reviewer.
2003-08;2014- present	Society of Environmental Toxicology and Chemistry
2014-2015	Endocrine Society
2007- 2014	AAAS
2006-2008	Sigma Xi

Superfund Research Program Annual Meetings

25th Anniversary Conference, 2012

Steering Committee

Session moderator “ Interdisciplinary Collaborations”

Symposium panelist “Novel Interdisciplinary Approaches to Complex Exposures.”

20th Anniversary Conference, 2007

Poster competition judge.

Responsible Conduct of Research, training facilitator, WHOI, 2010, 2011, 2012

Judge at high school science fair, Falmouth Academy, 2009- 11, 2013

Committee for Work and Family Life, WHOI postdoctoral representative 2008-10

Center for Integrated Education and Research Development, Duke University
Student Representative. Assisted in planning and hosting various interdisciplinary events
including a 4-day Nanotechnology symposium. 2004-07.

Duke University Hammes Teaching Award Student Selection Committee, 2006.

Duke University Graduate and Professional Student Council, Representative 2004-05.