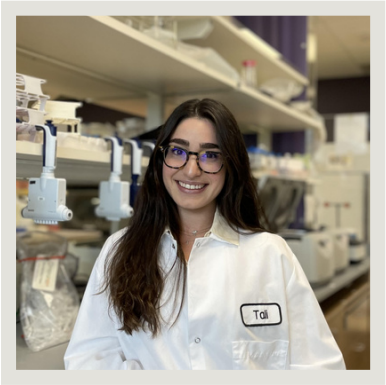

TALIA MAIO

SYSTEMS BIOENGINEERING MICROBIOLOGY, MOLECULAR BIOLOGY, DATA ANALYSIS, RESEARCH

(858) 361-9765

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taliaemaio@gmail.com

Education

University of Wisconsin, Madison

BS, Biology

2013-2017

Skills

- Deep, Technical & Scientific Diligence
- Experimental Design
- Assay Development
- R&D Workflow Design & Development
- Advanced Laboratory Technique
- Cell Culture, *E. coli*
- Analysis of Data, Scientific Literature & Models
- Data Management
- Molecular Biology
- Systems Biology
- Microbiology
- Fermentation
- Collaboration, Communication & Teamwork
- Critical Thinking
- Problem Solving & Solution Architecture

Executive Summary

Seasoned Biotech Researcher with deep, technical, and analytical competencies in Synthetic Biology, Systems Bioengineering R&D, and Cellular Engineering. Extensive experience translating data from scientific literature and models into actionable hypotheses, leading the design and data analysis for 500+ complex experiments, developing *in vivo* assays, and presenting findings used to guide future R&D pipeline strategies. Exceptional verbal and written communication skills, demonstrated through clear, impactful presentations and reports that effectively convey complex scientific concepts to diverse audiences. Eager to leverage my lab and data analysis skills as I continue growing my career within STEM.

Work Experience

Genomatica, Quantitative Small Scale, Systems Bioengineering

Systems Biology Research Consultant, June 2024 - Present

- Designed, executed, and analyzed data generated from *in vivo* experiments for the bio-sustainable production of nylon intermediates, palm oil, and 1,4-Butanediol (BDO).
- Collaborated with external consultants to customize, migrate and merge the electronic lab notebook (ELN) and laboratory information management system (LIMS) for Genomatica's scientific needs, increasing productivity 30% by minimizing time and errors associated with information transfer.
- Demonstrated how flocculating cells by use of chemical flocculating agents or by genetically modifying genes responsible for flocculation can be used to “recycle cells” to maximize production and reduce preculture costs.

Senior Research Associate I, September 2021 - July 2023

- Independently ran over 500 experiments phenotyping *E. coli* strain performance (growth and production) under various conditions on small-scale platforms ranging from plates to bioreactors (chemostat and turbidostat processes) and utilized data to drive future strain engineering, fermentation, enzymology, and molecular biology efforts. Contributed to the design and development of over 5 custom *in vivo* assays.
- Analyzed, performed scientific diligence on, & summarized experimental data, complex biological data sets (production profiles, WGS/NGS sequencing, large-scale multi-omics, etc.), and published literature.
  - Provided a holistic understanding of strain metabolism and performance that fed models used to predict strain behavior under different conditions.
  - Utilized XLS, XLS macros, VBA, MatLab, Spotfire, and Benchling.
- Presented data and experimental findings on tested hypotheses to Sr. Business, Commercial, and R&D management to cultivate strategic alignment & innovation and direct future project priorities.
- Optimized processes to reproduce strain performance across multiple platforms, streamlining R&D workflows.
- Increased testing capacity by over 30% through high-throughput automation.
- Authored SOPs for custom *in vivo* manual or automated high-throughput assays.

Research Associate II, February 2019-September 2021

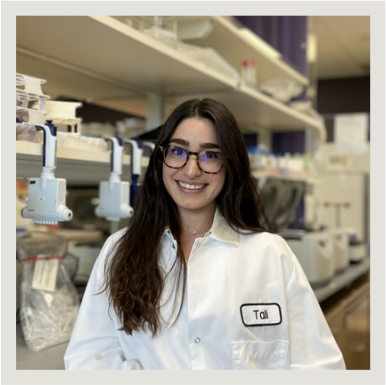
- Contributed to designing complex experiments to test various hypotheses.
- Independently ran complex experiments phenotyping *E. coli* for the production or consumption of certain chemicals of interest and demonstrating growth under various conditions.
- Analyzed, summarized, and presented trends in metabolism & production to inform future R&D team hypotheses.
- Bridged cross-departmental efforts and aligned project priorities through clear communication of experimental results and by optimizing meeting structure for effectiveness and productivity.
- Optimized processes to ensure reproducible strain performance across multiple platforms, facilitating seamless scale-up to large bioreactors.
- Increased responsibility to author SOPs for custom *in vivo* assays.

Research Associate I, October 2017-January 2019

- Independently ran routine experiments phenotyping and profiling *E. coli* growth and production or consumption of C1 chemicals under various conditions.
- Assisted in executing complex experiments that required multiple conditions and sample types.
- Analyzed data with manager and presented data to stakeholders in weekly or monthly meetings to align and guide departmental priorities.
- Collaborated with teammates to optimize processes such that strain performance was reproducible on plate, flask, and bioreactor scales.
- Maintained, updated, and helped generate Standard Operating Procedures (SOPs) for routine lab practices, ensuring consistent and efficient laboratory operations.

Diversity, Equity and Inclusion Team Lead, July 2020 - July 2023

- Contributed to the development of a Diversity, Equity and Inclusion (DEI) team with over thirty employees, including the entire executive team to cultivate a fair & inclusive culture at Genomatica.
- Drove the accomplishment of stated goals for 3 years, including impacting over 100 K-12 students from minority communities via on-site field trips to the lab or paid internships, revising hiring & advancement practices, and creating a 5-year plan for improving DEI at Genomatica.



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University of Wisconsin-Madison Department of Physiology

Published Student Researcher, January 2017 - May 2017

- Measured the physiological changes in heart rate (via EKG and ECG tests), skin conductance and blood pressure in response to time restraints in a test-taking environment that may negatively affect test-taking abilities and performance.
- Contributed to authoring the paper published in the Journal of Advanced Student Sciences that summarized these findings.

USDA Dairy Forage Research Center

Assistant Lab Technician, August 2016 - January 2017

- Extracted and isolated DNA, ran PCR to amplify genes of interest, and scored PCR data for efficacy to identify genes responsible for increasing resilience of native Wisconsin Alfalfa and Red Clover plants during harsh winter months.
- Maintained lab equipment, inventory, and aseptically cleaned lab equipment.

Fluoresprobe Sciences

Research Intern, May 2015 - August 2015

- Researched, summarized, and performed diligence on literary research around unbound bilirubin and its neurotoxic effects on neonatal health, specifically its ability to cross the blood brain barrier in premature neonates.
- Measured blood concentration of unbound bilirubin in pregnant women using a customized test created by Fluoresprobe Sciences.
- Restocked lab materials, prepared buffering solutions, and aseptically cleaned lab equipment.

University of Wisconsin-Madison Greenhouse

Research Intern, January 2015 - May 2015

- Designed and analyzed the data for experiments to model and predict the effects of increased ground water salinity on C4 plant growth resulting from increasing temperatures and predicted flooding in the Boston, MA area.

Technical Competencies

Scientific Expertise: Highly-complex wet lab techniques, fermentation, systems bioengineering, microbiology, synthetic biology, R&D workflow design and development.

Technical Data Analysis: Extensive experience in efficiently analyzing, summarizing, and performing scientific diligence on complex biological data sets. Led analysis projects on production profiles, WGS/NGS sequencing, and large scale multi-omics data sets.

Software Proficiency: Microsoft Excel for model development, data management and analysis, Microsoft PowerPoint, XLS macros and VBA, MatLab, Spotfire, and Benchling.

Problem-Solving & Solution Architecture: Demonstrated ability to design and develop innovative solutions to experimental, workflow, throughput, and strain engineering challenges.

Communication: Effective in translating technical data into clear, actionable insights for stakeholders across disciplines (executive, business, commercial, and scientific).

Key Projects & Accomplishments

Assay Development: Contributed to the design and development of over 5 custom *in vivo* assays for

1. assimilating various carbon sources and producing different products of interest including polyamide intermediates (6-aminocaproic acid, hexamethylene diamine) and other long-chain products;
2. demonstrating growth, production or evolution of strains under different conditions over time;
3. diagnosing pathway bottlenecks via multi-omics sampling and custom feeding experiments, including ^{13}C labeling and multi-flux analysis experiments to capture intracellular metabolite concentrations.

Fermentation and Process Optimization: Optimized culturing conditions to maximize product yields, throughput, and reproducibility across different scales and platforms, including automation platforms.

Systems Bioengineering Model: Translated outputs from computational models and learnings from published research to inform experimental design and the development of strategies used to predict strain performance and flux through metabolic pathways, i.e.

1. sampling and extraction methods for the measurement of intracellular metabolites;
2. measuring methods for volatile or unstable products, including specific aldehydes, alcohols, or metabolic byproducts;
3. permeabilizing cell membranes to feed otherwise impermeable metabolites to cells *in vivo*;
4. “recycling” cells in production phase to reduce preculture costs and maximize production runs in conjunction with BioMADE.

About Me

After attending the University of Wisconsin-Madison, I moved back home to San Diego and joined the Systems Bioengineering, Quantitative Small Scale team at Genomatica, a lab that engineers *E. coli* strains to ferment sugars into specific bio-based products of interest. There, I gained extensive experience working in the lab and on teams, and learning how to manipulate bacterial cellular metabolism to produce chemicals sustainably. As a California native, I am a sun-loving, gluten-fearing, always-curious nerd at heart with a green thumb. I love going to the beach, hiking, tending to my many plants, and trying new restaurants. In my free time, I do pilates, cook, arrange flowers, and host dinners for my friends and family. I am always eager to learn, adventure, and discover new places to go, things to do, or music to listen to.