(MRC DTP) Understanding how cytokine regulation contributes to inflammatory disease

Application Deadline: 17 November

Project Description
Inflammation is the response of the body to danger (i.e infection or tissue damage) and is a key immune process linked to a broad range of diseases including diabetes, atherosclerosis and cancer. Central to inflammation is the molecular signals that are triggered upon danger and that spread the inflammatory process. Understanding how these signals mediate cell communication during the first steps of inflammation is essential to develop new therapies for inflammatory pathologies.

Two key signals involved in this process are the potent pro-inflammatory cytokines interleukin (IL)-1β and IL-18. Both cytokines, despite having very different effects during the inflammatory response, are activated and released following the assembly of the same macromolecular complex called the inflammasome. Previous work in our lab has shown that post-translational modifications regulate the activity of the inflammasome and IL-1β. However, and despite extensive research in this area, the molecular mechanisms that govern the regulation of IL-18 and its physiological antagonist IL-18binding protein (IL-18BP) at the transcriptional and post-transcriptional level remain poorly characterized.

The main aim of this project is to understand the regulation of IL-18 during inflammatory responses. The candidate will investigate different aspects of the regulation of this cytokine, during different inflammatory conditions using both vivo and in vitro models. You will contribute to this emerging field by building on actual knowledge to understand new mechanisms that contribute to IL-18 mediated inflammatory disease.

We are looking for enthusiastic and motivated candidates with a strong interest in cell biology and the use of molecular approaches to study disease-relevant questions. This project includes training in a wide array of interdisciplinary techniques ranging from microscopy to antibody-based techniques such as immunofluorescence, western blotting and flow cytometry as well as in vivo infection models. You will benefit from a stimulating environment and the cutting edge facilities at the world leading Manchester Collaborative Centre for Inflammation Research (MCCIR). As a PhD student you will also be encouraged to present your research at internal meetings as well as attending international conferences. Please email us if you are interested and would like to know more about the project.

Funding Notes
This project is to be funded under the MRC Doctoral Training Partnership. If you are interested in this project, please make direct contact with Dr Gloria Lopez-CAstejon (Gloria.lopez-castejon@manchester.ac.uk) to arrange to discuss the project further as soon as possible. You MUST also submit an

online application form - full details on how to apply can be found on the MRC DTP website https://www.bmh.manchester.ac.uk/study/research/mrc-dtp/

Applications are invited from UK/EU nationals only. Applicants must have obtained, or be about to obtain, at least an upper second class honours degree (or equivalent) in a relevant subject.

References

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