Master thesis position at the University of Pennsylvania

Position

One Master Thesis position is available at the Perelman School of Medicine of the University of Pennsylvania, in the Roulis lab. Our research aims to uncover novel cellular and molecular mechanisms that drive the pathogenesis of chronic intestinal inflammation and colon cancer in humans. By employing approaches at the organismal, tissue, cellular, and molecular level, we study the role of the local tissue microenvironment as a rheostat of chronic inflammation and tumor initiation. The position has a flexible start date in the 2025-2026 academic year and a duration of at least 8 months.

Project

The project focuses on the early stages of colon cancer initiation and its control by the tissue microenvironment. Specific goals are 1) to identify paracrine signals that emanate from the microenvironment of mutant stem cells and regulate tumor initiation, and 2) study the underlying molecular mechanisms. The project is interdisciplinary and spans across cancer biology, immunobiology, cellular and molecular biology, and stem cell biology. The methodologies applied involve mouse genetics, mouse models of colon cancer and intestinal inflammation, isolation/culture of mouse primary cells, intestinal organoid cultures, histological techniques and confocal imaging, multi-color flow cytometry, bioinformatics, and several molecular techniques.

Requirements

A degree in biological/biomedical sciences and previous experience in basic molecular techniques and/or cell culture or immunohistochemistry is required. Previous experience with mouse work is highly desirable but not necessary. The student should be highly motivated, eager to learn many new things and willing to take over responsibilities. Excellent communication skills in English are required. There are no tuition fees.

Working environment

Our laboratory fosters the development of independent scientific thinking and helps the students in acquiring professional skills essential for their next steps in a research career. Penn offers a top-notch scientific environment with a collegial, collaborative atmosphere. As a member of the lab and of the Penn community, the student will have access to state-of-the-art research facilities, numerous scientific events, seminars by leading scientists and many training opportunities. Philadelphia is a vibrant city, rich with history and culture.

Application: Please send a CV and a brief statement of research interests and future scientific/professional plans to Dr. Manolis Roulis at manolis.roulis@pennmedicine.upenn.edu. **Application deadlines:** 1) April 10, 2025, for a start date in the fall of 2025, 2) October 10, 2025, for a start date in early 2026. *The selected candidates will be supported to apply for competitive fellowships and cover living costs in the United States, and to obtain a visiting research scholar visa.*