

## **Jason T. Blackard, PhD**

Assistant Professor

Department of Internal Medicine; Division of Digestive Diseases

### **Description of Research:**

Hepatitis C virus (HCV) is a positive-strand RNA virus that infects over 170 million people worldwide. Multiple studies have demonstrated the adverse effects of human immunodeficiency virus (HIV) co-infection on liver fibrosis, HCV RNA levels, HCV disease progression, and response rates to HCV treatment. The mechanisms by which these two viruses interact remain unclear, as no direct virus-virus interactions have been demonstrated to date. Because of the inability to infect small animals with HCV and the lack of efficient cell culture models, much of the current understanding of HCV pathogenesis has been inferred from studies of infected human samples. Using a variety of cell culture, immunologic, and molecular virology techniques, as well as patient-derived samples, Dr. Blackard is investigating the pathogenic and evolutionary mechanisms by which viruses interact with the host and cause disease. Current work in his laboratory involves studies of several hepatitis viruses, including hepatitis B (HBV), hepatitis E (HEV), and hepatitis G (HGV/GBV-C), as well as HIV. Ongoing research projects include: 1) characterizing the extent of extrahepatic replication of HCV and development of models of HCV replication; 2) HIV replication in hepatocytes and the development of novel in vitro systems of HIV/HCV co-infection; 3) genotypic and phenotypic characterization of hepatitis viruses, particularly in the context of HIV co-infection.

### **Collaborations:**

Dr. Blackard collaborates with Dr. Sherman on a clinical intervention trial in HCV/HIV co-infected subjects treated with antiretroviral therapy. Additionally he works with Dr. Shata on developing reliable tests to measure cell-mediated immune responses against unique epitopes of multiple hepatitis E virus strains.