

*Curriculum Vitae*  
**J. Royden Saah**

Island Conservation  
Innovations Program  
Raleigh, NC 27695

Phone: (919) 520-5954  
e-mail: [Royden.saah@islandconservation.org](mailto:Royden.saah@islandconservation.org)

## **EDUCATION**

**MS**, Microbiology, North Carolina State University, Raleigh, NC

**Thesis Title:** The role of Arc, FNR, and Fur in the expression of *katE*, *katG*, and *hemA*: Effects on Hydroperoxidases in *Escherichia coli*

**BS**, Zoology, North Carolina State University, Raleigh, NC

## **CERTIFICATION**

**CPM**, Certified Public Management Program, National Certified Public Manager® Consortium,  
Raleigh, NC

## **MULTINATIONAL EXPERIENCE**

**Program Coordinator**, Genetic Biocontrol of Invasive Rodents Program, Island Conservation,  
Santa Cruz, CA/Raleigh, NC

*February 2016 - Present*

- Coordinate and expand activities of 7 multi-national, not-for-profit partners to create and assess technology to humanely eradicate invasive mouse populations from islands without negative environmental consequences
- Develop and guide Memorandum of Understanding through the international governmental approval process
- Develop infrastructure for collaborative process
- Obtain funding for the program – 37% success rate for \$17.6M USD submitted in first year

**Biosafety Referent/Lab Tech**, Médecins Sans Frontières/Doctors Without Borders, Monrovia, LIBERIA

*February - March 2015-Ebola Response*

- Build and staff laboratory for new MSF pediatric hospital to safely function during the Ebola epidemic – completed in 11 weeks
- Interface & productive coordination with key Ministry of Health partners including the National Blood Safety Program Director, National Ebola Laboratory Coordinator, and other health system strengthening partners
- Conduct laboratory biological risk assessment for MSF pediatric hospital operating in the Ebola context
- Regular activity/status reports
- Hire, train, and supervise staff

**Cooperative Biological Engagement Program Consultant**, American Society of Clinical  
Pathology/DTRA

*November - December 2014 Part-Time*

- Create a practical and written competency exam to pilot in the former Soviet Republic of Georgia-Medical Laboratory Qualification Program

**Infectious Disease/Global Health Consultant**, Public Health Laboratory Twinning Project,  
CDC/Guyana Ministry of Health/Association of Public Health Laboratories, GUYANA

*June 2008-June 2015, Part-Time*

- Engage Guyana Ministry of Health to conduct formal evaluations of the newly commissioned Guyana National Public Health Reference Laboratory (NPHRL) and initiating and/or strengthening capabilities
- Coordinate 9 staff exchanges between Guyana Ministry of Health and North Carolina State Laboratory of Public Health that include technical trainings, mentoring senior management, and strengthening both quality and safety to further develop the NPHRL
- Support the strategic plan development and implementation for the NPHRL
- Assist with emergency response to infectious disease emergencies – H1N1, Chikungunya, etc.

## **DOMESTIC & RESEARCH EXPERIENCE**

**Coordinator**, Bioterrorism and Emerging Pathogens (BTEP) Unit,  
North Carolina State Laboratory of Public Health (NCSLPH), Raleigh, NC

*June 2004-February 2016*

- Evaluate, develop and execute the laboratory portion (\$1.1-2.5M *per annum*) of the CDC Preparedness Grant
- Created the NC Laboratory Response Forum consisting of Academic Laboratory Directors, Public Health Epidemiologists, veterinarians and other agenda participants
- Organize, manage and evaluate the activities of 4 laboratories including staff travel, unit program development (publications/reports/positions statements/presentations), and partner engagement
- Supervise and mentor the team of up to 14 direct reports across North Carolina, including scientists, bench staff/researchers, EID fellows, interns and administrative assistants
- Represent organization at national meetings and operations
- Developed BTEP Strategic Plan through active and methodical stakeholder/team engagement
- Leadership roles during multiple special operations and responses including Ebola (2014), MERS (2013), Democratic National Convention (2012), Pandemic Flu Response (2009), SARS Response (2003), Anthrax Response (2001) and others

**Public Health Scientist**, BTEP Unit, North Carolina State Laboratory of Public Health,  
NCDHHS, Raleigh, NC

*October 2002-June 2004*

- Created and implemented technologies to detect microbial and toxin threat agents and emerging pathogens
- Planned and led the laboratory Severe Acute Respiratory Syndrome (SARS) Response for NCSLPH
- Interface with partners, including epidemiology, emergency operations center, hospitals to prepare for and respond to infectious disease emergencies

**Laboratory Medical Specialist**, BTEP Unit, North Carolina State Laboratory of Public Health,  
NCDHHS, Raleigh, NC

*November 2001-September 2002*

- Performed research and analyses on birds (*Corvidae*) and mosquito pools to detect and determine prevalence of West Nile Virus
- Analyzed threat samples from law enforcement agencies for the presence of biological weapons such as *B. anthracis* and ricin using CDC methodologies

- Implemented new diagnostic capability for *Francisella tularensis*, *Yersinia pestis*, ricin toxin, pox virus and other agents of concern for BTEP Unit

**Chief Microbiologist**, Food and Drug Protection Division, NC Department of Agriculture, Raleigh, NC  
*June 2000-October 2001*

- Managed the interactions between the Microbiology Branch and other State or Federal agencies including: Food and Drug Administration (FDA), Environmental Protection Agency (EPA), U. S. Department of Agriculture, Meat and Poultry Inspection Service (NCDA&CS), and N. C. Department of Health and Human Services
- Directed daily and global operations of the Microbiology Branch consisting of 15 employees in 4 sections (Food & Dairy, Meat & Poultry, Feed, Disinfectant Efficacy, and Media Preparation).
- Represent Department of Agriculture during outbreak investigations

**Research Technician III**, Dept. of Microbiology/USDA-ARS, NC State University, Raleigh, NC  
*March 1997 - June 2000*

- Utilized multiple, highly conserved RNA sequences to demonstrate that the genus *Azotobacter* is fundamentally intermingled with the phylogenetic clade *Pseudomonas*
- Isolated and characterized molybdenum-independent nitrogen-fixing bacteria in a variety of environmental samples including marine, estuary, lake, soil, and waste water treatment plants
- Designed and implemented competition experimentation to elucidate the evolutionary advantage for an alternative nitrogenase in nitrogen fixing bacteria
- Devised and executed experiments to determine whether an exopolysaccharide biofilm produced by *Azotobacter* spp. acts as a barrier to nitrogen sources or metals to create differences between macro and microenvironments

**Research Technician III**, Depts. of Biochemistry & Microbiology, NC State University, Raleigh, NC  
*July 1992- May 1995*

- Designed and conducted extensive experimentation that led to the discovery that the *Escherichia coli* hydroperoxidase II (HPH) gene, *katE*, is repressed by Fumarate Nitrate Reductase (FNR) at the transcriptional level
- Described the mechanism of Ferric Uptake Regulation (FUR) protein-mediated activation of HPH, showing its facilitation of the  $\Delta$ -aminolevulinic acid phase of heme biosynthesis at the translational level

## HONORS & AWARDS

- **Certificate of Recognition** – NC Public Health Association: For outstanding work preparing for and responding to potential Ebola response needs in North Carolina 2015
- **Director's Recognition Award** – CDC: National Center for Emerging and Zoonotic Infectious Diseases: For outstanding effort in evaluating CDC leadership and Emergency Operations Center during the CDC-wide exercise to test response capabilities 2013.
- **Director's Certificate of Recognition** –FBI: National Special Security Event 2012
- **Certificate of Appreciation** – CDC: National Biosurveillance Metrics Development, Public Health Emergency Preparedness Cooperative Agreement 2008. **Applied to >\$1B of grants.**

## INSTITUTIONAL & COMMITTEE AFFILIATION

### International

- **Guyana Country Lead:** Association of Public Health Laboratories (APHL), President's Emergency Plan for Aids Relief (PEPFAR) funded CDC collaboration: 2012-2016
- **APHL Global Health Committee:** 2013-2016

- **African Society for Laboratory Medicine:** 2014-present
- **Médecins Sans Frontières Association:** 2015-present

## National

- **APHL Biosafety & Biosecurity Committee:** 2015-present
- **APHL Emergency Preparedness and Response Committee:** 2009- 2015
- **National Special Security Event Planning Committee (US Secret Service):** 2012
- **CDC Risk Communication Measurement Subgroup:** CDC PH Emergency Prep. Grant, 2008-2010
- **CDC Biosurveillance Measurement Subgroup:** CDC PH Emergency Preparedness Grant, 2008- 2010
- **Laboratory Response Network (LRN) 2009 National Meeting Planning Committee:** 2008-2009

## State

- **NC Laboratory Response Forum, Founder/Coordinator:** Established 2006 - 2016
- **NCSU Institutional Biosafety Committee:** 2002 - 2011
- **Laboratory Subcommittee, (NC Food Safety and Defense Task Force):**  
2003 –2011 (Chair 2006-2008)
- **NC State Laboratory of Public Health (NCSLPH) Select Agent Program:**
  - Responsible Official: 2012 - 2015
  - Alternate Responsible Official: 2007 - 2012
  - Principal Investigator: 2003 - 2007
- **North Carolina Herpetological Society:** Lifetime member
- **North Carolina Listeriosis Outbreak Task Force:** 2000 - 2001

## PUBLICATIONS

### Peer Reviewed and Invited Manuscripts

Hutchins, A., M. Astwood, **J.R. Saah**, P.A. Michel, B.R. Newton, and L.A. Dauphin. Evaluation of automated and manual DNA purification methods for detecting *Ricinus communis* DNA during ricin investigations. *Forensic Sci. Int.* Published online 21 December 2013

Husain, M., J. Jones-Carson, L. Liu, M. Song, **J.R. Saah**, B. Troxell, M. Mendoza, H. Hassan, and A. Vazquez-Torres. 2014. Ferric uptake regulator-dependent antinitrosative defenses in *Salmonella enterica* serovar Typhimurium pathogenesis. *Infect. Immun.* January 2014; 82:1 333-340 published ahead of print 28 October 2013 doi:10.1128/IAI.01201-13.

Traxler, R.M., M.A. Guerra, M.G. Morrow, T. Haupt, J. Morrison, **J.R. Saah**, C.G. Smith, C. Williams, A.T. Fleischer, P.A. Lee, D. Stanek, I. Trevino-Garrison, P. Franklin, P. Oakes, S. Hand, S.V. Shadomy, D.D. Blaney, M.W. Lehman, T.J. Benoit, R.A. Stoddard, R.V. Tiller, B.K. De, W. Bower, and T.L. Smith. 2013. Review of Brucellosis Cases from Laboratory Exposures in the United States, 2008-2011 and Improved Strategies for Disease Prevention. *J. Clin. Microbiol.*, 51:9 3055-3062.

Sautter, R.L., J. Holmes, S. Maynard, and **J.R. Saah**. 2012. Brucellosis, an Age-Old Infection Now Associated with Bioterrorism. American Society of Clinical Pathology Checksample® Microbiology: No. MB12-7 (MB-388).

Pien, B.C., **J.R. Saah**, S.E. Miller, and C.W. Woods. 2006. Use of Sentinel Laboratories by Clinicians to Evaluate Potential Bioterrorism and Emerging Infections. *Clin. Infect. Dis.*, 42:1311-1324.

MacDonald, P.D.M., R.D. Whitwam, J.D. Boggs, J.N. MacCormack, K.L. Anderson, J.W. Reardon, **J.R. Saah**, L.M. Graves, S.B. Hunter, and J. Sobel. 2005. Outbreak of Listeriosis among Mexican Immigrants Caused by Illicitly Produced Mexican-style Cheese. *Clin. Infect. Dis.*, 40(5):677-682.

Loveless, T.M., **J.R. Saah**, and P.E. Bishop. 1999. Isolation of nitrogen-fixing bacteria containing molybdenum-independent nitrogenases from natural environments. *Appl. Environ. Microbiol.* 65(9) 4223-4226.

Kroll, J.S., P.R. Langford, **J.R. Saah**, and B.M. Loynds. 1993. Molecular and Genetic Characterization of Superoxide Dismutase in *Haemophilus influenzae* type b. *Mol. Microbiol.* 10(4) 839-848.

## Invited Presentations

**Saah, J.R.**, D. Tompkins, O. Edwards, K. Campbell. 2017. Genetic Biocontrol of Invasive Rodents Program: Innovative Development for Preventing and Responding to Extinction Threats, Pandemics and Food Insecurity. Presented at the Pandemic Prediction & Forecasting Science & Technology Working Group, The White House, Washington, D.C.

**Saah, J.R.** 2016. Genetic Biocontrol of Invasive Rodents. Presented at the Symposium on the Use of Gene Drive Technology in Controlling Pests and Diseases, Canberra, Australia.

**Saah, J.R.** 2013. Laboratory Adventures with *Brucella* and *Francisella*: Preventing Exposures and Laboratory Acquired Illness. Presented at the SouthEastern Association for Clinical Microbiology, Charlotte, NC.

**Saah, J.R.** 2013. Preparing for National Special Security Events: LRN Laboratory Transitions for the Democratic National Convention. Presented at the Public Health Preparedness Summit, Atlanta, GA.

**Saah, J.R.**, C. Williams, L. Benbow, M. Haskell, D. Stanek, P.A. Lee. 2012. Efforts at Reducing *Brucella* Exposures in Clinical Laboratories. Presented at the Council of State and Territorial Epidemiologists Annual Conference, Omaha, NE.

Lee, P.A. and **J.R. Saah**. 2012. Strengthening the Laboratorian and Epidemiologist Relationship for Rapid Response. Co-Presented at the Association of Public Health Laboratories Annual Meeting, Seattle, WA.

**Saah J.R.**, A.T. Fleischauer, C.G. Smith, M. Blocker, D. Stanek, D. Blaney. 2010. An Investigation of Sequential Exposures to *Brucella* in Three Laboratories and Post Exposure

Prophylaxis Failure - Florida and North Carolina, 2009. Presented at the 2010 International Conference on Emerging Infectious Diseases, Atlanta, GA.

Christopher, P.S., **J.R. Saah**, S.E. Miller. 2009. A Suspicious Facial Lesion - A Unique Opportunity to Test the North Carolina Laboratory Response Network. *Microscopy and Microanalysis*. 2009;15(SUPPL.2):102-103

**Saah, J.R.** 2007. Responding to a Positive Ricin Signal in North Carolina. Presented at the National Meeting of the Laboratory Response Network, Portland, Oregon.

**Saah, J.R.** and P.E. Bishop. 1999. Phylogenetic Evidence of Diazotrophs within the Pseudomonads. In F. O. Pedrosa, M. Hungria, M. G. Yates, and W. E. Newton (eds.), *Nitrogen Fixation: from molecules to crop productivity*. Kluwer Academic Publishers b.v. March 2000. Presented at the 12th International Congress on Nitrogen Fixation, Iguassu Falls, Parana, Brazil.

**Saah, J.R.**, T.M. Loveless, and P.E. Bishop. 1998. Isolation of Diazotrophic Bacteria that have Molybdenum-Independent Nitrogenase Systems from Natural Environments. Presented at the Gordon Research Conference on Nitrogen Fixation, New London, New Hampshire.

**Saah, J.R.** and H.M. Hassan. 1994. The Effects of FNR and Arc on Hydroperoxidase in *Escherichia coli*. Presented at the 94th General Meeting of the American Society for Microbiology, Las Vegas, Nevada.

## REPORTS AND GUIDANCE DOCUMENTS

- **Tri-lateral Memorandum of Understanding: Genetic Biocontrol of Invasive Rodents - 2017**
- **BTEP Annual Reports and Strategic Plans – Multiple**
- **International Laboratory Assessments – Multiple**
- **Carbapenem-Resistant Enterobacteriaceae Screening and Confirmatory Testing for Infection Control Purposes in North Carolina – 2014**
- **Prevention and Management of Laboratory Exposure to *Brucella* – 2011**

## TEACHING AND WORKSHOP EXPERIENCE

- **Moderator and Presenter – FBI's Joint Criminal and Epidemiological Investigation Workshop 2013**
- **Moderator and Presenter – NCSLPH Clinical Laboratory Preparedness Workshop 2002-Present (~3x annually)**
- **Guest Lecturer – NCSU Microbiology Department 2006-Present (various guest lectures)**
- **Presenter – FBI Weapons of Mass Destruction Comprehensive Integrated Training & Exercise 2009**
- **Presenter – Forensic Epidemiology Training Course 2003-2006 (annually)**
- **Presenter – NC Office of Chief Medical Examiner Medical Legal Seminar 2001**
- **Instructor – NCSU Microbiology Laboratory 1999**
- **Instructor – UNC Pre-College Program, Mathematics and Science Education Network 1999**

## **MILITARY SERVICE**

**U.S. Marine Corps Reserve**, Lance Corporal (E-3), Field Radio Operator (MOS 2531)

- 4<sup>th</sup> Force Service Support Group, Communications Battalion, Greensboro, NC  
June 1987 – 1989 Medical Discharge, Service Connected Disability - 10% (Training Injury)