

Introduction

This summer, I had the wonderful opportunity to learn about pediatric brain cancer at a research institute as a part of a clinical research team in Perth, Australia. By determining better, more effective routes of treatment for childhood brain cancer, we can improve outcomes by targeting the specificities of the illnesses and reduce the toxicity of treatment in children.

Objective

Determine an enhancement that boosts the current gold standard of pediatric brain cancer treatment (surgery, radiotherapy, chemotherapy) through the use radiosensitization agents.

About the Institute

Telethon Kids Institute is a premier research institute in Perth with many individual and collaborative teams that come together to better healthcare outcomes for children across Australia and all over the globe.

Anagam Udebiuwa '23 Ecology and Evolutionary Biology Telethon Kids Institute, Perth, WA, Australia Funded by CHW under the GHP Program

Reflection

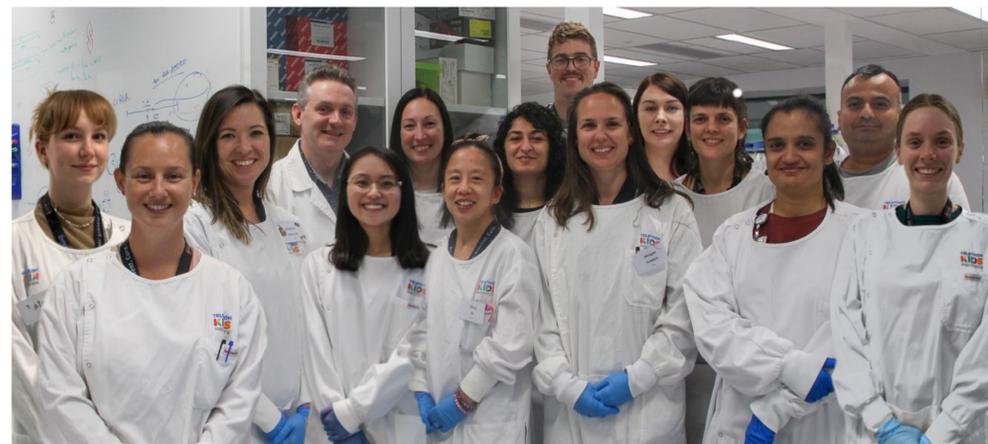
This summer, I synthesized a database and began organizing a systematic review of the scholarly discourse surrounding radiosensitization to increase the efficacy of standard brain cancer treatment in children. Radiosensitizers are drugs or mechanisms that enhance the effectiveness of radiotherapy, which, with implementation, can drive down the overall toxicity and discomfort during treatment.

I learned a great deal about the experimental aspect of cancer research--- cell viability assays, western blots, immunohistochemistry assays and the like to test drug uptake. I learned how to comprehend the quality of an experiment based on subcutaneous versus orthotopic tumor implantations in mice, the likelihood of certain agents to make it past the preclinical stages, and even more deeply came to see the true complexity of brain cancer--- it was like the more I understood, the less I understood.

I also learned about the nuances of the ongoing relationship with the Aboriginal community and the goal of improving their health outcomes too.



All 6 Princeton undergraduate research assistants posed on the TKI bridge. Taken by TKI engagement and media specialist.



Pictured: Team Brain Cancer, Telethon Kids Institute

For the Future

My summer experience has impacted the trajectory of my career immeasurably. I was invaluable to learn the key differences between clinical patient care and clinical research and the dynamics of global scholastic relationships. Moreover, it showed how applicable strong research skills are in the workplace and challenged my feelings towards my current career path.

Questions

- Is there a promising radiosensitizing agent that will make it into the standard of care?
- What is the timeline in improving the outcomes for children with “zero” cancers?
- Are there distinct differences in outcomes for brain cancer in Aboriginal children?

Acknowledgements

I would like to thank Jessica Buck for her warmth and patience as she introduced me to novel and complex topics, and her commitment to weekly meetings for progress updates and my relentless line of questioning. I'd like to thank Hilary Hii and the rest of Team BT for welcoming me with open arms and Raelene Endersby for taking a chance on me. I'd like to thank TKI for a wonderful, immersive learning experience and a great café. Thank you to Meaghan Tohill and Gilbert Collins, and the rest of the GHP coordinating team for providing the funding to sponsor such important work