

30 December 2022

Dorothy Nell Marzol Innovation Grant – six month progress report

Project titled: *Australian-wide surveillance for fungal infection: A National metagenomic analysis across 19 CF centres.*

I was awarded the Dorothy Nell Marzol Innovation Grant to investigate fungal pathogens in the lungs of people with CF. Both fungi and bacteria can cause CF lung disease, however, to date, bacterial infections have been the most common. Over the past decade, our ability to use medicines, such as antibiotics, to treat bacterial infections has improved greatly. However, with bacterial infections becoming rarer, there is a major concern that fungal infections will become more common and severe for people with CF. In order to investigate this, we need to measure fungi in a large CF population. From this we can determine how common they are currently, what the main species are, and whether there are risk factors for fungal infection.

My research background is in molecular microbiology, where I use advanced techniques to detect and characterise microbes from patient samples. To date, I have used these molecular techniques to measure fungi from lung samples of over 400 people with CF. This approach requires careful processing of samples, quality assessments, and application of a technology called metagenomic sequencing. I am currently in the process of sifting through the metagenomic data to “reconstruct” fungal genomes. Following this, I will be able to determine the type of fungal species detected, their characteristics, and their abundance in the samples. This project is currently on track and I am looking forward to sharing my findings.

I am very grateful for the opportunity to conduct this research, which could not be possible without CF Australia.

Steven Taylor

Microbiome and Host Health Programme, SAHMRI
College of Medicine and Public Health, Flinders University
NHMRC Research Fellow