



Personal Information

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Research Interests

Antifungal resistance
Phylo- and population genomics of fungal pathogens
Evolution and pathoecology of microbial virulence

Education

August 2016 **PhD**, Microbiology and Immunology
University of Utah, Salt Lake City, UT (USA)
"Zebrafish reveal variable effects of Escherichia coli during sepsis"

December 2006 **BS**, Medical Microbiology & Immunology; Women's Studies
University of Wisconsin-Madison, Madison, WI (USA)

Academic Positions

2022 - present **Independent Junior Group Leader.**
Excellence Cluster Balance of the Microverse
Institute for Microbiology, Friedrich Schiller University, Jena, Germany.

2020 - 2022 **Junior Group Leader.** Integrated into the group of Gianni Panagiotou.
Leibniz-HKI, Jena, Germany.

2016 - 2020 **Postdoctoral Fellow**, Research group of Oliver Kurzai.
Leibniz-HKI and University of Würzburg, Jena and Würzburg, Germany.

2010 - 2016 **Doctoral Researcher**, Research group of Matthew A. Mulvey.
University of Utah, Salt Lake City, UT, USA.

2007 - 2009 **Associate Research Specialist**, Research group of Clive N. Svendsen.
University of Wisconsin-Madison, Madison, WI, USA.

Funding

2024 - 2027 Leibniz Competition. Fungal RNA Transmission Impacting Human Epigenome Regulation. *Role: Co-PI.*

2024 - 2026 FSU ProChance^{career}. Functionalizing the Aspergillus fumigatus pangenome. *Role: PI.*

2024 Balance of the Microverse Flexible Funds.

2023 - 2024 FSU Stipendium for Female Postdocs. Characterization of long non-coding RNAs associated with Aspergillus spp. virulence. *Role: Host.*

2023 Balance of the Microverse Flexible Funds.

Since 2020 Junior research group funded by the DFG Excellence Cluster Balance of the Microverse; UK MRC-funded fellowship declined.

2019 - 2022 Contributed to FINAR 2.0 funded by the BMBF/InfectControl.

2012 - 2014 T-32 Microbial Pathogenesis Doctoral Training Grant funded by NIAID.



Five Selected Publications

Loos D⁺, **Pereira A⁺**, Dutilh B, **Barber AE^{*}**, Panagiotou G^{*}. A global survey of host, aquatic, and soil microbiomes reveals shared abundance and genomic features between bacterial and fungal generalists. Cell Reports. 2024. ^{*}equal contribution, ^{*}corresponding author(s)

Mirhakkak MH, Chen X, Sae-Ong T, Xu L, Heinekamp T, Kurzai O, **Barber AE**, Brakhage AA, Boutin S, Schäuble S, Panagiotou G. Genome-scale metabolic modeling of *Aspergillus fumigatus* strains reveals growth dependencies on the lung microbiome. Nature Communications. 2023.

Barber AE, Sae-Ong T, Kang K, Li J, Walther G, Panagiotou G, Kurzai O. *Aspergillus fumigatus* pan-genome analysis identifies genetic variants associated with human infection. Nature Microbiology. 2021.

Barber AE^{*}, Riedel J, Sae-Ong T, Kang K, Brabetz W, Panagiotou G, Kurzai O^{*}. Effects of Agricultural Fungicide Use on *Aspergillus fumigatus* Abundance, Antifungal Susceptibility, and Population Structure. mBio. 2020. ^{*}corresponding author(s)

Barber AE, Fleming BA, Mulvey MA. Similarly Lethal Strains of Extraintestinal Pathogenic *Escherichia coli* Trigger Markedly Diverse Host Responses in a Zebrafish Model of Sepsis. mSphere. 2016. Featured on the ASM Podcast "This Week in Microbiology," episode 126.

Full publication list available at: <https://scholar.google.com/citations?user=COgbwJ4AAAAJ>

Preprints and Submitted Manuscripts

Brassington P, Klefisch FR, Graf B, Pfüller R, Kurzai O, Walther G, **Barber AE^{*}**. Genomic reconstruction of an azole-resistant *Candida parapsilosis* outbreak and the creation of a multilocus sequence typing scheme. medRxiv. 2024. ^{*}corresponding author

Lerer V, Rocha M, Adeoye J, Hayby, H, **Fabre ML**, **Barber AE**, Shlezinger N. *Aspergillus* dsRNA virus drives fungal fitness and pathogenicity in the human host. *Submitted*.

Janevska S, Weiser S, Huang Y, Lin J, Hoefgren S, Jojić K, **Barber AE**, Schäfter T, Fricke J, Hoffmeister D, Regestein L, Valiante V, Kufs JE. Optimized Psilocybin Production in Tryptophan Catabolism-Repressed fungi. *Submitted*.

Honors and Awards

2022	Publication Prize, German Speaking Mycological Society
2021-22	Leibniz Mentoring Program
2021	Medac Research Prize
2018	International Society for Human and Animal Mycology Attendance Grant
2017	European Confederation of Medical Mycology Young Investigator Award
2015	ASM Richard and Mary Finkelstein Travel Award
2015	University of Utah Graduate School Travel Award
2012	University of Utah Alma Mater Travel Award

Supervision

Since 2021	Postdocs: <i>L. Fabre</i> PhD students: <i>P. Brassington, A. Pereira, M. Perrier</i> Masters student: <i>H. Lin</i> Bachelors student: <i>L. Krämer</i> Visiting researchers: <i>A. Ryan, J. Adeoye, S. Cendon</i>
2012 - 2022	Co-supervision of: PhD students: <i>T. Sae-Ong, D. Loos</i> // Masters student: <i>A. Lange</i> // Bachelors students: <i>A. Tran, K. Nelson</i>

Teaching

2022 - present	Lecture and practical modules, Microbiology and Molecular Biology. Friedrich Schiller University.
2024	Invited lecture, Medical Mycology course run by Uppsala University and Swedish University of Agricultural Sciences
2014 - 2015	Instructor, Initiative to Bring Science Programs to the Incarcerated (INSPIRE) Utah State Prison and Salt Lake County Jail
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

Academic Service and Society Memberships

- Peer reviewer for mBio, PLoS Pathogens, Nature Microbiology, Microbial Genomics, G3, Antimicrobial Agents and Chemotherapy, Environmental Microbiology, Applied and Environmental Microbiology, Communications Biology.
- External grant reviewer for UKRI and BSF.
- Guest editor at PLoS Genetics

Since 2023	Elected member, Aspergillus Genomes Research Policy Committee
Since 2023	Member, Association for General and Applied Microbiology (VAAM)
Since 2021	Member, German Speaking Mycological Society (DMyG)
Since 2020	Invited member, Scientific Network for Antifungal Resistance (SN-AFR)
Since 2020	National Research Data Infrastructure NFDI4Microbiota representative for the Microverse Cluster and the Leibniz-HKI
2020 - 2022	Support CRC/Transregio 124 FungiNet with infrastructure subproject
2018- 2020	Member, International Society for Human and Animal Mycology (ISHAM)
2013 - 2016	Member, American Society of Microbiology (ASM)
2012 - 2015	University of Utah Academic Misconduct Committee in Graduate Biosciences
2011	University of Utah Department of Pathology Faculty Retention and Promotion Committee

Invited Presentations

- 2024 GRC Cellular and Molecular Fungal Biology. *Holderness, NH, USA.*
- 2024 British Society for Medical Mycology Annual Meeting. *Cardiff, UK.*
- 2024 FEBS Host-Pathogen Interactions in Human Fungal Pathogens. *La-Colle-sur-Loup, FR.*
- 2023 University of Exeter, Centre for Medical Mycology MycoTalks. *Virtual.*
- 2023 University of Neuchâtel. *Neuchâtel, CH.*
- 2023 University of Gießen. *Gießen, DE.*
- 2023 Asperfest, European Conference on Fungal Genetics. *Innsbruck, AT.*
- 2022 Antifungal Resistance: An Environmental Update. *Wageningen, NL.*
- 2022 Microbial Communities: Current Approaches and Open Challenges. *Cambridge, UK*
- 2022 University of Basel Biozentrum. *Virtual.*
- 2022 DMykG Mykosen am Mittwoch. *Virtual.*
- 2020 Medical Mycology Trainee Seminar Series – Inaugural seminar. *Virtual.*

Other Selected Presentations

- 2024 Joint Conference of the DGHM/VAAM. *Würzburg, DE.*
- 2023 Reinhardsbrunn Symposium. *Freidrichroda, DE.*
- 2023 European Conference on Fungal Genetics, Main meeting and Fusarium Workshop. *Innsbruck, AT.*
- 2022 Global Health Institute, Swiss Federal Institute of Technology. *Lausanne, CH.*
- 2022 FEBS Host-Pathogen Interactions in Human Fungal Pathogens. *La-Colle-sur-Loup, FR.*
- 2022 EMBL The Next Generation of Infection Biology. *Virtual.*
- 2022 Advances Against Aspergillosis and Mucormycosis. *Virtual.*
- 2021 Scientific Conference of the German-speaking Mycological Society. *Virtual.*
- 2021 LIFE Mini-Symposium. Friedrich Schiller University. *Jena, DE. Virtual.*
- 2020 European Conference on Fungal Genetics. *Rome, IT.*
- 2019 Trends in Medical Mycology Conference. *Nice, FR.*
- 2019 Fungal Genetics Conference. *Pacific Grove, CA, USA.*
- 2017 Visions for Infection Control: InfectControl Strategy Conference. *Jena, DE.*
- 2015 ASM Microbe. *New Orleans, LA, USA.*
- 2012 Institute of Biology Education. University of Wisconsin-Madison. *Madison, WI, USA.*

Outreach

- 2019 Long Night of Science Jena
- 2019 Skype a Scientist
- 2018 World Sepsis Day
- 2017 Long Night of Science Jena
- 2014 McMillian Elementary School
- 2014 University of Utah Educational Outreach Program
- 2012 – 2013 Explore Utah Science