Michael C. **Gilmore**

Post-doctoral Researcher
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Education and Experience

Post-doctoral Researcher — Umeå, Sweden

Umeå University — April 2024 - Present

- Continuation of PhD reseach, characterising a novel peptidoglycan precursor identified in Alphaproteobacteria species

PhD Molecular Microbiology — Umeå, Sweden

Umeå University — September 2019 - April 2024

- Studied recycling and modification of primary cell wall component of bacteria, peptidoglycan.
- Gained extensive experience in standard **microbiology and molecular biology techniques**, and also analytical chemistry and chromatography (e.g. **LC-MS**, HPLC, FPLC), **DNA sequencing** for whole-genome and high-throughput transposon sequencing (Illumina and Nanopore)
- Twelve publications to date, with five as first or co-first author; several more in preparation.

MSci Biochemistry — Belfast, Northern Ireland

Queen's University Belfast — September 2014 - June 2018

- Integrated Master's program in Biochemistry, comprising three years of study and a one year research project.
- Carried out research project in the lab of Prof. Miguel Valvano, characterising LPS modifications in *Enterobacter cloacae* species, resulting in two publications.

Conferences

Gordon Conference on Bacterial Cell Surfaces — Maine, USA

Poster presentation — June 2024

Agrobacterium 2023 — Gif-sur-Yvette, France

Invited speaker — September 2023

Gordon Conference on Bacterial Cell Surfaces — Vermont, USA

Poster presentation — June 2022

Great Wall Symposium — Paris, France

Attendee — September 2019

Young Microbiologist's Symposium — Belfast, Northern Ireland

Poster presentation — August 2018

Skills and Interests

Programming Python, R
English Native speaker,
Music Piano, Viola
Outdoors Running, Hiking, Cross-country skiing, Ski touring

References

Prof. Felipe Cava
PhD Supervisor
Umeå University
Umeå, Sweden
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Prof. Miguel Valvano
MSci Supervisor
Queen's University Belfast
Belfast, Northern Ireland
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List of Publications

Reverse chronological order; * denotes equal contribution.

1. Modi, M., Chauhan, D., Gilmore, M. C., Cava, F., and Priyadarshini, R. (2025) Deficiency in Peptidoglycan Recycling Promotes β-Lactam Sensitivity in Caulobacter crescentus. *mBio*. **0**, e2975–24
2. Gilmore, M. C., and Cava, F. (2025) Bacterial Peptidoglycan Recycling. *Trends in Microbiology*. **33**, 340–353
3. Parau, G., Parks, H. J., Anderson, A. J. G., Bisaro, F., García-Romero, I., Gilmore, M. C., Korankye, S. O., Marshall, H., and Valvano, M. A. (2025) Clinical Isolates of Antimicrobial Resistant Enterobacter Species Can Persist in Human Macrophages without Replication and Overt Cellular Cytotoxicity. *The Journal of Infectious Diseases*
4. Aliashkevich, A., Guest, T., Alvarez, L., Gilmore, M. C., Rea, D., Amstutz, J., Mateus, A., Schiffthaler, B., Ruiz, I., Typas, A., Savitski, M. M., Brown, P. J. B., and Cava, F. (2024) LD-transpeptidation Is Crucial for Fitness and Polar Growth in \emph{Agrobacterium tumefaciens}. *PLOS Genetics*. **20**, e1011449
5. Delerue, T., Updegrove, T. B., Chareyre, S., Anantharaman, V., Gilmore, M. C., Jenkins, L. M., Popham, D. L., Cava, F., Aravind, L., and Ramamurthi, K. S. (2024) Bacterial Spore Surface Nanoenvironment Requires a AAA+ ATPase to Promote MurG Function. *Proceedings of the National Academy of Sciences*. **121**, e2414737121
6. Gilmore*, M. C., Yadav*, A. K., Espaillat*, A., Gust, A. A., Williams, M. A., Brown, P. J. B., and Cava, F. (2024) A Peptidoglycan N-deacetylase Specific for anhydroMurNAc Chain Termini in Agrobacterium Tumefaciens. *Journal of Biological Chemistry*. **300**, 105611
7. Simpson, B. W., Gilmore, M. C., McLean, A. B., Cava, F., and Trent, M. S. (2024) Escherichia Coli CadB Is Capable of Promiscuously Transporting Muropeptides and Contributing to Peptidoglycan Recycling. *Journal of Bacteriology*
8. Simpson, B. W., Gilmore, M. C., McLean, A. B., Cava, F., and Trent, M. S. (2023) Escherichia coli Utilizes Multiple Peptidoglycan Recycling Permeases with Distinct Strategies of Recycling. *Proceedings of the National Academy of Sciences*. **120**, e2308940120
9. Boamah*, D., Gilmore*, M. C., Bourget, S., Ghosh, A., Hossain, M. J., Vogel, J. P., Cava, F., and O'Connor, T. J. (2023) Peptidoglycan Deacetylation Controls Type IV Secretion and the Intracellular Survival of the Bacterial Pathogen Legionella Pneumophila. *Proceedings of the National Academy of Sciences*
10. Gilmore, M. C., and Cava, F. (2022) Peptidoglycan Recycling Mediated by an ABC Transporter in the Plant Pathogen Agrobacterium tumefaciens. *Nature Communications*. **13**, 7927
11. Chan, H., Taib, N., Gilmore, M. C., Mohamed, A. M. T., Hanna, K., Luhur, J., Nguyen, H., Hafiz, E., Cava, F., Gribaldo, S., Rudner, D., and Rodrigues, C. D. A. (2022) Genetic Screens Identify Additional Genes Implicated in Envelope Remodeling during the Engulfment Stage of Bacillus Subtilis Sporulation. *mBio*
12. Delerue, T., Anantharaman, V., Gilmore, M. C., Popham, D. L., Cava, F., Aravind, L., and Ramamurthi, K. S. (2022) Bacterial Developmental Checkpoint That Directly Monitors Cell Surface Morphogenesis. *Developmental Cell*
13. Gilmore*, M. C., Ritzl-Rinkenberger*, B., and Cava, F. (2021) An Updated Toolkit for Exploring Bacterial Cell Wall Structure and Dynamics. *Faculty Reviews*
14. Mushtaq, S., Reynolds, R., Gilmore, M. C., Esho, O., Adkin, R., Chaudhry, A., Horner, C., Bartholomew, T. L., Valvano, M. A., Dry, M., Murray, J., Pichon, B., Livermore, D. M., and Resistance, B. (2020) Inherent Colistin Resistance in Genogroups of the Enterobacter Cloacae Complex: Epidemiological, Genetic and Biochemical Analysis from the BSAC. *Journal of Antimicrobial Chemotherapy*