

SUMMER SCHOLARS PROJECTS

PROJECT CATEGORY:

Biomarkers & Biomedical Tools

STARTUP:

Opera Bioscience

CONTACT:

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PROJECT TITLE:

Fermentation Optimization for a Zero Purification Bacterial Protein Production Platform

PROJECT DESCRIPTION

At Opera Bioscience, we are on a mission to revolutionize protein manufacturing and provide low-cost, high-purity proteins for our customers who are building the next generation of biology-driven innovations, from cultivated meat to life-saving therapeutics. We're seeking a highly motivated intern to join our team and assist with the optimizing bacterial fermentation conditions for high-purity protein production.

JOB EXPECTATIONS:

The intern will be responsible for conducting experiments to optimize various fermentation parameters including but not limited to vessel size, temperature, pH, or nutrient concentration. They will also monitor and analyze fermentation progress to assess the impact of these parameters on protein yield and purity. The intern will work closely with our Chief Scientific Officer and other team members to design and implement the experiments.

Principal Responsibilities

- Conducting experiments to optimize fermentation conditions.
- Monitoring and analyzing fermentation progress
- Keeping detailed records of protocols, experiments, results, and analysis
- Collaborating with other team members to design and implement experiments.
- Presenting results and providing recommendations for future experiments

DESIRED EXPERIENCE:

- Currently enrolled in an undergraduate or graduate program microbiology, biochemistry, biotechnology, bioengineering, chemical engineering, or related field
- Some laboratory skills and experience with fermentation technology
- Strong analytical and problem-solving skills
- Strong written and verbal communications skills
- Familiarity in data analysis and processing (processing and visualizing data with Python, R, and statistical methods) a plus

TIME COMMITMENT:

This will be a full-time internship for 8 weeks with flexible dates over the summer. Hours may vary depending on experimentation or fermentation schedule but can be flexible.

TRAINING MENTORING:

- Initial Meeting:
 - The intern will meet with the project supervisor to discuss the project goals and objectives, as well as the expectations for the internship.
 - The intern will be provided with a project overview, including relevant background information, literature review, and experimental protocols.
 - The intern will be given a tour of the lab facilities and introduced to the lab equipment and procedures.
- Weekly Progress Meetings:
 - The intern will meet with the project supervisor on a weekly basis to discuss progress, any challenges encountered, and next steps.
 - The supervisor will provide guidance and feedback on the experimental design and data analysis.
 - The intern will also have the opportunity to ask questions and receive feedback on any challenges they may be facing.
- Data Analysis and Interpretation:
 - The intern will be trained on data analysis and statistical methods and will receive guidance on the interpretation of results.
 - The supervisor will provide feedback on data analysis and interpretation and will help the intern to identify any trends or patterns in the data.
- Research Presentations:
 - The intern will be required to give presentations on their research progress and findings to the lab group and other relevant stakeholders.
 - The supervisor will provide feedback on the intern's presentation skills and will help the intern to improve their communication and presentation skills.
- Final Report and Presentation:
 - The intern will be required to prepare a final report and give a final presentation on their research project.
 - The supervisor will provide feedback on the report and presentation and will help the intern to prepare for the final submission.
- Evaluation and Feedback:
 - At the end of the internship, the supervisor will provide the intern with an evaluation and feedback on their performance.
 - The intern will also have the opportunity to provide feedback on their mentoring experience and the internship program.

Feedback will be given informally regularly during the internship, as well as with two formalized sessions, one occurring halfway through the internship and a written evaluation occurring at the end of the internship, both containing a performance review of the intern's progress and work. The development of the intern will focus on improving problem solving skills in a professional engineering context, solidifying verbal and written technical communication, and emphasizing collaborative engineering work."