



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

Brassington PJT, **Fabre ML**, Zimmermann A, **Perrier M**, Martin R, Kurzai O, **Barber AE***. Comparative pan-genomics reveals divergent adaptations in clinically-relevant members of the *Fusarium solani* species complex. *bioRxiv*.

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

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| 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

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| 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

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| 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

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| 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

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| 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

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| 2024 | Scientific Conference of the German-speaking Mycological Society (DMyKG). <i>Jena, DE.</i> |
| 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 DMyKG. <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

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| 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 |