Franz Johann Lichtner
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Education

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

2017- Present: Focus on fungal pathogens of potatoes, *Helminthosporium solani* and *Colletotrichum coccodes*, ecology and epidemiology in Colorado. Understanding cultivar susceptibility, fungicide resistance, biocontrol efficacy. Field scale inoculations of pathogens and biocontrol fungi isolated from endemic soils. Utilizing next generation sequencing on soil microbial communities while working on bioinformatics pipeline development and analysis of results in R.

2015- 2016: PhD Candidate Research Assistant at Colorado State University in Dr. Kirk Broders Plant Pathology Lab focusing on potato fungal pathogens in the San Luis Valley of Colorado. Focusing on soil borne fungal pathogens contributing to yield loss for both production focused growers as well as seed producers for distribution and variety trials. Designing and implementing Syngenta fungicide trials on potato and barley crops.

2012- 2015: Full-time Research Assistant in Dr. Kirk Broders Plant Pathology laboratory at the University of New Hampshire. Focus: Metagenomic Analysis with illumina Hiseq and Roche Light Cycler 2.0 qPCR on soil bacteria and fungal communities on organic dairy pasture, through collaboration on a USDA Organic Research Extension Initiative (Vermont, Maine, New Hampshire and Pennsylvania).

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. Performing protein purification, DNA plasmid development, large-scale fermentation cell growth, ELISAs, small mammal work and *E. coli* culturing. Working under Dr. Evelina Angov and Dr. Elke Bergmann-Leitner.

2009-2010: Molecular Biology lab technician at WRAIR. Working 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.

Formative Experiences

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.

2008-2009: Lab Technician in Dr. Andrew Stephenson's plant, insect and disease ecology lab, Penn State University. Mainly worked on determining whether or not cucumber beetles could spread the bacterial pathogen *Erwinia tracheiphyla* through feces via the flower of the wild gourd, *C. pepo ssp. texana*.
2005-2007: Lab Technician in Dr. Roger Koide's mycology lab, measured respiration rates of varying ectomycorrhizal fungi, and maintained cultures of numerous fungal species.

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

Lichtner, FJ., Broders, KD., Spatial and temporal patterns of microbial communities associated with a perennial forage crop. International Society of Microbial Ecology (ISME) 2017 *in prep*.

Lichtner, FJ., Broders, KD., Ecology of economically important fungal potato pathogens *Helminthosporium solani* and *Colletotrichum coccodes* in the San Luis Valley. Phytopathology 2017 *in prep*.

Lichtner, FJ., Broders, KD., Field control and post harvest management of *Helminthosporium solani* and *Colletotrichum coccodes* in potato. Plant Disease 2018 *in prep*.

Lichtner, FJ., Broders, KD., *Penicillium acequia sp. nov* from the San Luis Valley of Colorado. Mycological Progress 2017 *in prep.*

Lichtner, FJ. "Don't let your pasture rust. Fight *Puccinia*" *On Pasture,* Online Magazine. 10/20/2014 www.onpasture.com

Presentations

2017 San Luis Valley Research Center Field Day- Ecology and Epidemiology of two economically important fungal pathogens of potato in Colorado. Center, CO. **Oral**

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. Colorado State University, Fort Collins, CO. **Poster**

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

2016 Front Range Student Ecology Symposium- Soil Microbial Community Investigation. Colorado State University, 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 *PF*MSP1P19 Transgenic *P. berghei* Parasites
Elke S. Bergmann-Leitner[1], Heather Hosie[1], **Franz Lichtner[1],** Lorraine Soisson[2], Joe Cohen[3], Brendan Crabb[4], Christian Ockenhouse[1], Carter Diggs[5], Michele Spring[1], Tania de Koning-Ward[6], Evelina Angov[1]
[1]Walter Reed Army Institute of Research, Silver Spring, MD, United States, [2]United States Agency for International Development, Washington, DC, United States, [3]GlaxoSmithKline Biologicals, Rixensart, Belgium, [4]The Macfarlane

Burnet Institute for Medical Research and Public Health, Melbourne, Australia, [5]United States Agency for International Development, Washington, DC, United States, [6]Deakin University, Melbourne, Australia. **Poster**

2011 American Society for Tropical Medicine and Hygiene:
Vaccine Delivery Platform Impacts Inhibitory Antibody Cross-Reactivity of $MSP1_{42}$-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. **Poster**

2010 American Society for Tropical Medicine and Hygiene:
Inactivated Escherichia coli Express Properly Disulfide-bridged *Plasmodium falciparum* FVO $MSP\text{-}1_{42}$ from Different Cellular Localizations
Heather Hosie[1], Elke S. Bergmann-Leitner[1], Elizabeth H. Duncan[1], Liana Sherrod[1], **Franz Lichtner[1]**, Zachary Tycz[1], Narendranath Bhokisham[1], Jessica Trichilo[2], Clarissa Dake[2], Tim Alefantis[2], Paul Grewal[2], Tania de Koning-Ward[3], Vito G. DelVecchio[2], and Evelina Angov[1]
[1]Walter Reed Army Institute of Research, Silver Spring, MD, United States; [2]Vital Probes, Inc., Mayfield, PA, United States; [3]Microbiology & Immunology School of Medicine
Deakin University Pigdons Road Waurn Ponds, Victoria, 3217 Australia. **Poster**

Formal Acknowledgements

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 Volume 41, Issue 6, June 2009, Pages 1075-1079

Ectomycorrhizal fungi from Alaska and Pennsylvania: adaptation of mycelia respiratory response to temperature? Juan C. Lopez-Gutierrez[1,3], Glenna M. Malcolm[2], Roger T. Koide[1,2] and David M. Eissenstat[1,2] New Phytologist (2008) 180**:** 741-744

Awards and Grants

2017 Colorado Potato Administrative Committee, Silver Scurf Research in the SLV, Co-PI ($46,000)
2015 University Programs for Research and Scholarly Excellence Fellowship ($5000)
2014 NSF Fellowship MicroTrop Research Opportunity- Senegal, Africa
2012-2015 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

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