

Amelia E. Barber

Junior Group Leader, Leibniz-HKI

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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*, Jena, Germany.
- Investigating how environmental fungi acquire the ability 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*, Jena, Germany.
- Research group of Oliver Kurzai
 - 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 ≈ 250 clinical and environmental *Aspergillus fumigatus* isolates
 - NGS-based surveillance of *Candida auris* in Germany in collaboration with the National Reference Center for Invasive Fungal Infection (NRZMyk)
- 2009-2016 **Graduate Research Assistant**, *University of Utah*, Salt Lake City, UT.
- Research group of Matthew Mulvey
 - Characterized how the vast genetic diversity in pathogenic *Escherichia coli* strains impacts host response and disease progression during sepsis
 - Defined the specific contributions of bacterial flagellin and TLR5 signaling to host response during sepsis
- 2007-2009 **Associate Research Specialist**, *University of Wisconsin-Madison*, Madison, WI.
- Examined the neuroprotective and neuroregenerative effects of neural progenitor cell transplants expressing GDNF, IGF-1, and VEGF in animal models of neurodegenerative disease
 - Research group of Clive Swendsen
- 2005-2007 **Undergraduate Researcher**, *University of Wisconsin-Madison*, Madison, WI.
- Research group of Ken Raffa
 - Defined the gut microbiome of the Emerald Ash Borer and the Southern Pine Beetle

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

Research Support & Awards

- 2020-2024 DfG Excellence Cluster 'Balance of the Microverse' Junior Research Group.
- 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.

Preprints

- 2020 **Azole use reduces abundance but does not significantly alter the population structure of *Aspergillus fumigatus* in agricultural fields**, *AE Barber*, *J Riedel*, *T Sae-Ong*, *K Kang*, *W Brabetz*, *G Panagiotou*, *HB Deising*, *O Kurzai*, bioRxiv.

Publications

- 2020 **Low rate of azole resistance in cases of avian aspergillosis in Germany**, *AE Barber*, *S Scheufen*, *G Walther*, *O Kurzai*, *V Schmidt*, *Medical Mycology*.
- 2019 ***Candida auris* in Germany and Previous Exposure to Foreign Healthcare**, *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 Götz*, *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.