School of Pharmacy  
Summer Studentship Project Proposal  
2016

Title of project: Powder formulation of combination drugs for multi-drug resistant tuberculosis  
Supervisor(s): Dr Shyamal Das

Project description:  
The emergence of multi-drug resistant (MDR) strains of Mycobacterium tuberculosis (Mtbb) has aggravated the mortality rate of TB [1]. Therefore, a more effective treatment for MDR TB is required. When approved by the US Food and Drug Administration (FDA) in December 2012, bedaquiline was the first drug to be introduced for the treatment of TB in the last 40 years. Bedaquiline is bactericidal and has a long half-life (> 24 h). Bedaquiline, therefore, potentially reduces the frequency of dosing and was also found to accumulate in the lung [2, 3]. It is active against MDR TB [4] and its combination with pyrazinamide and/or moxifloxacin given orally have shown similar or superior efficacy to that of the current standard regimen of isoniazid-rifampicin-pyrazinamide-ethambutol [5]. In this project, dry powder formulations of bedaquiline-pyrazinamide-moxifloxacin combinations will be produced by spray drying technique, characterized for physical properties and aerosolization will be investigated.

References:

Is ethical approval required for this project? If yes, please obtain approval prior to commencement of the summer student project.  
Not required.

Resources required (please state equipment needed and if this will be available).  
Spray dryer, NGI, Mycobacterium

Availability of the supervisor during the project: I am available.

Number of students required: One