

Supervisor: Dr Ian Sayers

Project title: Functional genetics of recently identified asthma susceptibility genes

Asthma is a major cause of human suffering. Estimates suggest that 300 million people currently have asthma, which is the most common chronic disease among children (World Health Organisation (WHO, 2008)). Asthma is a complex disease involving both genetic and environmental factors (*e.g.* allergen exposure) resulting in disease expression. Molecular genetics holds great promise to identify new genes and pathways involved in asthma providing new therapeutic opportunities. In an era of genome wide association studies (GWAS) leading to the discovery of new asthma susceptibility genes it is critical that these findings are moved quickly into translational studies.

Interestingly, many of the genes recently identified are suggested to have a role in airway epithelial function which is thought to be altered in asthma *e.g.* IL33 and IL33 receptor genes.

This project aims to translate these population based studies to altered gene expression and activity in the Human airways and periphery using a combination of molecular biology approaches in primary airway cell models including bronchial epithelial cells and human airway smooth muscle cells. Importantly these analyses will also investigate gene function in asthma patient and non asthmatic control airway cells.

Theme(s): Functional studies of polymorphic variation linked to asthma susceptibility.

Keywords: asthma, genetic susceptibility, functional analyses, primary airway cell models.

Fee band: High cost laboratory-based research

Available to Home & EU students/International Students