

Ben Vezina

MICROBIOLOGY - MOLECULAR BIOLOGY - BIOINFORMATICS

Australia

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Scholar profile

SUMMARY

Multi-domain expert in microbiology, molecular biology, bioinformatics and metabolism. I strategically developed this unique skillset across the wet and dry laboratory to address the global challenge of antimicrobial resistance. I have worked on vaccine design, pathogen surveillance, novel antimicrobial discovery, genomics, pathogen metabolism and probiotics.

ACHIEVEMENTS

- 27 x publications; **14 x 1st author**
- 9 x talks at 15 inter/national conferences
- Competitive funding/awards: **\$12,220**
- Ben Barres Award Runner Up: **\$4,120**
- 2 x Best Conference Talk awards: **\$200**
- Post-graduate scholarships: **\$127,000**
- Invited speaker at 3 x regional seminars

EXPERIENCE

Now

Postdoctoral research fellow

Monash University - Department of Infectious Diseases

• Key outcomes

- 15 x Q1 publications; 7 x 1st authors + 1 in prep.
- Large-scale pathogen genomics
- Developed metabolic modelling software/tools
- Community-based modelling + outbreak detection
- Targeted sequencing method development
- Machine learning for rapid infection diagnostics

• Leadership

- Supervised 1 x PhD, 2 x Honours, 1 x Masters
- Trained 4 x staff/students
- Established 4 x inter/national collaborations

2020

Freelance bioinformatician for industry

Self-employed

• Key outcomes

- Results informed 2 x market products
- Analysis of industrially-relevant microbes
- 2 x 1st author publications (Q1)

Postdoctoral research fellow

Griffith University – Department of Science

• Key outcomes

- 5 x Q1 publications with 3 x 1st authors
- Analysis and discovery of novel bacteriocins
- Engineered novel protein stabilisation platform

• Leadership

- Managed research budget of \$12,000
- Established 3 x collaborations within university
- Training of 4 x PhD and 2 x Masters students

• Teaching

- Designed Applied Bioinformatics unit
- Delivered lectures, practicals, assessments

2019

EDUCATION

2018

Doctor of Philosophy (PhD)

Monash University/CSIRO/RMIT University

2014

Bachelor of Biological Science (Honours)

Deakin University/CSIRO

2010

KEY PUBLICATIONS

- *Bactabolize*, eLife (2023)
 - Cites: 14, [DOI link](#)
- *Trycycler*, Genome Biology (2021)
 - Cites: 430, [DOI link](#)
- *Discovery of plantacyclin B21AG*, Heliyon (2020)
 - Cites: 68, [DOI link](#)
- *Bioinformatic prospecting of bacteriocins*, BMC Microbiology (2020)
 - Cites: 35, [DOI link](#)

TECHNICAL SKILLS

Bioinformatics/statistics

- Data visualisation
- Linux/command line
- High-performance computing
- Short and long-read data
- Assembly, annotation, alignment, pangenome, SNP analysis, phylogenetics
- Metabolic modelling
- Protein structural analysis
- Classical statistics, networks, co-occurrence, clustering
- Transcriptomics
- Methylation profile analysis

Programming

- R
- Python
- Bash
- Software development

Microbiology

- Classical microbiology
- Co-culture and nutrient assays
- Fluorescent microscopy/assays
- Antimicrobial/MIC assays
- Competent cells, transformation, conjugation
- *E. coli*, *Klebsiella*, *Campylobacter*, *Clostridium*, *Bacillus*, *Lactobacillus*

Molecular biology

- Cloning, Gibson-assembly
- Plasmid design
- Site-directed mutagenesis
- Southern blots, PCR, qPCR
- DNA/RNA sequencing
- Protein expression in *Lactobacillus*, *E. coli*
- Protein gels, Western blots
- Protein purification, FPLC
- Codon-optimisation