

Gregory M. Tiao, MD

Assistant Professor

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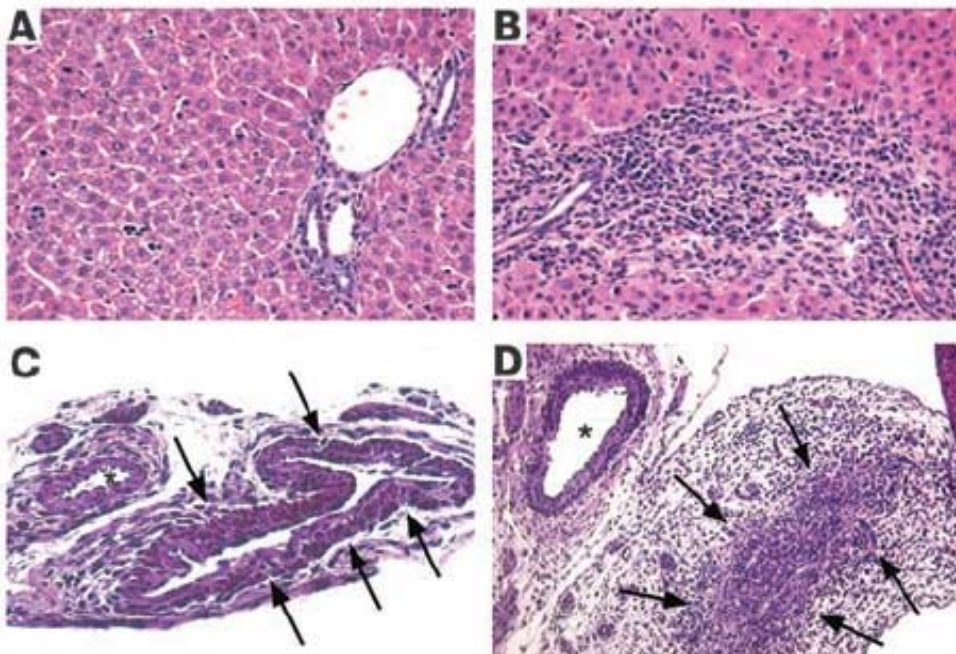
Description of Research:

Dr. Tiao's research is focused on biliary atresia, which is the most common cause of persistent neonatal cholestasis. Surgical reconstruction of the extra-hepatic biliary tract is beneficial in a subset of patients, but most patients progress to end-stage liver disease despite surgery, requiring liver transplantation for long-term survival. As a result, biliary atresia is the number one indication for pediatric liver transplantation. His primary studies address the molecular basis of virus-induced biliary injury in an experimental murine model of biliary atresia. His ongoing studies demonstrate that the viral tropism to the epithelium of extrahepatic bile ducts depends, at least in part, on the virus-specific rotavirus strain and on the expression of specific integrins by cholangiocytes. Logical extension of these studies is being pursued, in which he is dissecting the intracellular signals that regulate the host response following rotavirus infection.

Collaborations:

Dr. Tiao collaborated with Dr. Bezerra in studies investigating the molecular signatures of biliary atresia in children at early phases of disease using **Bioinformatics and Microarray Cores**, and in the discovery that interferon-gamma plays a regulatory role in luminal obstruction of bile ducts in experimental atresia using the **Integrative Morphology Core**. He is currently collaborating with Dr. Bezerra in studies of viral and immunologic mechanisms regulating biliary obstruction using the **Integrative Morphology Core** and in vivo and in vitro model systems of experimental biliary atresia.

Representative Figure:



RRV infection induces biliary inflammation and growth failure in neonatal mice. (A) While livers of control mice had normal appearance of the portal tracts, RRV challenge resulted in the expansion of portal spaces by inflammatory cells and proliferating bile duct cells (B). (C) Cross section of the extrahepatic bile duct of a control mouse revealed normal epithelium and unobstructed lumen (arrows). (D) In contrast, injection of RRV produced luminal obstruction of extrahepatic bile ducts (arrows). Fig.1 from J Clin Invest, 2004; 114:322-329.