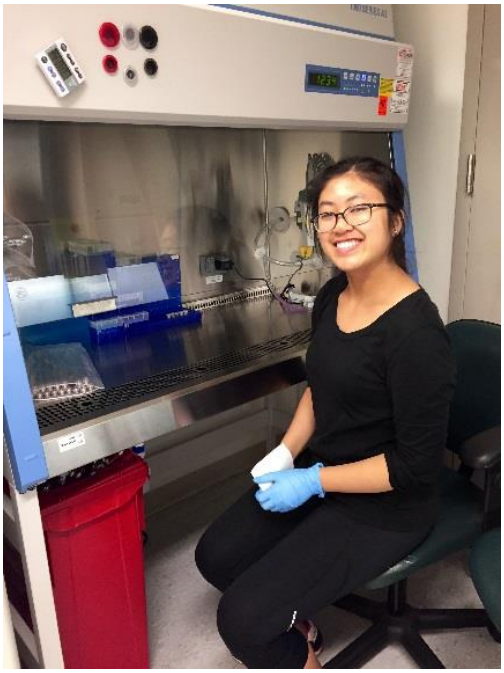

Targeting the Metabolic Stress Response in Hepatocellular Carcinoma
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During this past year, the focus of my project has been on hepatocellular carcinoma (HCC), or liver cancer. The standard treatment for unresectable HCC (HCC that cannot be removed by surgery) is transarterial chemoembolization (TACE). TACE works by depriving tumors of nutrients and inducing cell death. However, although initially effective, TACE commonly leads to recurrence. Studies demonstrate that HCC cells surviving TACE often undergo latency periods with undetectable growth. Not much is known about how this happens. Thus, my work has sought to examine the adaptations, specifically activation of metabolic stress responses (MSRs), that have enabled these cells to survive TACE. So far we have found that HCC cell survival under TACE-like severe ischemia (nutrient deprivation) is dependent on activation of MSRs, which involve hypoxia-inducible factors (HIFs) and the unfolded protein response. These serve as potential MSR targets for promising combination therapies with TACE.

Through this experience, I have been able to gain valuable insight into the entire research process from start to finish. I got the chance to write a grant proposal, conduct experiments, collect my data, analyze results, and share my work with others. Furthermore, being exposed to a workplace environment, such as the lab, that fosters creativity has made me a more curious and investigative person.

In sum, research has played an essential role in my experience at Penn so far. Not only have I worked with fantastic mentors, but I have also learned so much about trending ideas at the forefront of medicine. This is a perfect supplement to the foundational concepts that I am learning in my biology, chemistry, and BBB classes. My involvement in this project has also given me more clarity about my career interests and how research is a major influence in clinical medicine.