**Discovery of novel modulators of T cell receptor signalling in cancer**

In cancer and chronic infection, chronically stimulated T cells reduce their function through mechanisms that are not fully understood. Such dysfunctional T cells are not able to control the disease, resulting in morbidity and mortality. T cells recognise epitopes through the T cell receptor (TCR). Downstream signalling results in T cell activation and acquisition of function to deal with the antigenic challenge.

Various studies have implicated changes in T cell receptor (TCR) signalling in T cell dysfunction, with the discovery of intracellular proteins that act to reduce TCR signal strength. A deeper understanding of how TCR signalling changes in the context of T cell chronic antigen stimulation could yield new treatment options for patients with cancer and other conditions.

We offer a 3-year PhD studentship in T cell cancer immunology to work on these questions within the Department of Surgery and Cancer at Imperial College London.

Our lab studies cancer immunology using a systems approach with the combination of high dimensional single cell methods (flow cytometry, sequencing), transcriptional analysis, imaging, TCR repertoire analysis and T cell functional approaches. We set up and run clinical trials to test ideas and obtain samples. We study fundamental questions in cancer immunology using in vitro/ex vivo and mouse models.

**Project description**

With a background in T cell biology and preferably experience in T cell gene modification, you will design and carry out experiments to model T cell chronic antigen exposure and study changes in signalling pathways amongst T cell populations in different states. This will involve using various techniques including flow cytometry, T cell functional assays and protein immunoblotting. The project will involve collaboration to carry out mass spectroscopy and validation of findings in T cells from human cancer samples.

You will predominantly work at Imperial College London (Hammersmith Campus) and closely interact with the lab of Dr. Olivier Pardo and Prof. Michael Seckl with expertise in cell signalling. Other collaborators include Prof. Sergio Quezada at UCL and Prof. Rafi Ahmed at the Emory Vaccine Center.

**Applicants**

Applicants must be EU nationals or have permanent leave to remain in the UK and should hold (or obtain by January 2024) a first or upper‐second class honours degree or equivalent in a Life Sciences/Computer Sciences or related field. A Master’s degree in Immunology is desirable.

The project lasts 36 months (full time) and includes course fees at the Home/Ireland rates and a tax‐free stipend of £21,000. Funding for overseas fees is not provided.

Applicants should submit their CV and a covering letter, including full contact details of two referees, to Dr. Ehsan Ghorani ([e.ghorani@imperial.ac.uk](mailto:e.ghorani@imperial.ac.uk)). All Imperial College London PhD [entry requirements](https://www.imperial.ac.uk/study/help-centre/postgraduate-admissions/-what-are-the-entry-requirements-and-what-qualifications-do-you-accept.php) must be met and the successful applicant will subsequently need to [apply online](https://www.imperial.ac.uk/study/apply/postgraduate-doctoral/). We regret that due to the large volume of applications received, we are only able to notify those shortlisted for interview.

The deadline for applications is: 23:59, 15th July 2024