

Jason R. Westrich Ph.D.

University of Georgia, Athens, Georgia

jrwestrich@gmail.com • (706) 296-3015

EDUCATION

- 2015 **Ph.D. Ecology**, Odum School of Ecology, University of Georgia, Athens, GA
Dissertation: Consilience of iron in the ecology of *Vibrio* bacteria
Advisor: Erin K. Lipp – Environmental Health Science, University of Georgia
- 1995 **B.S. Biology**, Creighton University, Omaha, NE

PROFESSIONAL EXPERIENCE

- 2016 **Postdoctoral Research Scientist.** Environmental Health Science, College of Public Health, University of Georgia.
Project: Successional patterns of marine surface water communities after Saharan dust deposition; next generation sequencing-bioinformatics.
- 2013-2014 **Graduate Teaching Assistant.** Department of Microbiology & Biological Sciences, University of Georgia.
- 2008-2013 **NOAA Graduate Research Fellow - Oceans and Human Health Initiative**
University of Georgia.
Project: Role of iron in the ecology of *Vibrio* bacteria.
- 2004-2007 **Senior Research Associate.** Genzyme, Cardiovascular Division, Framingham, MA.
Project: Developed advanced molecular biology platforms for the tracking of therapeutic cells injected for treatment of ischemic myocardial injury.
- 2003-2004 **Associate Scientist.** Sanofi-Aventis, Cambridge Genomics Center, Pathway Mapping and Elucidation Cambridge, MA.
Project: Utilized functional assays and rescue of drug resistant genes to the chemotherapeutic drug Taxotere, to elucidate resistance pathways.
- 2003 **Associate Scientist.** Zycos, Clinical Assay Group, Research and Development / Quality Assurance, Lexington, MA. *Project:* Research and development team to optimize an assay to define quality assurance of a drug product for use in Phase III clinical trials to treat HPV induced cervical dysplasia.
- 2000-2002 **Technical Research Assistant II.** Brigham and Women's Hospital, Harvard Medical School, Department of Pathology, Immunology Division, Boston, MA. Directed by Andrew H. Lichtman MD, Ph.D.
Project: Performed independent and collaborative research to produce publishable results in transplantation immunology, myocarditis, arteriosclerosis, T-cell signaling and cancer immunology.
- 1996-1999 **Peace Corps Volunteer.** Benin, West Africa.
Project: Educated local population in disease prevention to include malaria, HIV, waterborne illness such as cholera, schistosomiasis and Guinea worm disease as well as introduce forestry and soil improvement techniques.
- 1995 **Research Assistant.** Nebraska Behavioral Biology Group, Creighton University
Project: Investigated neural optic spectral sensitivity in Stickleback fish.
- 1995-1996 **Research Assistant.** Creighton University, Omaha, NE.
Project: Conducted independent research focused on determining genetic relatedness among individuals of a species of field mouse using molecular genetic techniques.
- 1993-1995 **Research Assistant.** Creighton University, Preventive Medicine, Omaha, NE.
Project: Constructed family pedigrees for tracking breast and ovarian cancer.

REFEREED PUBLICATIONS

- 2016 **J.R. Westrich**, A.M. Ebling, W.M. Landing, J.L. Joyner, K.M. Kemp, D.W. Griffin, E.K. Lipp. Saharan dust nutrients promote *Vibrio* bloom formation in marine surface waters. *Proceedings of the National Academy of Science*. Early Edition May 2016.
- 2012 *Intergovernmental Panel on Climate Change (IPCC) Special Report: Managing the risks of extreme weather*. Contributing author to the chapter on human health impacts.
- 2010 R. J. Newton, L. E. Griffin, K. M. Bowles, C. Meile, S. Gifford, C. E. Givens, E. C. Howard, E. King, C. A. Oakley, Chris R Reisch, Johanna M Rinta-Kanto, Shalabh Sharma, Shulei Sun, Vanessa Varaljay, Maria Vila-Costa, **J. R. Westrich**, M. A. Moran. Genome characteristics of a generalist marine bacterial lineage. *The ISME Journal*. 2010; 4, 784–798.
- 2010 **J. Westrich**, P. Yaeger, C. He, J. Stewart, R. Chen, G. Seleznik, S. Larson, B. Wentworth, M. O’Callaghan, S. Wadsworth, G. Akita, G. Molnar. Factors affecting residence time of mesenchymal stromal cells (MSC) injected into the myocardium. *Cell Transplantation*. Volume 19, Number 8, 2010; 937-948.
- 2003 N. Grabie, M. Delfs, **J.R. Westrich**, V. Love, G. Stavrakis, F. Ahmad, A.H. Lichtman. IL-12 is required for differentiation of pathogenic CD8+ T effectors that cause myocarditis. *Journal of Clinical Investigation*. 2003; 111(5):671-80.
- 2003 N. Grabie, D.T. Hsieh, **J.R. Westrich**, H. Pang, J. Allen, G. Stavrakis, A.H. Lichtman. Neutrophils sustain pathogenic CD8+ T cell responses in the heart. *American Journal of Pathology*. 2003;163:2413-2420.
- 2002 N. Grabie, M. Delfs, Y.C. Lim, **J.R. Westrich**, F. Luscinskas, A.H. Lichtman. ST3Gal-I sialyltransferase gene expression during Th2 but not Th1 differentiation: Implications for core2-glycan formation on cell surface proteins. *European Journal of Immunology*. 2002; 32:2766-72.

PUBLICATIONS IN PREPARATION

- J.R. Westrich**, D. Griffin, E. K. Lipp. *Vibrio* population dynamics in Mid-Atlantic surface waters during Saharan dust events (In Preparation).
- J.R. Westrich**, W.M. Landing, D. Griffin, E. K. Lipp. Iron-limited artificial saltwater medium for the study of iron processing in marine heterotrophic bacteria (In Preparation).
- J.R. Westrich***, K.M. Kemp*, D.W. Griffin, E.K. Lipp, M.S. Alabady. Draft genome sequence of a *Halomonas* sp. isolated from Mid-Atlantic surface waters during Saharan dust deposition (In Preparation). * Equal contributing first authors.
- J.R. Westrich**, E. K. Lipp. The Iron-chitin connection as a driver of planktonic association in *Vibrio* spp. (In Preparation).
- J.R. Westrich**, J.W. Turner, L.Malayil, E. K. Lipp. The complete genome sequence of an estuarine *Vibrio parahaemolyticus* from the east coast reveals different iron acquisition mechanisms from west coast strains in the US (In Preparation).
- K.M. Kemp, **J.R. Westrich**, M.L. Edwards, D.K Kemp, E.K. Lipp. Seasonal dynamics, diversity, and disease-association of *Vibrio* in the surface mucus layer of the critically threatened elkhorn coral, *Acropora palmata* (In Preparation).
- K.M. Kemp, K.P. Sutherland, M.N. Ghazaleh, **J.R. Westrich**, D.K Kemp, E.K. Lipp. Etiological agents or secondary opportunists? Frequent monitoring aids in assessing the role of *Vibrio* bacteria in disease of the critically threatened elkhorn coral, *Acropora palmata* (In Preparation).

CONTRIBUTED ABSTRACTS

- 2016 **J.R. Westrich**, A.M. Ebling, W.M. Landing, J.L. Joyner, K.M. Kemp, D.W. Griffin, E.K. Lipp. *Discovery of an environmental driver of Vibrio blooms in tropical marine waters*. Vibrio 2016 International Conference. Roscoff, France (Poster).
- 2013 **J. Westrich**, D. Griffin, E. Lipp. *Iron in the Wind Microbes in the Water: Effect of Saharan Dust on Vibrio Growth*. American Society for Microbiology 113th General Meeting. Denver, CO (Poster).
- 2013 **J. Westrich**, D. Griffin, E. Lipp. *Global Connections: African Desert Dust effect on Vibrio Bacteria in the Florida Keys*. One Health Symposium. Athens, GA (Poster).
- 2013 **J. Westrich**, D. Griffin, E. Lipp. *Dust in the Wind Microbes in the Water: Saharan Dust Effect on Vibrio Bacteria Populations*. 4th Conference on Environment and Health joint conference with the American Meteorological Society Annual Meeting. Austin, TX (Poster).
- 2012 **J. Westrich**, D. Griffin, E. Lipp. *Vibrio Response To Saharan Dust in the Southeastern US*. Southeast Branch of the American Society for Microbiology: Ecology of Infectious Disease. Athens, GA (Poster).
- 2012 **J. Westrich**, D. Griffin, E. Lipp. *Marine Vibrio Bacteria Response To Aeolian Nutrients*. Lower Atmospheric Observing Facilities Workshop: *Meeting the Challenges of Climate System Science*. Boulder, CO (Poster).
- 2012 **J. Westrich**, D. Griffin, E. Lipp. *Dust in the Wind: Vibrio Population Response to Aeolian Nutrients*. Gordon Research Conference: Oceans and Human Health. Biddeford, ME (Poster).
- 2011 **J. Westrich**, D. Griffin, E. Lipp. *Dust in the Wind: How Global Desertification is Affecting Pathogenic Marine Vibrios*. American Association for the Advancement of Science (AAAS) Annual Meeting. Washington, D.C. (Oral Presentation).
- 2010 **J. Westrich**, D. Griffin, E. Lipp. *Ecological Implications of Environmental Iron Flux on Vibrio*. 13th International Society of Microbial Ecology Meeting, Seattle, WA (Poster).
- 2010 **J. Westrich**, J. Turner, E. Lipp. *Ecological Implications of Iron Flux on Vibrio cholerae*. Joint Southeastern Estuarine Research Society – Benthic Ecology Meeting. Wilmington, NC (Poster).
- 2009 **J. Westrich**, J. Turner, E. Lipp. *Effect of Iron in the Marine Environment on Vibrio Virulence*. NOAA Oceans and Human Health Principle Investigators Meeting. Seattle, WA (Poster).
- 2009 **J. Westrich**, E. Lipp. *Ecological Examination of Virulence: Vibrio cholerae Model*. University of Georgia Graduate Student Symposium. Athens, GA (Oral Presentation).
- 2008 **J. Westrich**, C. He, H. MacGregor, G. Seleznik, J. Stewart, Z. Jia, R. Chen, G. Akita, B. Wentworth, K. Messier, P. Yaeger, G. Molnar. *Factors Affecting Residence Time of Mesenchymal Stem Cells (MSC) Injected into the Myocardium*. 14th Annual Meeting of the International Society for Cellular Therapy, Miami, FL (Poster).
- 2007 B. Wentworth, J. Stewart, **J. Westrich**, C. He, A. Blaksvedt, G. Akita, M. Ocallaghan, G. Molnar, M. Donovan, P. Yaeger. *Studies on the retention of cells delivered to the rat heart*. European Society of Cardiology Conference. Vienna, Austria, (Oral Presentation).
- 2007 R. Chen, J. Campos Rivera, J. Zhiqiang, **J. Westrich**, J. Stewart, P. Yaeger, G. Akita, B. Wentworth, G. Molnar. *Comparison of the Subpopulation of Isolated Heart and Bone Marrow Cells During Myocardial Infarction*. Keystone Symposia on Molecular and Cellular Biology, Breckenridge, CO (Poster).
- 2003 C. Buono, **J. Westrich**, H. Pang, P. Libby, A. Sharpe, A. Lichtman. *Role of B7-Costimulation in Plaque Antigen-Specific T-Cell Responses and Atherogenesis in Mice*. 4th Annual Conference on Arteriosclerosis, Thrombosis and Vascular Biology, Washington, DC (Oral Presentation).
- 2001 M. Delfs, N. Grabie, **J. Westrich**, A.H. Lichtman. *Role of CD8+ and CD4+ T cell Subsets in Autoimmune Myocarditis*. Circulation. 2001; 104: suppl. 17 (Abstract).

RESEARCH GRANTS AND AWARDS

- 2008-2013 NOAA Fellowship – Georgia Oceans and Human Health Initiative (\$77,160)
- 2013 Association of Marine Laboratories of the Caribbean Student Grant (\$1000)
- 2013 Odum School of Ecology, University of Georgia, Research Grant (\$1100)
- 2013 Student Travel Award, American Society for Microbiology (\$500)
- 2013 UGA Graduate Student Travel Award (\$300)
- 2010 Best Graduate Student Poster- Benthic Ecology/Southeastern Estuarine Research Society

SCIENCE POLICY INTERNSHIP

- 2010 **Intergovernmental Panel on Climate Change (IPCC)** – Intern, Fifth Assessment Report (AR5) Working Group II, Technical Support Unit Stanford University, CA
- Contributing author to the human health section of the publication IPCC Special Report: Managing the Risks of Extreme Weather
 - Data analysis examining the relationship between infectious disease and climatic variables, specifically effect of precipitation on Zimbabwe cholera outbreak of 2009
 - Reviewed literature examining health impacts and vulnerability to climate extremes
 - Worked on a team to form expert review author groups for Impacts, Adaptation and Vulnerability chapters of Fifth Assessment Report (AR5)

TEACHING

- 2014 - Spring Basic Concepts in Biology (BIOL1103L) Teaching Assistant (3 Sections)
2013 - Fall Introduction to Microbiology (MIBO3510L) Teaching Assistant (2 Sections)

GUEST LECTURES

- 2016 – April Global Environmental Health (EHSC7410) Guest Lecturer: *Human Health Impacts of Climate Change in the Developing World: Infectious Disease*
- 2014 - August African Dust - First Year Odyssey Class, Guest Lecturer: *Chasing Dust: Saharan Dust & Vibrio*
- 2014 – March Environmental Microbiology (EHSC6310) Guest Lecturer: *Biogeochemical Cycles*
2013 – February Environmental Health Science (EHSC7010) Guest Lecturer: *Water and Health*
2011 – November Water Pollution (EHSC6610) Guest Lecturer: *Marine Pollution Microbiology*
2011 – January Environmental Microbiology (EHSC6310) Guest Lecturer: *Soil & Aeromicrobiology*

DEPARTMENTAL INVITED SPEAKER – UNIVERSITY OF GEORGIA

- 2014 – November Biochemistry and Molecular Biology, UGA, “Iron in the Wind: Saharan Dust Effect on Marine *Vibrio* Growth in Barbados and the FL Keys”
- 2014 – October Marine Science, UGA, “Chasing Dust: Discovering the Linkage between Marine *Vibrio* Bacteria Growth and Trans-Atlantic Saharan Dust”
- 2014 – April Geography, UGA, Graduate Student Seminar, “Trans-Atlantic Saharan Dust Effect on Marine Microbiology”
- 2013 – October Environmental Health Science, UGA, “Dust in the Wind, Microbes in the Water: Saharan Dust Influence on *Vibrio* Bacteria”

LEADERSHIP

- 2015-Present Board Member Upper Oconee Watershed Network; Science & Monitoring Committee
2013-Present Founder and Coordinator of *Normal Town Monitors*. Coordinate water quality assessment of Brooklyn Creek watershed, Athens, GA
- 2014-2015 Odum School of Ecology Graduate Student Association Officer - Secretary
2012-Present Coordinator for Upper Oconee Watershed Network, Microbial Water Quality Analysis (Quarterly)
- 2010-2011 Odum School of Ecology Representative - GSPS (Graduate Student and Post-docs in Science)

MENTORING

- 2009-Present Mentor for Microbiology, Ecology & Environmental Health undergraduate directed independent research
- 2009 Mentored a deaf student for UGA’s Summer Microbiology Research Experience for Undergrads (REU)
- 2004-2007 Mentor for the Genzyme undergrad summer research internship program

OUTREACH

- 2015-April Chase Elementary School 3rd Grade, Athens, GA, Science Outreach: Water Conservation / Pollution; Microbial Water Quality Demonstration
- 2015-April Chase Elementary School Kindergarten, Athens, GA, Science Outreach: Marine Science and Exploration
- 2015-March Double Helix STEAM Academy, Middle School: Microbial Water Quality
2015-February Experience UGA Biology, Clarke Central High School: Microbiology Demonstration
2014-October Chase Elementary School, Athens, GA, Science Outreach: Coral Reef Biology

MEDIA

<https://www.washingtonpost.com/news/speaking-of-science/wp/2016/05/11/how-dust-from-the-sahara-fuels-poisonous-bacteria-blooms-in-the-caribbean/>

http://www.nsf.gov/mobile/news/news_summ.jsp?cntn_id=138683&org=NSF&from=newsField

<http://news.uga.edu/releases/article/saharan-dust-vibrio/>

Related Podcasts:

<http://www.scientificamerican.com/podcast/episode/saharan-dust-brings-bacterial-blooms-to-the-caribbean/>

http://oceanservice.noaa.gov/podcast/supp_july11.html

American Association for the Advancement of Science (AAAS) Annual Meeting Press Release:

http://www.noaanews.noaa.gov/stories2011/20110219_aaas_oceansandhealth.html

<http://news.nationalgeographic.com/news/2011/03/110301-global-warming-health-science-environment/>

PROFESSIONAL SERVICE

2015- 2016 Association of Marine Labs in the Caribbean (AMLC) Grant in Aid of Research
Proposal Review Committee

PROFESSIONAL SOCIETIES AND CERTIFICATES:

2013-Present Association of Marine Labs in the Caribbean (AMLC)
2011-Present American Association for the Advancement of Science (AAAS)
2010-Present International Society of Microbial Ecology (ISME)
2009-Present American Society for Microbiology (ASM)
2007-Present Return Peace Corps Volunteer Association (RPCV)
2010-Present American Academy for Underwater Scientists (AAUS) Science Diver
1998-Present PADI Advanced Diver
1996-Present Emergency Medical Technician
1992-Present Instrument Rated Pilot

SKILLS

Environmental Microbiology Sampling	Microbiology culture techniques
Trace Metal free sample collection	Monoclonal antibody production
Real time quantitative PCR	Cytotoxicity assays
DNA/ RNA isolation and purification	Cryostat micro sectioning
FACS cell sorting and characterization	Histological staining procedures
Immunoassays; ELISA, ELISPOT, Westerns	IVIS imaging
Molecular/Recombinant DNA techniques	3H-thymidine proliferation assays
Retroviral delivery of reporter genes	Transfection of viral plasmid DNA
Eukaryotic cell line culturing	Immunohistochemistry
Cell isolation by magnetic bead and FACS sorting	Geneious, Graph Pad Prism, SAS
Intravenous, subcutaneous and intraperitoneal injection	AAUS SCUBA diver