

MICROBIOLOGY, BIOINFORMATICS AND PHARMACOLOGY EXPERIENCE

HUMBOLDT FELLOW/GROUP LEADER

Universität Hamburg, GERMANY

May 2026 – Present

COMPUTATIONAL BIOLOGIST/BIOINFORMATICIAN/PHARMACOMETRICIAN (RESEARCH FELLOW) Monash University, AUSTRALIA

May 2021 – Present

Li's Laboratory of Antimicrobial Systems Pharmacology, Monash University / Melbourne, VIC, Australia

Topic: Targeting multidrug-resistant (MDR) *Acinetobacter baumannii*: Integration of AI, systems pharmacology, and contemporary pharmacokinetics/pharmacodynamics for novel antibiotic combinations (including phage-antibiotic combination).

CONFERENCE SCIENTIFIC COMMITTEE MEMBER

Feb 2021 – Present

International Society of Antimicrobial Chemotherapy / UK

CONFERENCE ORGANISING COMMITTEE MEMBER

Feb 2021 – Present

Victorian Infection and Immunity Network / Australia

EDUCATION

PhD of Antimicrobial Pharmacology (Antimicrobial Pharmacology and Bioinformatics) Feb 2017 – May 2021

Monash University, Melbourne, VIC, Australia

Topic: Systems pharmacology of polymyxins and their synergistic combinations against *Acinetobacter baumannii*.

Aim: To develop optimal polymyxin-based combination dosage regimens that maximise antimicrobial efficacy, while minimising toxicity and resistance by integrating microbial evolution, computational biology, pharmacokinetics, pharmacodynamics, bioinformatics, and systems pharmacology.

Master of Bioengineering (Microbiology and Antimicrobial Pharmacology)

Sep 2013 – Jun 2016

Shandong University, Shandong, China (Completed in collaboration with Monash Institute of Pharmaceutical Sciences)

Bachelor of Biological Science

Sep 2008 – Jun 2012

Shandong University, Shandong, China

PUBLICATIONS

Selected 5 First/Co-first/Corresponding Authored Publications:

Zhao J. et al. PhageGE: an interactive web platform for exploratory analysis and visualization of bacteriophage genomes. *GigaScience*

Zhao J. et al. Model-informed dose optimisation of polymyxin-rifampicin combination therapy against multidrug-resistant *Acinetobacter baumannii*. *International Journal of Antimicrobial Agents*

Zhao J. et al. Polymyxin dose tunes the evolutionary dynamics of resistance in multidrug-resistant *Acinetobacter baumannii*. *Clinical Microbiology and Infection*

Zhao J. et al. Comparative metabolomics reveals key pathways associated with the synergistic activity of polymyxin B and rifampicin combination against multidrug-resistant *Acinetobacter baumannii*. *Biochemical Pharmacology*

Zhao J. et al. Genome-scale metabolic modeling reveals metabolic alterations of multidrug-resistant *Acinetobacter baumannii* in a murine bloodstream infection model. *Microorganisms*

Authored and co-authored 65 publications:

<https://scholar.google.com/citations?user=LbntoI0AAAAJ&hl=en&oi=ao>

RESEARCH GRANTS

Monash Platform Access Grant, Monash University (PI)	<i>Sep 2025 – Sep 2026</i>
Title: Context-specific metabolic modelling for understanding bacterial metabolic adaptation	
Grant Amount: valued AUD \$ 14,949	
M20 Genomics (PI)	<i>Nov 2024 – Nov 2025</i>
Title: Single-cell sequencing for understanding the heteroresistance in <i>K. pneumoniae</i>	
Grant Amount: valued AUD \$ 88,400	
AUSTRALIAN SYNCHROTRON BEAMTIME, Australian Synchrotron (Co-PI)	<i>Oct 2024 – Sep 2025</i>
Title: BioSAXS analysis of antimicrobial action of peptides/proteins	
Grant Amount: valued AUD \$ 32,784	
Monash Platform Access Grant, Monash University (Co-PI)	<i>Oct 2023 – Sep 2024</i>
Title: Targeting bacterial membrane remodelling to combat antimicrobial	
Grant Amount: valued AUD \$ 10,000	
Azenta SPARK Grant, Azenta Life Science, US (PI)	<i>Oct 2023 – Sep 2024</i>
Title: Targeting bacterial membrane remodelling to combat antimicrobial	
Grant Amount: valued AUD \$ 10,000	
BGI STOmics Grant (PI)	<i>Jan 2023 – Dec 2024</i>
Title: Spatiotemporal map of mouse kidney in response to polymyxins and polymyxin analogues	
Grant Amount: valued AUD \$ 20,000 (~119,500 €)	
The International Society of Antimicrobial Chemotherapy Project Grant (PI)	<i>Jul 2022 – Jul 2024</i>
Title: Evolution on lung-chip drives dose optimisation of antibiotic combination therapies: A systems and computational approach	
Grant Amount: £ 9,700 (~11,275 €)	
Faculty of Medicine Nursing and Health Sciences Bridging Fellowship (PI)	<i>Jul 2022 – Jul 2023</i>
Title: Transforming antimicrobial pharmacokinetics/pharmacodynamics: A microbial evolution and computational approach	
Grant Amount: AUD \$ 60,000 (~41,000 €)	
Grant Amount: AUD \$ 25,000 (~17,000 €)	
Monash Platform Access Grant, Monash University (PI)	<i>Aug 2021 – Dec 2021</i>
Title: Evolution drives dose optimisation of polymyxin combination therapies: a systems and computational approach	
Grant Amount: AUD \$19,731 (~13,500 €)	
DAAD Short-Term Research Fellowship, German Academic Exchange Service (PI)	<i>Apr 2019 – Jul 2019</i>
Title: Elucidate the mechanisms of antibiotic killing by integrating Genome-scale metabolic modelling with multi-omics data	
Grant Amount: Euro €5,575	

AWARDS AND RECOGNITION

DAAD AInet Fellowship	<i>2025</i>
The DAAD (the German Academic Exchange Service)	
35th ECCMID Travel Award	<i>2025</i>
European Society of Clinical Microbiology and Infectious Diseases	
2025 Rod Rickards Fellowships	<i>2025</i>
Australian Academy of Science	
Finalist of Basic Science Researcher category in the 2022 Premier's Awards for Health and Medical Research	
Department of Health, State government of Victoria, Australia	<i>2023</i>

Monash Biomedicine Discovery Institute, Melbourne, VIC, 3800

33th ECCMID Travel Award	2023
European Society of Clinical Microbiology and Infectious Diseases	
Best Rapid-Fire Presentation	2023
1 st International Conference on Antimicrobial Computational Pharmacology	
Azenta Life Sciences Publication Award	2022
Azenta Life Sciences, USA	
CSL Top Completing PhD award	2022
Department of Microbiology, Monash University, Australia	
31st European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) "Best Rated Poster" Award	2021
European Society of Clinical Microbiology and Infectious Diseases	
31st ECCMID Travel Award	2021
European Society of Clinical Microbiology and Infectious Diseases	
Top reviewers award for Clinical Microbiology and Infection	2021
Clinical Microbiology Infection	
Monash Graduate Research Completion Award	2020
Monash University	
ISAC Young Investigator Travel Grant	2019
International Society of Antimicrobial Chemotherapy	
29th ECCMID Travel Award	2019
European Society of Clinical Microbiology and Infectious Diseases	
Monash University Graduate Scholarship	2017 – 2020
Monash University	
Monash International Postgraduate Scholarship	2017 – 2020
Monash University	

SELECTED INVITED TALKS OR SEMINARS

- Title: Revolutionising Antimicrobial Therapy: Integration of Quantitative Systems Pharmacology and System Biology to Accelerate Bench-to-Bedside Translation. September 2025, **National Taiwan University**, Invited Lecture.
 - Title: Transforming antimicrobial pharmacokinetics/pharmacodynamics: An integrated microbial evolution and systems pharmacology approach. September 2023, **Shandong University**, Invited Seminar.
 - Title: Systems pharmacology informed dose optimisation of polymyxins and their synergistic combinations against *Acinetobacter baumannii*. September 2023, Huashan Hospital, **Fudan University**, Invited Seminar.
 - Title: Systems pharmacology of polymyxins and their synergistic combinations against *Acinetobacter baumannii*: A systems pharmacology approach. August 2023, Sir Run Run Shaw Hospital, **ZheJiang University**, Invited Seminar.
 - Title: Transforming antimicrobial pharmacokinetics/pharmacodynamics: A microbial evolution and computational approach. June 2023, **Monash – State Key Lab of Microbial Technology Shandong University Online Seminar**.
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