



Project Title: “Decoding Gut Microbiome Functions in Cancer Immunity”

Group Leader: Evangelos Giampazolias

Research Group: [Cancer Immunosurveillance](#)

Immune checkpoint blockade (ICB) therapy has revolutionised cancer treatment, yet only a fraction of patients benefit. Resistance is often linked to poor activation and infiltration of CD8⁺ T cells. Our work has uncovered how recognition of dying cancer cells shapes T cell responses, identifying host factors that limit immunity and could be targeted to restore ICB efficacy (Giampazolias et al. [Cancer Med 2025](#); [Cell 2021](#), [Nat Cell Biol 2017](#)).

The gut microbiome is now recognised as a key regulator of cancer immunity. While patient studies have not identified consistent microbial species linked to ICB response, our recent discovery shows that the ability of microbiota to instruct immune responses to cancer depends on the host availability of a single micronutrient, Vitamin D, and is not simply an inherited property of the commensal species’ origin (Giampazolias et al [Science 2024](#)).

This PhD will investigate **how nutrient-host-microbiome interactions dictate cancer immunity in mice and humans**. The student will work with defined anaerobic commensals to study **community interactions** under nutrient availability and will combine **cutting-edge technologies** (single-cell RNA sequencing, proteomics, metabolomics and/or imaging) with **computational biology** and **data science** to identify gut-microbiome-immune checkpoints predictive of immunotherapy response.

The PhD will be based at the [CRUK Manchester Institute](#), with access to world-class facilities and close links to [The Christie Hospital](#) and [The University of Manchester](#). The student in [our group](#) will be supported by our [computational biology team](#) and benefit from the collaborative Manchester ecosystem.

We welcome applicants with **computational biology, bioinformatics, data science, biology** or **immunology** background. Training will be tailored to build interdisciplinary skills, whether your background is experimental or computational.

University of Manchester entry: September 2026