**Department of Respiratory Sciences PhD studentship Project information**

**Funding Source:** Self-Funded

**Proposed project start date:** Open

**Closing date for applications:** Open ended

**Eligibility:** UK/EU/International

**Department/School:** Respiratory Sciences

**Supervisors:** Dr Hasan Yesilkaya (hy3@le.ac.uk)

**Project Title:** Understanding microbial metabolism to cure infections?

**Project Description:**

Bacteria can populate our bodies and utilise nutrients within our tissues. The available nutrients differ by location, over time and in response to disease. Bacteria therefore need to be able to respond to this dynamic environment and these adaptations can result in a change from commensal to invasive phenotypes. One approach to overcome bacterial disease is to define critical metabolic networks which are required for virulence and target these pathways pharmaceutically. *Streptococcus pneumoniae* is a commensal bacterium which becomes virulent and we have unique insight into the role of sugar metabolism and cell-cell communication systems in this progression to virulence. Our data show that growth on different sugars renders *S. pneumoniae* extremely virulent and we propose in this project to define how and why this occurs. Our underlying hypothesis is that metabolic adaptation determines the virulence of bacteria. To test this hypothesis using our in vitro and in vivo models, (i.) we will determine the extent to which changes in environment impact the operation of different sugar pathways and cell-cell communication systems; (ii.) determine the impact of changes in sugar catabolism on bacterial phenotype, and (iii.) determine the impact of targeting sugar metabolism as a means to inhibit bacterial growth.

**Tuition fee details:** Self-funded. No fee waiver available for international students.

Fee Band 26 (£38,300)

**Project Enquiries: Dr Hasan Yesilkaya** **hy3@leicester.ac.uk**

**General enquiries to** **cls-pgr@le.ac.uk**

**To apply please refer to** [**https://le.ac.uk/study/research-degrees/research-subjects/respiratory-sciences**](https://le.ac.uk/study/research-degrees/research-subjects/respiratory-sciences)

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