



School of Pharmacy PhD Projects 2014

Project Title	Microbial community composition in the Cystic Fibrosis (CF) lung: effect on structural damage and disease progression
Supervisors	Dr Michael Tunney, Prof Stuart Elborn (Centre for Infection & Immunity)
Description	<p>Previous studies by our group have revealed a complex and diverse microbiota in sputum samples collected from CF patients. However, no studies have determined if the microbiota is different in distinct anatomical regions in the lung and whether such differences, if present, account for the regional variation in structural damage and lung disease characteristic of CF. In this project, multiple airway tissue and sputum samples from distinct anatomical regions will be extracted from frozen explanted CF lungs at the KU Leuven (Belgium). Bacteria present in these samples will be determined by extended aerobic/anaerobic culture and state-of-the-art molecular next-generation sequencing technologies. Unused 'healthy' donor lungs will be analysed as controls. Data from microbiome analysis will be compared with histology, High Resolution Computed Tomography and microarray data generated in collaborating institutions to determine the relationship between microbiota composition, localised structural damage and disease progression. This project will provide extensive training in conventional aerobic and anaerobic culture methods, next generation sequencing and analysis, tissue culture and microscopy as part of an internationally renowned research team. Furthermore, it will provide a student with the opportunity to undertake research at a number of collaborating institutions, all of which are recognised international centres of research excellence.</p>
Start Date	September 2014
Keywords	Cystic Fibrosis, infection, airway microbiota, inflammation, next generation sequencing

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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/>