

# JAMES RENNIE BEQUEST

## REPORT ON EXPEDITION / PROJECT / CONFERENCE

**Expedition/Project/  
Conference Title:** Annual Meeting for the American Society of Industrial Microbiology  
and Biotechnology

01/08/2024-08/08/2024

**Travel Dates:**

Boston, MA, USA

**Location:**

Connor Trotter

**Group member(s):**

**Aims:**

To present PhD findings as both a poster and student oral talk at the  
annual meeting

To meet with Prof. Stephen Wallace's previous advisors

**Photography consent form attached:**  Yes  
(please refer to your award letter)  No

### OUTCOME (a minimum of 500 words):-

The Annual Meeting for the American Society of Industrial Microbiology and Biotechnology (SIMB) is a moving, US-based conference that focuses on emerging, industrially relevant advances in bioproduction, bioremediation, and metabolic engineering. The 2024 meeting took place in Boston, MA where I initially received an offer to present some of my PhD findings as a student poster; however, I was later awarded the opportunity to present this work as one of six student orals presentations. Having presented my work in both formats, I feel better able to choreograph the approaches to make sure the two provide unique insights into the project and work as a complement to one another. Through poster networking, it was possible to gain new and refreshing perspectives on the work completed thus far which allowed me to consider future avenues that could be pursued. The poster session, bolstered by the talk, served as an excellent networking opportunity. It was particularly interesting to learn about the different research cultures between the UK and the US as well as hearing about which avenues would be open to me if I chose to do a PDRA in the country.

Outside of personal work at the conference, I was able to speak with various leaders in the fields of biocatalysis and metabolic engineering. Here, I was able to learn about new projects and better reflect upon the field through these advances. This included biosensors for substrate-controlled biosynthesis, co-culture approaches to syngas fermentation, and advances in one of my favourite bacteria, *Cupriavidus necator*. I was also able to learn about new fields, such various biomaterials including bacterial microlenses and mineral-recovery armours. These talks were particularly interesting as I had not previously considered the potential of utilising bacteria to make inorganic biomaterials nor the applications these may have. There were also a range of talks targeting scale-up approaches for biotechnologies. These talks were particularly enlightening, enabling me to consider how my presented research may take form at an industrial scale. It was also very interesting to hear how different people are approaching the same problem and the drastically different results that arise depending on the context of the approach.

Whilst in Boston, lab members also took the opportunity to meet with Prof. Emily Balskus, a previous supervisor of our PI Prof. Stephen Wallace. This meeting wasn't only a reunion, but also presented an opportunity to explore and share our work that builds upon initial concepts

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developed by the Balskus lab at Harvard University over 10 years ago. During this meeting we were able to discuss our approaches using different bacterial species or that built upon the system complexity to develop more elaborate systems. We also learned about projects that the Balskus lab has moved into more heavily since Stephen left. After this, we partook in a lab tour which included some of the most incredible bits of equipment I have seen – the fully automated, large scale anaerobic liquid handling and microbial incubation robot was truly something to behold.

I am incredibly grateful for the James Bennie Bequest for partially funding travel to Boston to enable me to participate in something that would otherwise have been inaccessible to me.