



3 February 2023

Cystic Fibrosis WA Post Graduate Top Up Scholarship 2022

Annual Report – Rohan Flint – University of Western Australia/Telethon Kids Institute

Project Titled: Assessing aerosolised bacteriophage to treat antibiotic resistant bacterial infections.

Over the first year of my project, I have made significant progress within the first aim of my project, which was to assess the effects of aerosolisation methods on phage activity. I have used a vibrating-mesh nebuliser to aerosolise a liquid phage preparation and collect the aerosol into a tube for further experiments. Using this method, I have tested 6 different phages from our library that target *Pseudomonas aeruginosa* and have compared their activity before and after nebulisation. I have also tested a highly purified version of one of these phages, similar to a preparation that would be delivered to treat an infection in humans.

During my second year I will be testing more purified preparations, from more phages that have been isolated and characterised by other members of our team. Many of these have different, known structures and some target other bacteria such as *Staphylococcus aureus*. I will also be testing different additives and buffer solutions with the phages in the hopes of enhancing their stability during aerosolisation. I aim to find a characteristic(s) that may be causing some phages to be damaged more by aerosolisation, which will help the selection process for phage therapy in the future.