European School of Molecular Medicine

2026 spring call PhD selections

AVAILABLE POSITIONS

Principal Investigator	Blagoje Soskic
Institute of Affiliation	Human Technopole

PROJECT 1 INFO	
Title of the proposed project:	Dissecting B cell fate decisions: integrating omics and imaging to reveal drivers of plasma cell differentiation
Short description of the project	This PhD project will take a computational approach to identify the molecular drivers of B cell differentiation into plasma cells. The candidate will integrate transcriptomic and proteomic datasets with quantitative imaging data to build predictive models of cellular fate decisions. Using machine learning methods, the project will focus on uncovering patterns across multi-modal datasets, linking gene expression, protein abundance, and cellular phenotypes. The candidate will develop and apply data integration pipelines and predictive algorithms to identify key regulators and signatures associated with plasma cell generation. This project will generate new biological insights into B cell differentiation, with relevance for immunology, vaccine design, and immune-mediated diseases.
Main research area for the project	Computational biology
Second research area for the project	Immunology
3 key words for the project	B cells, genomics, immune disease

PROJECT 2 INFO	
Title of the proposed project:	Genetic and regulatory determinants of altered B cell function in immune diseases
Short description of the project	This PhD project will investigate how immune-mediated diseases reshape B cell phenotype and antibody secretion through genetic and regulatory mechanisms. The focus will be on identifying how changes in chromatin state, transcriptional regulation, and RNA metabolism alter B cell function in pathological contexts. The candidate will integrate multimodal genomics datasets, including transcriptomics, chromatin accessibility, and RNA processing profiles. Computational analyses will be combined with CRISPR-based perturbations to identify causal regulators driving dysfunctional antibody responses. Particular emphasis will be placed on linking regulatory variation to functional outcomes, such as altered plasma cell differentiation and antibody production.
Main research area for the project	Immunology
Second research area for the project	Computational biology
3 key words for the project	B cells, genomics, immune disease

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LAB INFO	
Main topic/s of the lab	Immunogenomics, B cells, immune interactions
Short description of the lab activity	The Soskic Group focuses on the molecular, cellular, and genetic mechanisms underlying immune effector functions, with a particular emphasis on B cell biology and antibody divesrification. We aim to understand how gene regulatory networks control B cell differentiation and activation, how antibody class switching decisions are made, and how genetic variation shapes these processes to influence immune responses and susceptibility to autoimmunity.
Recent bibliography	https://link.springer.com/article/10.1038/s44320-026-00207-8 https://www.nature.com/articles/s41467-023-38389-6 https://www.nature.com/articles/s41588-022-01066-3
Group composition	3 postdocs, 1 specialist, 2 PhD students, 1 Msc student
Institutional page link	https://humantechnopole.it/en/research-groups/soskic-group/