**Department of Respiratory Sciences**

**Self funded PhD project**

**Funding Source: Self-Funded**

**Proposed project start date: As soon as possible**

**Eligibility:** International students

**Department/School:** Department of Respiratory Sciences

**Supervisors:** Prof Galina Mukamolova (gvm4@leicester.ac.uk )

**Project Title: Development of novel therapeutic strategies to target *Mycobacterium tuberculosis* virulence**

**Project Description**

*Mycobacterium* *tuberculosis* (*Mtb*) is a sophisticated pathogen which can replicate in eukaryotic cells and survive in infected humans for decades. Current tuberculosis treatment includes a 6-month chemotherapy with a combination of four drugs. A growing challenge of multidrug resistant TB highlights the urgent need for development of novel strategies to control, prevent and eradicate TB. We have recently shown that Mtb persisters that cannot be detected by standard methods are produced during infection. The project is aimed to investigate new drugs that target host signalling pathways to reduce generation of these persisters and reduce pathological changes in the infected organs. The project will include growing and manipulating *Mtb,* *Mycobacterium marinum* and *Mycobacterium bovis* BCG; determination of MIC; macrophage infection studies; proteomics experiments. We will also investigate interaction of drugs with their targets and generate *Mtb* mutants.

**References:**

1. Glenn SM, Turapov O, Makarov V, Kell DB, Mukamolova GV. 2022. Dimethyl fumarate eliminates differentially culturable *Mycobacterium tuberculosis* in an intranasal murine model of tuberculosis. Frontiers Cell Infect Microbiol, 12:957287. doi: 10.3389/fcimb.2022.957287.
2. Cole ST.(2016) Inhibiting Mycobacterium tuberculosis within and without. 2016. Philos Trans R Soc Lond B Biol Sci. 371(1707):20150506. doi: 10.1098/rstb.2015.0506.
3. Turapov O, Glenn S, Kana B, Makarov V, Andrew PW, Mukamolova GV. 2014. The in vivo environment accelerates generation of Resuscitation-promoting factor–dependent mycobacteria. *Am J Respir Crit Care Med*. 190: 1455-7.

**This project does not come with any funding it is open to student who can fund their own study or**

**have their own sponsor**

**Entry requirements:**

Applicants are required to hold/or expect to obtain an analogue of UK Bachelor Degree or MSc Degree in a relevant subject.

The University of Leicester [English language](https://le.ac.uk/study/research-degrees/entry-reqs/eng-lang-reqs) requirements apply where applicable.

**Application advice:**

To apply please refer to <https://le.ac.uk/study/research-degrees/research-subjects/respiratory-sciences>

With your application, please include:

* CV
* Personal statement explaining your interest in the project, any relevant research experience and why we should consider you
* Degree Certificates and Transcripts of study already completed or a transcript to the current date of study currently being undertaken
* Evidence of English language proficiency if applicable
* In the reference section please enter the contact details of your two academic referees in the boxes provided or upload letters of reference if already available.

In the proposal section please provide the name of the supervisors and project title (a research proposal is not required)

In the funding section please state how you will fund the study.

**Project Enquiries:** **gvm4@leicester.ac.uk**

**Application enquiries to** respsci-pgr@leicester.ac.uk

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