



School of Pharmacy PhD Projects 2014

- Project Title** Liposomal delivery of antibiotics for treatment of pulmonary infection
- Supervisors** Dr Vicky Kett, Dr Michael Tunney, Prof S Elborn (Centre for Infection & Immunity)
- Description** In respiratory diseases such as Cystic Fibrosis (CF) and COPD, the lungs are colonized by diverse polymicrobial bacterial communities with anaerobic bacteria present in addition to aerobic bacteria, such as *Pseudomonas aeruginosa*, considered as primary pathogens. Inhaled antibiotics are currently used in the treatment of chronic *P. aeruginosa* infection in CF. However, a major challenge with such treatment is antibiotic penetration into sputum. We have developed spray-dried liposomal formulations with excellent powder properties for pulmonary delivery. Preliminary data has shown that antibiotics can be encapsulated in these formulations and delivered into CF sputum.
- In this project, pulmonary delivery of liposomal encapsulated antibiotics, with activity against *P. aeruginosa* and other potential pathogens, will be determined. Formulation aspects of the project, led by Dr. Kett, will include liposome manufacture, spray drying and physicochemical characterisation. Microbiological analysis, led by Dr. Tunney, will include aerobic/anaerobic culture and planktonic and biofilm models of infection. Extensive training will be provided in both aspects of the project as part of internationally renowned research teams. We anticipate publication of the work resulting from this project in high impact journals; therefore, good scientific writing skills are vital.
- Start Date** 1 October 2014
- Keywords** Liposomes; Cystic Fibrosis, infection, pulmonary delivery; inhaled antibiotic therapy

Contact Details

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How to Apply

Postgraduate applications should be made using Queen's Online:

<http://go.qub.ac.uk/pgapply>

Please note that there are two application processes: one for admission to the university and another for postgraduate awards.

Further Information

Additional information for prospective postgraduate students can be found on the School of Pharmacy website:

<http://www.qub.ac.uk/pha>

and the Queen's Postgraduate website:

<http://www.qub.ac.uk/home/ProspectiveStudents/PostgraduateStudents/>