TCS/16/24 - ACCELERATING CLINICAL INTRODUCTION OF NOVEL ANTIBACTERIAL DRUGS

Antimicrobial resistance (AMR) increasingly threatens our health and well-being, as infectious microbes evolve to become resistant to existing antibiotics. There is an ongoing need to discover new antibiotics and bring them to the clinic. The Strathclyde Minor Groove Binding (S-MGB) platform contains a family of novel compounds (one, MGB-BP3, has completed Phase 1 Clinical Trial successfully for the treatment of *Clostridium difficile*) that kill bacteria through binding to their DNA and interrupting essential bacterial metabolism. They act at a number of targets within each cell, which means that variants that are resistant to BP3 have not been seen. We will explore some new compounds in the S-MGB portfolio for potential to treat other troublesome clinical infections.

In a pilot study, we have already shown that, in situations where a clinical pathogen has developed resistance to an existing antibiotic, dual therapy with an S-MGB may extend the effective lifetime of that antibiotic. This would 'repurpose' that ailing clinical antibiotic and extend its useful lifetime. We will broaden out that pilot study to evaluate other antibiotics for synergy with S-MGBs.

To obtain regulatory approval to evaluate this synergy strategy, the project also addresses the biological mechanism(s) by which such synergy occurs.