

Plant Sciences Building  
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## Education

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Colorado State University, Fort Collins, CO  
Bioagricultural Science and Pest Management- Plant Pathology  
PhD Candidate – August 2015- Present

University of New Hampshire, Durham, NH  
Plant Biology - PhD Student – August 2012-2015

Pennsylvania State University, State College, PA  
B.S. in Biological Sciences- May 2009

## Research Experience

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2015- Present: PhD Candidate — Fungal pathogens of potatoes, post-harvest disease research, ecology and epidemiology in agricultural systems. Understanding cultivar susceptibility, fungicide resistance, biocontrol efficacy. Field scale inoculations of pathogens and biocontrol fungi isolated from endemic soils. Quantitative measurements (qPCR) of soil fungi while working on bioinformatics pipeline development and statistical analysis of results in R and python programming environments.

2012- 2015: PhD Student — Dr. Kirk Broders Plant Pathology lab at the University of New Hampshire. Next-generation sequencing with illumina Hiseq and qPCR on soil 16S and ITS communities, including library prep. Comparative genomics of oomycetes. Molecular biological testing (DNA extraction + sanger sequencing) for disease, field pathology related tissue sampling.

2010- 2012: Research Associate — At the Walter Reed Army Institute of Research (WRAIR) in the Molecular Parasitology Research Lab in the Malaria Vaccine Development Division. Protein purification, DNA plasmid development, large-scale fermentation cell growth, ELISAs, western blot, small mammal work and *E. coli* /cell culturing. PIs: Dr. Evelina Angov and Dr. Elke Bergmann-Leitner. (pathogen inoculation and antibody testing)

2009-2010: Molecular Biology Lab Technician at WRAIR. In the Viral Diseases Department of the Emerging Infectious Diseases Division. Perform Luminex Multiplex assay including PCR as well as RT-qPCR work and Affymetrix MicroArray assay experiments. (Bio Safety Level 2 training, viral pathogens and human samples)

2008-2009: Lab Technician in Dr. A. Stephenson's plant, insect and disease ecology lab, Penn State University. Worked on determining whether cucumber beetles spread the bacterial pathogen *Erwinia tracheiphyla* through feces via the flower of the wild gourd, *C. pepo ssp. texana*. (inoculation/disease monitoring, data management)

2005-2007: Undergraduate Lab Technician in Dr. Roger Koide's mycology lab, measured respiration rates of varying ectomycorrhizal fungi, and maintained cultures of numerous fungal species (aseptic techniques).

## Formative Experiences

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National Science Foundation - MicroTrop 2014 fellowship in Dakar, Senegal. Month long research and lecture course with leading tropical soil microbial biologists and ecologists from US, France, and Africa. French language skills required.

The Student Conservation Association - Intern at The Redwood National and State Parks for invasive plant species management. Orick, CA, directed by Stassia Samuels PhD.

## **Publications**

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Lichtner, FJ., Broders, KD., Spatial and temporal patterns impact soil microbial community succession in a perennial forage crop system following a disturbance event. *Applied Soil Ecology* 2017 *In Review*

## **Forthcoming Publications**

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Lichtner, FJ., Broders, KD., High resolution succession of microbial communities associated with a perennial forage crop across multiple landscapes. *Microbial Ecology* 2018 *in prep.*

Lichtner, FJ., Broders, KD., Ecology of economically important fungal potato pathogens *Helminthosporium solani* and *Colletotrichum coccodes* in the San Luis Valley. *Phytopathology* 2018 *in prep.*

Lichtner, FJ., Broders, KD., Cultivar susceptibility and post-harvest treatment efficacy on Silver scurf and Black Dot in the southern Rocky Mountains. *American Potato Research Journal* 2018 *in prep.*

Lichtner, FJ., Broders, KD., *Penicillium acequia* sp. nov from the San Luis Valley of Colorado. *Fungi* 2018 *in prep.*

## **Presentations & Talks**

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2018 Southern Rocky Mountain Agriculture Conference — Integrated disease management of post-harvest pathogens in the San Luis Valley, grower options and research results. –Invited Speaker

2017 CSU San Luis Valley Research Center Field Day — Potato variety disease susceptibility testing under varied nitrogen rates as well as novel fungal bio-control efficacy. Center, CO –Oral

2017 American Phytopathological Society- Ecology and epidemiology of *Helminthosporium solani* and *Colletotrichum coccodes* on potato in the San Luis Valley of Colorado –Poster

2017 Soil Ecology Society and Soil Health Summit – Ecology of Soil Fungal Communities through ITS sequence analysis over four years in mixed successional perennial systems. CSU, Fort Collins, CO –Poster

2016 Genomics of Adaptation to Human Contexts – Sudden Oak Death: human adaptation or evolution, a genomic inquisition of *Phytophthora ramorum*. Colorado State University, Fort Collins, CO –Oral

2016 Front Range Student Ecology Symposium- Soil Microbial Community Investigation. CSU, Fort Collins, CO –Oral

2015 Oklahoma State University Soil Biology Symposium- Soil microbial community investigation associated with *Lolium perenne* in northeastern United States. Oklahoma State University, Stillwater, OK –Poster

2014 American Phytopathological Society- Characterization of foliar pathogens infecting *Lolium perenne* in the northeastern U. S. Minneapolis, MN –Poster

2013 American Phytopathological Society- *Phytophthora ramorum*: a genome wide comparison of 11 isolates from the Pacific Northwest. Austin, TX –Poster

2012 American Society for Tropical Medicine and Hygiene:

**Passively Transferred *P. falciparum* MSP1P42- Specific Antibodies Mediate Protection Against Challenge with Blood Stages of PFMSPI19 Transgenic *P. berghei* Parasites**

Elke S. Bergmann-Leitner<sup>1</sup>, Heather Hosie<sup>1</sup>, **Franz Lichtner**<sup>1</sup>, Lorraine Soisson<sup>2</sup>, Joe Cohen<sup>3</sup>, Brendan Crabb<sup>4</sup>, Christian Ockenhouse<sup>1</sup>, Carter Diggs<sup>5</sup>, Michele Spring<sup>1</sup>, Tania de Koning-Ward<sup>6</sup>, Evelina Angov<sup>1</sup>

<sup>1</sup>Walter Reed Army Institute of Research, Silver Spring, MD, United States, <sup>2</sup>United States Agency for International Development, Washington, DC, United States, <sup>3</sup>GlaxoSmithKline Biologicals, Rixensart, Belgium, <sup>4</sup>The Macfarlane Burnet Institute for Medical Research and Public Health, Melbourne, Australia, <sup>5</sup>United States Agency for International Development, Washington, DC, United States, <sup>6</sup>Deakin University, Melbourne, Australia

2011 American Society for Tropical Medicine and Hygiene:

**Vaccine Delivery Platform Impacts Inhibitory Antibody Cross-Reactivity of MSP1<sub>42</sub>-Based Vaccine**

Heather Hosie, Elke S. Bergmann-Leitner, Pinto Valerian, Elizabeth Moran, Jessica Whittington, Narendranath Bhokisham, **Franz Lichtner**, Tim Alefantis, Paul Grewal, Vito G. DelVecchio, Evelina Angov  
Division of Malaria Vaccine Development, Walter Reed Army Institute of Research, Silver Spring, MD 20910; Vital Probes, Inc., Mayfield, PA. Division of Bacterial and Rickettsial Diseases, WRAIR, Silver Spring, MD

2010 American Society for Tropical Medicine and Hygiene:

**Inactivated Escherichia coli Express Properly Disulfide-bridged Plasmodium falciparum FVO MSP-1<sub>42</sub> from Different Cellular Localizations**

Heather Hosie<sup>1</sup>, Elke S. Bergmann-Leitner<sup>1</sup>, Elizabeth H. Duncan<sup>1</sup>, Liana Sherrod<sup>1</sup>, **Franz Lichtner**<sup>1</sup>, Zachary Tycz<sup>1</sup>, Narendranath Bhokisham<sup>1</sup>, Jessica Trichilo<sup>2</sup>, ...& Tania de Koning-Ward<sup>3</sup>, and Evelina Angov<sup>1</sup>

<sup>1</sup>Walter Reed Army Institute of Research, Silver Spring, MD, United States; <sup>2</sup>Vital Probes, Inc., Mayfield, PA, United States; <sup>3</sup>Microbiology & Immunology School of Medicine  
Deakin University Pigdons Road Waurin Ponds, Victoria, 3217 Australia.

## Formal Acknowledgements

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**Strain-specific Plasmodium falciparum growth inhibition among Malian children immunized with a blood-stage malaria vaccine.** Laurens MB, Kouriba B, Bergmann-Leitner E, Angov E, Coulibaly D, et al. (2017) PLOS ONE 12(3): e0173294. <https://doi.org/10.1371/journal.pone.0173294>

**Temperature sensitivity of respiration differs among forest floor layers in a Pinus resinosa plantation.**

Glenna M. Malcolm, Juan C. Lopez-Gutierrez and Roger T. Koide, Soil Biology and Biochemistry (2009) 41(6): 1075-1079

**Ectomycorrhizal fungi from Alaska and Pennsylvania: adaptation of mycelia respiratory response to temperature?** Juan C. Lopez-Gutierrez, Glenna M. Malcolm, Roger T. Koide and David M. Eissenstat New Phytologist (2008) 180: 741-744

## Awards/Funding

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2017 Colorado Potato Administration Committee, Silver Scurf Research – Dr. Broders as PI (\$46,000)  
2015 University Programs for Research and Scholarly Excellence Fellowship (\$5000)  
2014 NSF Fellowship MicroTrop Research Opportunity- Senegal, Africa  
2012 Graduate Research Assistantship USDA OREI UNH  
2008 Undergraduate Summer Discovery Grant, The Pennsylvania State University (\$2,500)  
2007 Eberly College of Science Travel Grant, The Pennsylvania State University (\$800)  
2007 The University of Leeds Travel Award (\$1000) Leeds, England.  
2005 The Boy Scouts of America: Eagle Scout

## Teaching and Leadership

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2016 Colorado State University- Elements of Plant Pathology, Teaching Assistant  
2015 Colorado State University- Introductory Biology, Teaching Assistant  
2015 Colorado State University- Front Range Student Ecology Symposium Organizer  
2014 University of New Hampshire Department of Biology, Graduate Seminar Organizer  
2012 University of New Hampshire- Mycology, Teaching Assistant