DEPARTMENT OF ENVIRONMENTAL AND PUBLIC HEALTH SCIENCES
COLLEGE OF MEDICINE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2026

PROJECT TITLE: Discovering mechanisms of infertility using zebrafish

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Project Description

Zebrafish are a powerful model of human health and development. In the Kossack lab, we use zebrafish to study female reproductive health in response to exposure to environmental contaminants. Dioxin is a ubiquitous environmental contaminant that has been associated with increased time to pregnancy and infertility in humans. Zebrafish exposed to dioxin are not able to mature their oocytes and have reduced fertility. However, the mechanism of dioxin induced infertility is unknown. Your project in the Kossack lab will be to characterize ovarian development in the zebrafish and investigate molecular mechanisms of dioxin induced infertility. The lab utilizes zebrafish that express fluorescent reporters (transgenics) in different cell-types of the ovary, we compare these cells under normal developmental conditions, and after dioxin exposure using confocal microscopy. As a member of the Kossack lab you will work one-on-one with Dr. Kossack and graduate students to learn how to use zebrafish in research, including care, breeding, imaging, and dissection. You will learn molecular techniques to characterize the ovary, such as immunohistochemistry, DNA extraction, PCR, and confocal microscopy. The Kossack lab is new to UC and looking for motivated students interested in joining the lab for the summer and beyond!