University of Pittsburgh

Postdoctoral positions to study roles of dopamine in pancreatic hormone secretion and in diabetes

Description: The Freyberg laboratory studies the roles of dopamine signaling in central nervous system and the periphery in metabolism. We recently showed that dopamine plays a key role in modulating hormone release from pancreatic alpha- and beta-cells. We also find that dopamine receptors in alpha-cells and beta-cells are the primary molecular targets of antipsychotic drugs, some of the most prescribed psychiatric medications today. Importantly, these medications often produce insulin resistance and ultimately can lead to type 2 diabetes. Until recently, there was no clear mechanism for antipsychotic drug-induced dysglycemia. Recently, however, we discovered that these drugs act outside of the brain and that blockade of pancreatic dopamine receptors by antipsychotic medications leads to the profound disturbances in hormone release observed clinically. Together, our work suggests that these peripheral pancreatic dopamine receptors play critical roles in the development of antipsychotic drug-induced metabolic disturbances that culminate in insulin resistance and diabetes. To further examine these phenomena, we have developed new mouse models of pancreatic dopamine function as well as new high-throughput assays to measure dopamine receptors' effects on insulin and glucagon secretion from mouse and human pancreatic islets. The goal of our work will be to define how dopamine signaling modulates alpha-cell and beta-cell hormone secretion and the molecular mechanisms by which dopaminergic regulation of islet function is disrupted by antipsychotic drugs.

Our laboratory seeks highly motivated, creative, and independent researchers to study these pathways using complementary pharmacology, molecular cell biology, and imaging approaches.

We are committed to the career development of postdoctoral fellows. Candidates benefit from both the outstanding environment in the laboratory and the highly collaborative University of Pittsburgh community. The candidate will be given opportunities to present their research work at national and international scientific meetings, work on translational and basic research projects, will be encouraged to apply to prestigious postdoctoral fellowships and grants and network with members of academia and industry to facilitate a pathway to independence.
The candidate will be offered highly competitive salary and fringe benefits as par University of Pittsburgh policy.

Our laboratory is well-funded by NIH, DoD, and foundation grants and is equipped with state-of-the-art equipment. We are in one of the most vibrant communities of basic scientists in the country, based both at the University of Pittsburgh and the neighboring Carnegie Mellon University. Being in a large academic medical center, the laboratory has an established network of collaborators working in both basic biology and translational research. The laboratory also benefits from being centrally located in Pittsburgh, one of the fastest growing, culturally rich yet affordable cities in the United States.

Interested candidates should send their CV, a one-page summary of their past research and future research interests, and the contact information for 2-3 references directly to Dr. Freyberg: Zachary Freyberg M.D., Ph.D., email:

Qualifications:

Candidates must have Ph.D. and/or M.D. degrees. Previous experience with molecular biology, mammalian cell and pancreatic islet culture, fluorescence microscopy is also preferred but not required, although candidates with experience in these skills are strongly encouraged to apply. Training in more advanced techniques is a key aim of the postdoctoral position; the biggest requirement is the enthusiasm and ambition of the candidate to make important contributions to our understanding of dopamine actions in metabolism.