

## Jorge A. Bezerra, MD

Professor; Director, Cincinnati Center for Biliary Atresia Research

Associate Director, Digestive Health Center

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### Description of Research:

Dr. Bezerra investigates regulatory mechanisms of liver and biliary injury. One major research focus is translational research on biliary atresia, the most common cause of chronic liver disease in children. He has used **large-scale expression arrays** and **bioinformatics** to develop transcriptional maps for human and murine biliary atresia. These maps generated hypotheses regarding pathogenic mechanisms of disease. Testing these hypotheses in the laboratory, Dr. Bezerra began dissecting the molecular basis of neonatal injury and obstruction of extrahepatic bile ducts using unique *in vitro* and experimental models of disease. He is also applying state-of-the-art approaches to identify the molecular determinants of treatment response in multi-center studies of children with biliary atresia and syndromes of intrahepatic cholestasis. For example, he developed a novel re-sequencing gene chip to identify mutations in five genes causing the most common causes of intrahepatic cholestasis. Dr. Bezerra also investigates the control of liver repair by the plasminogen system of proteases. His experiments use several mouse lines genetically engineered to lack or overexpress individual (or combined) members of the plasminogen system to define the molecular networks used by plasminogen to control liver cell plasticity and repair following acute and chronic injuries.

### Collaborations:

Dr. Bezerra has used the **Bioinformatics, Microarray, and Integrative Morphology Cores** in collaboration with Drs. Aronow, Witte and Wells studying how plasminogen regulates liver repair. He also collaborated with Drs. Aronow, Tiao, Bucuvalas, and Campbell in patient- and animal-based experiments to interrogate the pathogenic mechanisms of biliary atresia using the **Bioinformatics and Microarray Cores**, and with Dr. Campbell in studies analyzing the potential role of alpha-1-antitrypsin alleles as modifiers of liver disease.

### Representative Figure:

