

## **“Designing a Convenient and Precise Device for Home Dried Blood Spot Collection”**

PI: Dennis Koop, Physiology and Pharmacology

Co-Investigators: Andrew Chitty and Amira Al Uzri

Successful organ transplantation requires life-long therapeutic drug monitoring. The current state-of-the-art methods require frequent laboratory visits for venous blood draws and subsequent analysis. There are no readily available methods for in-home collection of patient blood samples with the necessary accuracy to replace visits to the clinic. The realities of day-to-day living often result in an inconsistent testing regimen that prevents timely intervention and puts the patient at risk. There is a need for a simple, easy to use blood sample collection method with a demonstrated repeatability/accuracy that can substitute for a visit to the clinic. Our solution is to have a simple device that can be used alone in any environment to obtain a dried blood spot that is accurate, precise, and can be mailed without special packaging to a clinical laboratory for analysis. Our proposed device does exactly this. It will be user friendly for patients of all ages, especially children, and portable (can fit in a handbag or pocket). It will deliver accurate and precise blood spot samples to testing facilities and be mailable through standard mailing options. The OCTRI grant will allow us the opportunity to develop a prototype for collection and a method for analysis.