

## MASTER THESIS PROJECT:

# Unraveling the role of PHGDH in normal and pathogenic T cell immunity

### About us

In the Immunobiology Lab we are interested in understanding how metabolism regulates T cell responses during autoimmune diseases and antitumor immunity. Our aim is to identify how metabolic pathways regulate post-transcriptional and epigenetic programs directing T cell fate and differentiation, in order to manipulate these pathways in autoimmune diseases and anti-tumor immunity.

### Project outline

We recently found that phosphoglycerate dehydrogenase (PHGDH), the key enzyme of the serine synthesis pathway, also functions as an RNA-binding protein (RBP), and interacts with RNAs that are critical for stemness, cell fate, viability and mitochondrial homeostasis. In this project, we will explore how the RNA-binding activity and catalytic activity of PHGDH orchestrate normal and pathogenic T cell-mediated immunity using in vitro and in vivo models of T cell differentiation and function, in combination with cutting edge -omics approaches.

### We offer

- Dynamic environment that encourages networking, learning and the development of your own ideas.
- Opportunity to work and learn with highly qualified experts in the fields of immunology and metabolism.
- You will gain experience in flow cytometry, microscopy, cell culture, cutting-edge techniques and more.

### Your profile

- We are looking for a very curious and motivated Master's student with excellent communication skills and interest in immunology and/or metabolism.
- The ideal candidate should want to learn to work independently and have the initiative to develop a research project under the guidance of a junior researcher fellow, Dr. Francesc Baixauli, and the Principal Investigator, Prof Christoph Hess.

### How to apply

Please send us an updated CV, including previous lab experience and a motivation letter to [francesc.baixauli@unibas.ch](mailto:francesc.baixauli@unibas.ch) and [christoph.hess@unibas.ch](mailto:christoph.hess@unibas.ch).

### References

- Lotscher, J. et al. Magnesium sensing via LFA-1 regulates CD8(+) T cell effector function. *Cell* 185, 585-602 e529 (2022). <https://doi.org/10.1016/j.cell.2021.12.039>
- Baixauli, F. et al. An LKB1-mitochondria axis controls TH17 effector function. *Nature* (2022). <https://doi.org/10.1038/s41586-022-05264-1>