



# School of Pharmacy PhD Projects 2015/16

**Project Title** Effect of antibiotic treatment on airway microbial community composition in patients with Cystic Fibrosis

**Supervisors** Prof Michael Tunney, Dr Deirdre Gilpin, Prof Stuart Elborn (Centre for Infection & Immunity, School of Medicine, Dentistry and Biomedical Sciences)

**Description** Cystic fibrosis (CF) lung disease is characterized by chronic bacterial infection, airway obstruction and persistent inflammation that results in bronchiectasis. Studies employing enhanced culture techniques and culture-independent molecular approaches have recently shown that the lungs of CF patients harbour diverse polymicrobial communities, the “microbiome.” This study will use both culture and next generation Illumina sequencing to comprehensively define lung microbiome composition in CF patients prior to commencing and whilst receiving inhaled antibiotic treatment and relate this to clinical parameters and markers of disease status. Changes in the abundance of genes encoding antimicrobial resistance in response to antibiotic treatment will also be determined. The composition of the upper and lower airway microbiome in healthy patients and how this is perturbed by antibiotic treatment will also be determined. This 3-year project will provide extensive training in conventional aerobic /anaerobic culture methods, molecular microbiology and inflammatory marker measurement as part of an internationally renowned research team.

Further information can be obtained from Prof. M. Tunney: [m.tunney@qub.ac.uk](mailto:m.tunney@qub.ac.uk)

**Start Date** September 2015

**Keywords** Cystic Fibrosis, inhaled antibiotic, infection, inflammation, next-generation sequencing, microbiome

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#### How to Apply

Postgraduate applications should be made using Queen's Online: <http://pg.apply.qub.ac.uk/home/> 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/>

