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Education

- 2016 **PhD**, *University of Utah*, Salt Lake City, UT, USA.
○ Zebrafish reveal variable effects of *Escherichia coli* during sepsis.
○ Doctoral advisor: Matthew Mulvey
- 2006 **BS**, *University of Wisconsin-Madison*, Madison, WI, USA.
○ Medical Microbiology & Immunology; Women's Studies

Experience

- 2020-present **Junior Group Leader**, *Leibniz Institute for Natural Product Research and Infection Biology - Hans Knöll Institute*.
○ Investigating how environmental fungi evolved to cause human disease using experimental and computational approaches
- 2016-2020 **Postdoctoral Fellow**, *Leibniz Institute for Natural Product Research and Infection Biology - Hans Knöll Institute*, Oliver Kurzai, PI.
○ Quantified the impact of azole fungicide use in agriculture on the ecology and resistance status of *Aspergillus fumigatus* in a three year field study
○ Population and comparative genomics of ≈ 275 clinical and environmental *Aspergillus fumigatus* isolates
○ NGS-based surveillance of *Candida auris* isolates submitted to the National Reference Center for Invasive Fungal Infection in Germany
- 2009-2016 **Graduate Research Assistant**, *University of Utah*, Matthew Mulvey, PI.
○ Characterized the host response to genetically distinct pathogenic *Escherichia coli* strains
○ Determined contributions of bacterial flagellin and TLR5 signaling to host response during sepsis
○ Established and validated zebrafish model of sepsis by comparing clinical symptoms of human sepsis patients to pathologies seen in infected zebrafish embryos
○ Created transgenic zebrafish lines putting IL-1 β and IL-10 under inducible control and knocking out IL-10
- 2007-2009 **Research Specialist**, *University of Wisconsin-Madison*, Clive Svendsen, PI.
○ Examined the neuroprotective and neuroregenerative effects of neural progenitor cell transplants expressing GDNF, IGF-1, and VEGF in animal models of neurodegenerative disease
○ Characterized five patient-derived Huntingtons Disease iPS cell lines and established a differentiation protocol for making DARPP-32 positive striatal neurons from iPS cells
- 2005-2007 **Undergraduate Researcher**, *University of Wisconsin-Madison*, Ken Raffa, PI.
○ Defined the gut microbiome of the Emerald Ash Borer and the Southern Pine Beetle

- 2004-2005 **Undergraduate Researcher**, *University of Wisconsin-Madison*, Barbara St. Pierre Schneider, PI.
- Investigated the effects of effects of estrogen and progesterone on exercise-induced muscle injury

Research Support & Awards

- 2018 International Society for Human and Animal Mycology Attendance Grant.
- 2017 European Confederation of Medical Mycology Young Investigators Travel Award.
- 2015 ASM Richard and Mary Finkelstein Travel Award.
- 2015 University of Utah Graduate School Travel Award.
- 2012-2014 NIAID T-32 Microbial Pathogenesis Training Grant.

Publications

- 2020 **Low rate of azole resistance in cases of avian aspergillosis in Germany**, AE Barber*, S Scheufen*, G Walther, O Kurzai, V Schmidt, under review, *equal contribution.
- 2020 **Azole use reduces abundance but does not significantly alter the population structure of *Aspergillus fumigatus* in agricultural fields**, AE Barber*, J Born*, T Sae-Ong, K Kang, W Brabetz, G Panagiotou, HB Deising, O Kurzai, under review, *equal contribution.
- 2019 ***Candida auris* in Germany and Previous Exposure to Foreign Health-care**, A Hamprecht, AE Barber, SC Mellinghoff, P Thelen, G Walther, Y Yu, ..., Emerging Infectious Diseases.
- 2019 **Comparative genomics of serial *Candida glabrata* isolates and the rapid acquisition of echinocandin resistance during therapy**, AE Barber, M Weber, K Kaerger, J Linde, H Gözl, D Duerschmied, ..., Antimicrobial Agents And Chemotherapy.
- 2017 ***Escherichia coli* O78 isolated from septicemic lambs shows high pathogenicity in a zebrafish model**, CK Kjelstrup, AE Barber, JP Norton, MA Mulvey, TM L'Abée-Lund, Veterinary Research.
- 2016 **Similarly lethal strains of extraintestinal pathogenic *Escherichia coli* trigger markedly diverse host responses in a zebrafish model of sepsis**, AE Barber, BA Fleming, MA Mulvey, mSphere.
- 2016 **Strengths and limitations of model systems for the study of urinary tract infections and related pathologies**, AE Barber, JP Norton, TJ Wiles, MA Mulvey, Microbiol. Mol. Biol. Rev..

- 2013 **Urinary tract infections: current and emerging management strategies**, AE Barber, *JP Norton*, *AM Spivak*, *MA Mulvey*, Clinical Infectious Diseases.
- 2013 **The Cpx stress response system potentiates the fitness and virulence of uropathogenic *Escherichia coli***, *I Debnath*, *JP Norton*, AE Barber, *EM Ott*, *BK Dhakal*, *RR Kulesus*, ..., Infection And Immunity.
- 2010 **Ex vivo delivery of GDNF maintains motor function and prevents neuronal loss in a transgenic mouse model of Huntington's disease**, *AD Ebert*, AE Barber, *BM Heins*, *CN Svendsen*, Experimental Neurology.
- 2008 **Human neural progenitor cells over-expressing IGF-1 protect dopamine neurons and restore function in a rat model of Parkinson's disease**, *AD Ebert*, *AJ Beres*, AE Barber, *CN Svendsen*, Experimental Neurology.

Presentations

- 2020 15th European Conference on Fungal Genetics. Rome, Italy. Flash talk and poster: "Azole use in agriculture reduces *Aspergillus fumigatus* abundance, but does not alter its population structure"
- 2019 Trends in Medical Mycology. Nice, France. Poster: "Comparative genomics of *Aspergillus fumigatus* and the influence of agriculture on ecology and azole resistance."
- 2019 30th Fungal Genetics Conference. Pacific Grove, CA, USA. Oral Presentation and poster: "Influence of conventional vs. organic agricultural practices on the ecology and azole resistance status of *Aspergillus fumigatus*."
- 2018 16th Congress of the International Society for Human and Animal Mycology. Amsterdam, Netherlands. Poster: "Comparitve genomics of environmental *Aspergillus fumigatus* and the role of agricultural azoles on the emergence of resistance."
- 2017 Trends in Medical Mycology. Belgrade, Serbia. Poster: "Incidence and mechanisms of azole resistance among *Aspergillus fumigatus* in Germany."
- 2017 Visions for Infection Control: InfectControl 2020 Strategy Conference. Jena, Germany. Oral presentation: "The State of Azole Resistance in *Aspergillus fumigatus* in Germany."
- 2017 Joint Conference of the DGHM & VAAM. Würzburg, Germany. Poster: "Incidence and mechanisms of azole resistance among *Aspergillus fumigatus* in Germany."
- 2015 ASM Microbe. New Orleans, LA, USA. Oral presentation and poster: "Differential stimulation of TLR5 by lethal strains of *Escherichia coli* triggers markedly diverse host responses during sepsis."

- 2015 Keystone Symposium on Innate Immunity and Determinants of Microbial Pathogenesis. Tahoe, CA, USA. Poster: "Differential stimulation of TLR5 by lethal strains of *Escherichia coli* triggers markedly diverse host responses during sepsis."
- 2013 8th European Zebrafish Meeting. Barcelona, Spain. Poster: "Fishing for a new sepsis model – using zebrafish embryos to study the innate immune response during septicemia."
- 2012 Institute for Biology Education, University of Wisconsin-Madison. Madison, WI, USA. Oral presentation: "Zebrafish as a model of *Escherichia coli* septicemia."
- 2012 Microbial Pathogenesis Retreat. Salt Lake City, UT, USA. Oral presentation: "Strains of extraintestinal pathogenic *Escherichia coli* elicit markedly diverse host responses in a zebrafish model of septicemia."
- 2012 Symposium on Biological Complexity: Immunity and Inflammation. La Jolla, CA, USA. Poster: "Strains of extraintestinal pathogenic *Escherichia coli* elicit markedly diverse host responses in a zebrafish model of septicemia."
- 2011 Microbial Pathogenesis and Host Response. Cold Spring Harbor, NY, USA. Poster: "Extraintestinal pathogenic *Escherichia coli* diversity critically impacts host response in a zebrafish model of septicemia."

Supervisory Experience

- 2016-2017 Antonia Lange. Masters student
- 2016 Elmira Keramatfar. Laboratory assistant
- 2016 Alex Tran. Undergraduate research student
- 2013-2016 Kevin Nelson. Undergraduate research student
- 2011-2016 Various rotation students through the University of Utah Molecular Biology Program.

Academic Teaching Experience

- 2014 Instructor, Mechanisms of Bacterial Pathogenesis. University of Utah
- 2013 Teaching assistant, Mechanisms of Bacterial Pathogenesis. University of Utah
- 2011 Teaching assistant, Introduction to Medical Microbiology. University of Utah

Institutional Service

- 2012-2015 Graduate Biosciences Academic Misconduct Committee. University of Utah
- 2011 Department of Pathology Faculty Retention and Promotion Committee. University of Utah
- 2010 Molecular Biology Graduate Program External Review. University of Utah

Outreach

- 2019 Skype a Scientist.
- 2017 Long Night of Science Jena.
- 2014-2015 Initiative to Bring Science Programs to the Incarcerated (INSPIRE).

2014 McMillian Elementary School.
2014 University of Utah Educational Outreach Program.
2013 Explore Utah Science.

References

Gianni Panagiotou

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Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute,
Jena, Germany
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Oliver Kurzai

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Group Leader, Leibniz Institute for Natural Product Research and Infection Biology – Hans
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Matthew Mulvey, doctoral advisor

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