

BDIAP Intercalated Degree Grant Report

My name is Christian Lim, and I was lucky enough to be awarded the BDIAP Intercalated Degree Grant in 2021. I study medicine at Newcastle University and completed my MRes at this institution as well. My MRes consisted of 6 months of taught components and 6 months of research project time. Regarding my taught period, I completed 4 modules which all had aspects I thoroughly enjoyed, with highlights being oncogenetics and advanced cancer therapies.

My research was conducted in the department of Immunity and Inflammation in the Cellular Institute of Medicine. The main aim of our project to investigate a potential novel biomarker within head and neck cancer. Indoleamine 2,3-dioxygenase (IDO) is an enzyme responsible for breaking down Tryptophan into Kynurenine. IDO expression is a good predictor of clinical outcomes; however this is unsuitable as a clinical biomarker. Therefore we proposed that serum levels of Kynurenine or the Kynurenine:Tryptophan ratio could be surrogates for tumoural IDO. To determine degrees of IDO expression within tissue samples we used immunohistochemistry (IHC). The IHC was assessed using digital pathology software, QuPath, alongside normal methods.

This project was part of larger work that was being conducted by Dr Lei Huang and Mr Daniel Lin. We found that degrees of IDO expression, assessed manually and digitally, were directly correlated to serum Kynurenine, hence providing the basis for a clinical biomarker. We also confirmed a correlation between standard interpretation of IHC and analysis using pathology software, QuPath.

Using these histopathological methods enabled greater exposure to the speciality, and the extensive information that histopathology can provide. After working alongside consultant pathologists, I now more clearly understand how valuable histopathology in research but also clinically. Previously, I haven't considered a career in histopathology as I am very keen on patient contact and clinical practise as a surgeon, however, this work has greatly increased my interest as histopathology.

Finally, I would like to extend my deepest appreciation to the BDIAP for their support during my intercalated year which has facilitated all the work I was able to complete. I am truly grateful for the opportunity I was given.