DIVISION OF GASTROENTEROLOGY HEPATOLOGY AND NUTRITION DEPARTMENT OF PEDIATRICS
CINCINNATI CHILDREN'S HOSPITAL

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2026

PROJECT TITLE: Therapeutic target to treat inherited chronic intrahepatic cholestasis

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Project Description

Cholestasis happens when the liver cannot properly move bile into the intestine. This leads to problems like poor absorption of nutrients, itching, and scarring of the liver over time. Chronic cholestasis affects about 1 in 2,500 infants, and roughly 25% of cases are linked to genetic mutations.My lab studies progressive familial intrahepatic cholestasis (PFIC), a group of rare genetic disorders that disrupt bile transport and damage liver cells. The most common type, PFIC type 2, is caused by mutations in the ABCB11 gene, which makes the bile salt export pump (BSEP). BSEP is the main transporter that moves bile acids out of liver cells. When it doesn’t work, patients often develop severe liver disease within their first year of life and have a high risk of liver cancer. Currently, the only effective treatment is liver transplantation. To study this, we created zebrafish with mutations in abcb11, which show liver problems similar to those in humans. This summer project will explore genes and pathways that might help restore bile acid transport and reduce liver damage in these mutants. We’ll use techniques like immunostaining, confocal fluorescence imaging, molecular biology, and chemical treatments.