PhD Studentship: The role of TGFβ on modulation of immune responses in Marek's disease

Project Ref: 2020/07/SB
Anticipated Start Date: October 2020 **Duration:** 3.5 years full-time
Closing date to apply: 27 March 2020

Eligibility:

- This studentship is open to science graduates (with, or who anticipate obtaining, at least a 2:1 or equivalent, in a relevant biological subject in their undergraduate degree, or a Masters degree - subject to university regulations). Other first degrees, e.g. veterinary science, will be considered. You should be looking for a challenging, interdisciplinary research training environment and have an active interest in the control of infectious diseases.
- This is a fully-funded studentship only open to UK students and eligible EU students who qualify for home-rated fees, in line with Residential Guidelines for Research Council Studentships.
- Students without English as a first language must provide evidence that they meet the English language requirement, e.g. with an IELTS score of 7.0 and no less than 6.5 in any of the subsections.

Supervision:

Principal Supervisors: Dr Shahriar Behboudi (The Pirbright Institute), Dr Natalie Riddell (University of Surrey)
Co-Supervisors: Dr Nitin Kamble (The Pirbright Institute)

Project Details:

Regulatory T cells suppress many different immune cells and thus they are involved in immune modulation to inhibit inflammatory responses. Some pathogens activate expansion of regulatory T cells to escape immune control, however the mechanism involved in the induction and expansion of regulatory T cells by pathogens is not understood.

Marek's disease virus causes a lymphoproliferative disease in chickens and causes transformation of lymphocytes. Our group has shown that infection with Marek's disease virus induces expansion of a novel regulatory T cells in the infected chickens, and this may explain immunosuppression observed in these birds (Gurung *et al. PLoS Pathogen* 2017). We have also recently shown that Marek's disease virus activates metabolic changes in the infected cells (Boodhoo *et al. Journal of Virology* 2019 and Boodhoo *et al. Journal of Virology* 2020). The studentship will investigate the mechanism involved in induction and activation of regulatory T cells by the virus and determine the role of metabolites produced by the infected cells in induction of regulatory T cells.

A combination of cellular and molecular immunology as well as classical virology techniques including flow cytometry, confocal microscopy, metabolic analysis, molecular biology and gene silencing will be utilised in this project.

References for Background Reading:

1. Boodhoo N, Gurung A, Sharif S, Behboudi S. Marek's disease in chickens; a review with focus on immunology. *Veterinary Research*, 2016 November 28: 47(1);119.
2. Gurung A, Kamble N, Kaufer B, Pathan A, Shahriar Behboudi. Association of Marek's Disease induced immunosuppression with activation of a novel regulatory T cells in chickens, *PLoS Pathogens*, 2017, 13 (12), e1006745.
3. Boodhoo N, Kamble N, Sharif S, Behboudi S. Glutaminolysis and Glycolysis are essential for optimal replication of Marek's disease virus. J Virol. 2020 Jan 31;94(4).
4. Boodhoo N, Kamble N, Kaufer BB, Behboudi S. Replication of Marek's disease virus is dependent on de novo synthesis of fatty acid and Prostaglandin E2. J Virol. 2019 Jun 14;93(13).

Registration, Training and Funding:

This is a Pirbright Institute/University of Surrey fully funded project. The student will be based primarily at The Pirbright Institute and registered with the University of Surrey. The student will visit the university to meet with their supervisors and undertake training or complete specific project tasks as required. Eligible students will receive a minimum annual stipend of £15,009. University registration fees will be paid. A full range of research and transferrable skills training will be made available to the student as appropriate.

Applications:

Closing date to apply: 27 March 2020

Click here for details of how to apply

Essential documents:

- Application Form
- CV
- Two references sent directly by your referees

Please email your application to studentship@pirbright.ac.uk by the closing date.