

JACK DALTON

CITIZENSHIP: BRITISH, AUSTRALIAN, SOUTH AFRICAN

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Education

- 2024-2028 University of Oxford | DPhil Engineering Biology**
- Machine learning guided control and evolution of biological systems
- 2021-2024 Australian National University | Bachelor of Philosophy (Science) (Honours)**
- Research intensive undergraduate degree focussing on Synthetic Biology
 - First Class Honours, GPA: 7/7, Weighted Average Mark: 87/100
- 2020-2021 Imperial College London | CertHE in Molecular Bioengineering**
- One-year course on applying engineering principles to biological systems
- 2014-2019 Tonbridge School | A-levels**
- A*A*A*A*AB in Mathematics, Physics, Biology, Extended Project, Chemistry, Further Mathematics

Research Experience

- 2024-Present Steel Lab | University of Oxford**
- Machine learning guided control and evolution of biological systems
 - Optimising adaptive laboratory evolution for applications in health and sustainability
- 2023-2024 Jackson Lab | ARC Centre of Excellence in Synthetic Biology**
- Protein engineering and bioinformatics for health and environmental applications
 - Applied AI protein design methods, phylogenetics and sequence similarity networks to design improved enzymes
 - Engineered *Vibrio natriegens* as a platform for waste valorisation.
- 2023-2024 ANU iGEM Team**
- Founded and led the ANU iGEM in 2023 and mentored the 2024 team
 - Both teams achieved silver medals at the iGEM jamboree
 - In 2023 we focussed on protein encapsulation for heavy metal bioremediation
 - In 2024 we worked on engineering symbiotic bacteria to mitigate coral bleaching
- 2022-2023 Huber Lab | ANU Research School of Chemistry**
- In silico design and experimental validation of novel nanobodies against CD markers and sodium channels.
- 2022 Brock Lab | ANU Australasian Synthetic Biology Challenge Team 2022**
- Nanobody engineering for crop disease resistance
- 2022 Fischer Lab | John Curtin School of Medical Research**
- Designing and testing dCas-RNaseH fusion proteins for R loop studies and cancer diagnostics.

Professional Experience

- 2025 Blackbird Ventures | Foundry Fellow**
- Foundry is a launchpad for ambitious researchers with a science-led startup idea
- 2023-2024 Australian Government Department of Climate Change, Energy, the Environment and Water | Senior Policy and Engagement Officer**
- Responsible for engagement delivery, procurement and drafting briefing materials for senior executives and cabinet ministers
 - Co-authored reports on options to deliver the Murray-Darling Basin Plan and Water Market Reform
 - Introduced new software products to accelerate existing workflows

- Delivered engagement workshops and webinars for stakeholders across the Murray Darling Basin
 - Developed and supervised team members
- 2022-2023 Australian Government Clean Energy Regulator | Regulatory Officer**
- Improved average response to stakeholder requests from multiple days to less than 24hrs, which increased stakeholder milestone completion
 - Implemented a new software product into the team's workflow automating 4 business processes
 - Developed a data analysis pipeline to automate updates of PV inspection data
 - Analysed installer data leading to the introduction of a new compliance program
- 2021-2022 Stocks Down Under | Research Analyst**
- Research and analysis of small cap companies listed on the ASX in emerging technology industries

Teaching Experience

- 2025-Present Exeter College Oxford | Casual Sessional Academic**
- Teaching and support of undergraduate students
- 2025-Present EngBio CDT | Responsible Research and Innovation Facilitator**
- Teaching first year PhD students RRI
- 2022-2024 ANU | Undergraduate Teaching Assistant and Science Ambassador**
- Assisted in the development and teaching of the 3rd year course: The Australasian SynBio Team Challenge
 - Produced and featured in educational STEM content for students from disadvantaged backgrounds
 - Interviewed ANU researchers and wrote promotional content

Volunteering

- 2025-Present STEMPals**
- Pen pal program connecting STEM professionals with school children to inspire them to pursue STEM careers
- 2023-2025 Australasian SynBio Challenge Executive | Operations Lead**
- Lead the organisation of the first in person conference of the Aus SynBio Challenge at the ANU
 - Created the Aus SynBio Challenge Ambassador program
 - Raised AUD\$20,000 from sponsors to fund the travel of students from around Australia
- 2025-Present Nucleate UK | Research and Tech Sourcing**
- Writing reports on the UK Biotech ecosystem
 - Sourcing of startups for the Nucleate Activator program
- 2024-2025 Nucleate Australia | Operations Co-MD**
- Part of the Nucleate Australia founding team
- 2022-2024 ANU iGEM | Founder**
- Founded the ANU team to compete in the iGEM Synthetic Biology competition
 - Raised AUD\$45,000 from multiple sponsors to take part and attend the iGEM Jamboree in Paris
- 2024 Synthetic Biology Australasia (SBA) | Node Leader**
- Organised events and workshops for SBA in Canberra
- 2022-2024 ANU Biology Society | President**
- Hosted events with academics, start-ups such as Samsara Eco and biopharma companies including Moderna
 - Utilised leadership, organizational and graphic design skills to increase the membership and number of events the society holds 3-fold

- 2023-2024 SABRE Alliance | Member**
- Member of the Australian Department of Defence Safeguarding Australia through Biotechnology Research Alliance
 - Contribute to workshops, research activities and consultation to inform biotechnology policy
- 2021 The Climate Council | Corporate Sponsorship Researcher**
- Delivered reports on potential corporate partners companies' environmental commitments and philanthropic capabilities.

Research Presentations

- 2026 Dalton JAT. - *V. natriegens* 2026, Virtual**
- 2025 Dalton JAT. - *Engineering Biology Summer School*, University of Bristol, United Kingdom**
- 2025 Dalton JAT. - *V. natriegens* 2025, Virtual**
- 2024 Dalton JAT. - *National Film and Sound Archive: Science, Art, Film, Panel*, NFSA, Canberra, Australia**
- 2023 Dalton JAT., ANU iGEM Team - *iGEM Jamboree*, Paris, France**
- 2023 Dalton JAT. - *Australian Rare Earth Elements Conference*, ANU, Canberra, Australia**
- 2023 Dalton JAT. - *ARC Centre of Excellence in Synthetic Biology Mariculture Industry workshop*, Mallacoota, Australia**

Conference Posters

- 2025 Dalton JAT., Lugagne J., *2025 Workshop on Biological Control Systems*, Virtual**
- 2025 Dalton JAT., Lugagne J., *SynBio UK*, London, United Kingdom**
- 2025 Dalton JAT., Lugagne J., *TechBio UK*, London, United Kingdom**
- 2025 Dalton JAT., Lugagne J., *EEBio Annual Meeting*, Oxford, United Kingdom**
- 2024 Dalton JAT., Horton J., Jackson CJ., *ARC Centre of Excellence in Synthetic Biology Annual Conference*, Wollongong, Australia**
- 2024 Dalton JAT., Jackson CJ., *Asia-Pacific Workshop on Engineered Living Materials*, ANU, Canberra, Australia**
- 2023 Dalton JAT., Jackson CJ., *Australian Society for Biochemistry and Molecular Biology*, ANU, Canberra, Australia**

Awards

- 2025 Biochemical Society Travel Bursary**
- 2025 TechBio UK Best Poster Prize**
- 2025 TechBio UK Future Talent Award**
- 2024 Ramsay Postgraduate Scholarship**
- 2024 EngBio CDT Scholarship**
- 2024 iGEM Silver Medal**
- 2024 ANU Chancellor's Commendation for Academic Excellence**
- 2023 ARC Centre of Excellence in Synthetic Biology Honours Scholarship**
- 2023 iGEM Silver Medal**
- 2023 ANU Chancellor's Commendation for Academic Excellence**
- 2022 ANU Chancellor's Commendation for Academic Excellence**
- 2020 Imperial College President's Scholarship**
- 2019 Gold medal, British Biology Olympiad**
- 2019 Silver medal, British Chemistry Olympiad**
- 2018 ISSET Mission Discovery winner, our experiment launched to the ISS in November 2022**

Publications

SB Pulsford, **JAT Dalton**, OB Smith, J Horton, RB Frkic, JZ Chen, JA Kaczmariski, CJ Jackson (2026). The modular evolution of chitinases is governed by coevolution of auxiliary and catalytic domains. *bioArXiv*

Dalton JAT. Innovation for security: why Australia needs its own DARPA (2025). *Australian Strategic Policy Institute – The Strategist*

J Kaczmariski, H Ashley, **JAT Dalton**, M Lorenzon, C Jackson (2023). Applying ProteinMPNN, RFDiffusion & ColabFold tools for the generation & optimisation of useful protein tools. *Protein Science*

Additional Qualifications

- 2024 Drafting New Policy Proposals – Australian Public Service Commission
- 2024 First Nations Cultural Awareness – Australian Public Service Commission
- 2023 Management Skills for Regulators and Managers – Australian Public Service Commission
- 2023 National Electricity Markets – Australian Energy Market Operator

Grants

- 2023 **iGEM Impact Grant (2500USD)**
Bioremediation of Heavy Metals through machine learning guided design of metal binding proteins
- 2022 **TWIST Synthetic Biology Initiative Seed Grant (2000AUD)**
In-silico design of nanobodies