

AVAILABLE POSITIONS

Principal Investigator	ALICE GIUSTACCHINI
Institute of Affiliation	Human Technopole

PROJECT INFO	
Title of the proposed project:	Reconstructing the paediatric AML immune ecosystem to develop next-generation cellular immunotherapies
Short description of the project	Paediatric acute myeloid leukaemia (AML) comprises genetically distinct diseases that establish unique bone marrow ecosystems, reshaping immune cell function and influencing response to immunotherapy. This PhD project will develop patient-derived experimental models to understand how different AML subtypes remodel the bone marrow microenvironment and suppress anti-tumour immunity. The student will establish 2D co-culture systems and 3D bone marrow organoids generated from patient-derived induced pluripotent stem cells (iPSCs) to recreate the leukaemic niche. These models will be integrated with single-cell multiomic profiling, functional genomic perturbation and primary patient samples to identify mechanisms of immune dysfunction, discover therapeutic vulnerabilities and develop strategies to improve next-generation CAR T-cell therapies.
Main research area for the project	Cancer Biology
Second research area for the project	Stem Cell Biology / Immunology
3 key words for the project	Paediatric AML; bone marrow organoids; tumour-immune interactions

LAB INFO	
Main topic/s of the lab	• Paediatric leukaemia biology • Single-cell multiomics • Tumour-immune ecosystems • Precision cellular immunotherapy • CAR T-cell engineering
Short description of the lab activity	The Giustacchini Group investigates how disease-specific genetic lesions establish malignant cell states that shape tumour evolution, tumour-immune interactions and therapeutic response in paediatric haematological malignancies. By integrating single-cell multiomics, functional disease models and longitudinal molecular profiling embedded within international CAR T-cell clinical programmes, the laboratory identifies therapeutic vulnerabilities and develops next-generation precision

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	cellular immunotherapies. Research spans fundamental mechanisms of malignant transformation, therapeutic target discovery, disease modelling and clinical translation through international collaborations with leading paediatric oncology centres.
Recent bibliography	Kanannejad S., <i>et al.</i> Leukaemia stem cell-resolved antigen profiling reveals CLEC12A and CD84 as optimal CAR T-cell targets in paediatric AML. (under revision).
Group composition	• 2 Postdoctoral Researchers • 3 PhD Students • 1 Research Specialist • 1 Curricular Intern • 1 Post-curricular Intern • 3 additional postdoctoral positions funded and under recruitment
Institutional page link	https://humantechnopole.it/en/people/alice-giustacchini/
Lab website link	https://humantechnopole.it/en/research-groups/giustacchini-group/