Gabrielle Taylor, PhD

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PROFESSIONAL SUMMARY

- Molecular biologist with strong laboratory experience across multiple research environments
- Skilled in protein expression, purification, and assay development for diverse protein targets
- Consistent and thorough in experimental documentation, data interpretation, and communication
- Eager to contribute my analytical strengths and adaptability to research and development in the biotechnology or pharmaceutical sectors

KEY SKILLS

- Protein purification and assay development
- Broad molecular biology and microbiology toolkit
- Scientific communication and technical writing
- Strong collaboration and mentoring experience
- Analytical mindset and problem-solving ability
- Fast learner with a proactive attitude

PROFESSIONAL EXPERIENCE

Postdoctoral Scholar 2023 – 2025
Lawrence Berkeley National Laboratory, United States

- Optimised anaerobic expression and purification of oxygen-sensitive bacterial microcompartments from *Rhodopseudomonas palustris*
- Designed biochemical assays to screen for microcompartment assembly inhibitors in high-throughput format
- Maintained thorough technical documentation to support reproducibility and method transfer
- Oversaw lab operations, including equipment upkeep, consumables ordering, and liaising with external service providers

PhD/Research Assistant 2016 – 2022
ETH Zurich, Institute of Molecular Biology and Biophysics, Switzerland

- Investigated proteolytic pathways in *Mycobacterium tuberculosis*, focusing on small-molecule modulation of Clp protease complexes
- Conducted high-throughput screening and biophysical characterisation of protein-protein and protein-ligand interactions
- Demonstrated strong understanding of laboratory equipment through independent operation, routine maintenance, and troubleshooting of microbiology and biochemistry instruments
- Collaborated with external partners to interpret experimental data and publish findings

Research Technician 2013 – 2016
University of York, United Kingdom

- Applied sequence analysis and basic bioinformatics (BLAST, ORF prediction) to discover phage-derived serine integrases for synthetic biology applications
- Expressed, purified and characterised DNA recombinases, laying the foundation for synthetic biology tools
- Contributed to collaborative genome engineering efforts and presented results in multi-group collaborations
- Maintained equipment, ordered consumables and supported undergraduate research

EDUCATION

PhD, Microbiology and Immunology PhD program 2022
ETH Zurich, Institute of Molecular Biology and Biophysics, Switzerland

MRes in Biochemical Research 2012
Imperial College London, United Kingdom

BSc (Hons) in Biological Sciences (Biochemistry) 2011
University of Edinburgh, United Kingdom

RESEARCH TECHNIQUES

Protein Purification: Proficient in multiple chromatography techniques (affinity, size-exclusion, hydrophobic interaction, ion exchange), anaerobic workflows, ammonium sulphate precipitation, ÄKTA operation and maintenance

Molecular Biology & Genetics: Cloning, mammalian cell transfection, gene knockout, cell viability assays, DNA & RNA extraction, PCR, primer design, RT-qPCR, recombinant protein expression, integrative vector design (*Streptomyces*, *Burkholderia*), Southern/Western blotting, SDS-PAGE, bicinchoninic acid (BCA) assay, electrophoretic mobility shift assay (EMSA), DNA pull-down assay, co-immunoprecipitation, yeast/bacterial two-hybrid assays

Biophysical & Biochemical Characterisation: Isothermal titration calorimetry (ITC), mass photometry, enzyme kinetics, microscale thermophoresis (MST), fluorescence spectroscopy, UV-vis spectrophotometry, circular dichroism (CD), dynamic light scattering (DLS), protein crystallization, X-ray crystallography data collection

Data Analysis & Software: PyMOL, Chimera, Unicorn, GraphPad Prism, CLC Workbench, Geneious, basic Python, Microsoft Office

SCIENTIFIC COMMUNICATION & COLLABORATION

- Presented original research at national and international conferences to audiences of 300+
- Published in peer-reviewed journals, including award-winning work (FEBS Journal Richard Perham Prize 2022)
- Supervised and mentored undergraduate and master's students
- Collaborated with external partners to interpret and publish experimental results

PRESENTATIONS & PUBLICATIONS

Selected Presentations

EMBO Workshop on Protein Quality Control, Dubrovnik, Croatia (May 2023)
Short talk: ClpC2 protects mycobacteria against a natural antibiotic targeting ClpCP protease

Young Scientist Symposium on Protein Quality Control Online (Sep 2021)
Flash talk & poster: Cyclomarin A interacts with the ClpC1 N-terminal domain homologue ClpC2

Selected Publications

Taylor, G. et al. *ClpC2 protects mycobacteria against a natural antibiotic targeting ClpC1-dependent protein degradation. Commun Biol.*, **6**, 301 (2023).

Taylor, G. et al. *Antibacterial peptide cyclomarin A creates toxicity by deregulating the Mycobacterium tuberculosis ClpC1-ClpP1P2 protease*, *J Biol Chem.*, **298**, 102202 (2022).