

PHARMACEUTICAL SCIENCES  
COLLEGE OF PHARMACY

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2025

PROJECT TITLE: Engineering microbiome for therapy and imaging

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**Project Description**

We are interested in engineering the human microbiome and probiotic bacteria to impart new properties and function. Students will learn core synthetic biology and molecular biology skills to eventually design and manufacture novel probiotics with a specific biomedical role, either as a sensor or a therapeutic agent. Depending on the progress made there will be opportunities to evaluate the engineered probiotics in animal models of disease.

The lab adopts an interdisciplinary approach towards its research projects and uses diverse technologies to address the issues under investigation. It will provide the student a wide perspective of the tools available to carry out biomedical research and offer a unique insight into the 'big picture' and be closely involved in the experimental and project design. The student will work closely with graduate students and postdocs in the lab, who will provide necessary guidance and training on core skills. Student will be involved in literature review relevant to the project and opportunities will be presented to present results at weekly lab meeting and at other forums in the university and outside. Upon successful completion of critical sequence of experiments the student will be invited to draft a manuscript for publication.