University of Leicester

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| **Project Reference** | BRC Studentships |

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| **Additional Supervisor** | Dr Leah Cuthbertson |

**Section 2 – *Project Information***

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| **Project Title** | Characterising potential exposure triggers in people of South Asian ethnicity diagnosed with Hypersensitivity Pneumonitis (HP) |
| **Project Highlights:** | 1. | Exciting interdisciplinary project, working in a team with diverse clinical and research expertise  |
| 2. | Important research area with both national and international relevance and application |
| 3. | Opportunity for development of diverse research techniques and methodologies |
| **Project Summary**  |
| **Background:** Hypersensitivity Pneumonitis (HP) is an interstitial lung disease (ILD) which is classically triggered by inhaled organic antigens. However, ~50% of chronic cases overall surveyed to date are cryptogenic, i.e. no conclusive trigger exposure history is identified. This is overwhelmingly the case in the sizeable subgroup of patients of South Asian ethnicity with chronic HP managed in Leicester, with consistent experience in other centres. Strikingly, chronic HP is also the commonest ILD subtype in patient studies in the Indian subcontinent. In the Indian environmental context atypical mycobacteria from air conditioning units, mega-city pollution or Indian rural exposures have been proposed to be responsible, but these do not pertain to the Leicester population of South Asian ethnicity with HP (LSAHP). Characterising exposures to a range of potential triggers and comparing to appropriate controls may identify lifestyle interventions that can stabilise or reverse disease and shed further light on pathogenesis in the wider pool of cryptogenic HP cases. It is also possible that a higher proportion of people of South Asian ancestry may have innate mechanistic/genetic predispositions to develop HP than in North European populations. It is therefore important that we develop stores of biosamples to contribute to future molecular studies in HP. Data will be used to:1. Assess domestic and external environmental exposures to VOCs, microbes and fungal triggers in the Leicester South Asian ethnicity (LSA) HP population.
2. Establish biosample banking in this population for future molecular studies.

**Research Plan:** We therefore propose an interdisciplinary studentship project integrating clinical, environmental, microbiological and molecular studies. From November 2023 we expect to have ethics approval and an embedded research nurse/AHP to consent patients attending Leicester ILD Service Clinics for research studies. The student will in addition work with patients and family members to ensure their engagement in a culturally-appropriate manner. They will undertake questionnaire studies and assess domestic and outdoor exposures to volatile organic compounds (VOCs), atmospheric pollutants, and fungi, as well as collecting blood samples for molecular analysis. They will compare this with disease and health control groups.**Expected outcomes and impact:** The project will produce data to stratify potential environmental triggers of ILD in the LSAHP population. It will also establish biobanking of LSAHP population biosamples for future molecular studies.  |
| **References** |