IMPERIAL

3-year NHLI-funded PhD post –

Applications are invited for a 3-year PhD studentship starting in mid-late autumn 2024 from candidates with a Master's degree (Merit and above) in Immunology or a related discipline.
The studentship will be funded for 3 years with a tax free bursary of £20,622 p.a. Tuition fees at the Home rate will also be paid.

Students will join a well-established doctoral training program with bespoke activities, seminars, mentors and workshops.

The National Heart and Lung Institute, Imperial College, is located within the Main Campus at South Kensington, the Brompton Campus, and the Hammersmith/White City Campus. Students will have the opportunity to work in state-of-the-art facilities within a highly developed research environment where our ambition is to translate research findings to help those with cardiovascular diseases. All students benefit from a full programme of training in research and transferable skills organised through the Graduate School, the quality of which has been recognised several times at the Times Higher Education (THE) Awards.

Mechanisms determining the protective impact of the farm environment in the development of early – life allergy and asthma

Postnatal risk factors for childhood asthma include developing lung microbiota, early allergen sensitization and recurrent viral respiratory infections. Immune dysfunction in early-life increases lower respiratory infections, promotes allergic sensitization and persistent airway inflammation. Children raised on dairy farms are less prone to allergies and asthma. Our data shows inhaled microbes from farm dust protect neonatal mice from allergic airways disease triggered by HDM or recurrent viral infections.

Our project aims to investigate the impact of farm environment exposures on airway epithelial phenotype ex vivo and uncover mechanisms underlying protection from allergen and viral-induced early-life asthma in vivo. We will investigate altered epithelial phenotype and function ex vivo, and downstream immune cell changes in vivo (specifically focussing on neutrophils) using transcriptomics, our established in vivo neonatal allergic and viral airways disease murine models and ex vivo nasal brushings from allergic rhinitis/asthma patients following treatment with farm dust extract. We will delineate molecular and cellular mechanisms mediated by the protective farm environment exposures rescuing the dominant type2 phenotype.

Candidate Background:

This project requires graduate students with backgrounds in respiratory biology, immunology or molecular biology. Candidates should have a basic knowledge of life sciences, including cell biology, genetics and physiology, to understand the underlying mechanisms of respiratory health and immune responses. In addition, expertise in immunology is crucial to study the role of the immune system in respiratory diseases and how exposure to farm dust may modulate the immune response. Basic knowledge of molecular biology techniques is required to carry out experiments on gene expression analysis, epigenetics and protein secretion. The doctoral student will learn specific knowledge in the highly specialized laboratories.

In order to analyse large -scale omics data and identify molecular signatures relevant to the project, computer skills in bioinformatics are desirable. Finally, experience or interest in clinical research and working with animal models may facilitate the translation of results from the laboratory to the bedside or the conduct of preclinical studies.

This project is part of the Imperial College London–Technische Universität München (TUM) Joint Academy of Doctoral Studies and the student will be required to make visits to our partners' laboratory in Munich. Supervision in London will be under Professors Clare Lloyd & Sejal Saglani. Our collaborator and project partner Dr Constanze Jakwerth will join the supervision package.

[http://lloydlab.co.uk]

For enquiries, please contact;

Dr Laura Yates – l.yates@imperial.ac.uk

Prof Clare Lloyd – c.lloyd@imperial.ac.uk

Prof Sejal Saglani – s.saglani@imperial.ac.uk

How to Apply

Applicants must hold, or expect to obtain, a first or upper second-class undergraduate degree or UK equivalent, along with a Masters, both in an appropriate subject from a recognised academic institution. To apply please send a CV, a one-page personal statement, and the names and addresses of at least two academic referees to Dr Laura Yates – l.yates@imperial.ac.uk.

Deadline for applications Friday 13th September 2024.