



Personal Information

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Research Interests

Phylo- and population genomics of fungal pathogens
Antifungal resistance
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

2025 - 2027 Boehringer Ingelheim Foundation. Environmental interactions shape human virulence in fungi. *Role: PI.*

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

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

2024 Balance of the Microverse Flexible Funds. *Role: PI.*

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. *Role: PI.*

Since 2020 Junior research group funded by the DFG Excellence Cluster Balance of the Microverse. UK MRC Early Career Fellowship declined.

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

(funding continued)

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

Publications

Five Selected Publications

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. *The Lancet Microbe*. In press. ^{*}corresponding author

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)

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

Preprints

Hatmaker AE, **Barber AE**, Drott MT, Sauters TJC, Alastruey-Izquierdo A, Garcia-Hermoso D, Kurzai O, Rokas A. Pathogenicity is associated with population structure in a fungal pathogen of humans. *bioRxiv*

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 Bioscience Symposium Poster Award
2012	University of Utah Alma Mater Travel Award



Trainees Supervised

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> Guest 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

2024	Invited keynote, Medical Mycology course run by Uppsala University and Swedish University of Agricultural Sciences
2022 - present	Lecture and practical modules, Microbiology and Molecular Biology. Friedrich Schiller University.
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 for 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. <i>Holderness, NH, USA.</i>
2024	British Society for Medical Mycology Annual Meeting. <i>Cardiff, UK.</i>
2024	FEBS Host-Pathogen Interactions in Human Fungal Pathogens. <i>La Colle-sur-Loup, FR.</i>
2023	University of Exeter, Centre for Medical Mycology MycoTalks. <i>Virtual.</i>
2023	University of Neuchâtel. <i>Neuchâtel, CH.</i>
2023	University of Gießen. <i>Gießen, DE.</i>
2023	Asperfest, European Conference on Fungal Genetics. <i>Innsbruck, AT.</i>
2022	Antifungal Resistance: An Environmental Update. <i>Wageningen, Netherlands.</i>
2022	Microbial Communities: Current Approaches and Open Challenges. <i>Cambridge, UK.</i>
2022	University of Basel Biozentrum. <i>Basel, CH.</i>
2022	DMykG Mykosen am Mittwoch. <i>Virtual.</i>

Other Selected Presentations

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

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