

CANCER BIOLOGY  
COLLEGE OF MEDICINE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

APPLICATION DEADLINE: 03/01/2022

PROJECT TITLE: Identifying cancer-specific requirements PRPP-utilizing enzymes

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**Project Description**

Phosphoribosyl pyrophosphate (PRPP) is a required biosynthetic intermediate for cellular production of all nucleotides, and is therefore necessary for biological life. Cancer cells overproduce this molecule so that they may sustain their energetic, redox, and/or synthetic demands. Humans express eight enzymes that utilize PRPP as a substrate, but it is currently unknown whether any of these may serve as viable anti-cancer therapeutic targets. Preliminary data in the lab has identified cancer cells and tumor types that are sensitive to decreased production of PRPP, but it is unclear which of the eight downstream enzymes are affected under these conditions and what role individual PRPP-utilizing enzymes play in sustaining cancer cell metabolism. The undergraduate student will work hand-in-hand with Cunningham lab members to employ the latest CRISPR/Cas genome editing technologies to nominate a PRPP-utilizing enzyme or enzymes for further development and pursuit as a novel molecular target for anti-cancer therapy.