Faculty Name: Matthias Hebrok / please contact postdoctoral scholar Audrey Hendley, PhD

Email: Audrey.Hendley@ucsf.edu

Phone Number: 803 292 0726

Department/Organization Affiliation: UCSF Department of Medicine, Diabetes Center (we are located in the Parnassus Campus)

Preferred Method of Contact: email

Project Name(s): Examination of ceramide signaling in the crosstalk between pancreatic cancer cells and the tumor microenvironment

General Topic (Keywords): pancreatic cancer, basic science, exosomes, molecular biology, mouse models, tumor microenvironment

Project Description(s):

PDA remains one of the most lethal of all human malignancies and understanding the molecular mechanisms controlling the growth and viability of the tumor, including its ability to withstand therapeutic treatments is of great importance for human health. Deregulation of sphingolipid metabolism alters pancreatic cancer progression and has thus received appreciable attention as a potential target for development of novel therapeutics. Intracellular ceramide levels are imperative for regulation of cellular senescence, apoptosis, and cell cycle arrest in response to stress stimuli such as chemotherapeutics.

Preliminary data from our lab indicate a prominent role for a gene that regulates ceramide synthesis and exosome biogenesis, in the maintenance of pancreatic tumor progression. In addition, our preliminary data also indicate that this gene regulates exosome secretion from pancreatic cancer cell lines. Based on our exciting preliminary data, we are currently investigating molecular mechanisms by which this gene modulates pancreatic tumorigenesis.

Please visit http://hebroklab.ucsf.edu for more information about the lab and other projects.

Desired Skills or Experience: minimum 3.6 GPA; Students majoring in biosciences are welcome to apply. Interest and knowledge of the principles and techniques of molecular biology and cancer biology are essential. This is a list of several techniques that may be employed during the research internship.

1. Mammalian cell culture techniques
2. Basic molecular biology techniques including cloning, miniprep, gel electrophoresis, restriction enzyme digest, PCR, DNA and RNA extraction, qPCR, protein quantification/Western blotting
3. CRISPR/Cas9 genome editing technology
4. Various histological stains (H&E, Alcian blue, Trichrome, etc.)
5. Immunohistochemical stains (IF/IHC)
6. Quantification of IF/IHC images using ImageJ
7. Basic and advance mouse handling/experimentation (tagging and tailing mice, genotyping, assisting with orthotopic and subcutaneous inoculation of pancreatic cancer cells into mice, non-invasive in vivo imaging of tumor growth using ultrasound and Luciferase)

**Time Commitment:** Hours are negotiable, but a commitment of 30 hours per week in the summer and 10-15 hours per week during the school year is expected. We are looking for students who are serious about research and are motivated to learn and contribute to the team.

**Preferred Starting Date:** Flexible. As soon as possible is preferred. Monday May 14, 2018 at the latest.