European School of Molecular Medicine

2025 summer call PhD selections

AVAILABLE POSITIONS

Principal Investigator	DERENZINI ENRICO
Affiliation	European Institute of Oncology, Milan
Title of the proposed project:	NK cells immunotherapy in combination with NK-cell engagers for the treatment of aggressive B-cell malignancies
Short description of the project	Aggressive B-cell malignancies remain a major therapeutic challenge, due to frequent relapses and limited efficacy of current treatments. Natural Killer (NK) cell-based immunotherapies represent a promising and safe alternative. However, optimizing their expansion and functional enhancement remains a crucial step that directly impacts their clinical applicability. This project aims to generate preclinical data to support the clinical translation of autologous NK cell therapies in aggressive B-cell lymphoproliferative disorders. We will develop an adoptive cell therapy approach that combines autologous NK cell infusion with NK-cell engagers.
Main research area for the project	Molecular Therapy
Second research area for the project	Immunology
3 key words for project:	Natural killer cells, B cell malignancies, Cellular Therapy
Main topic/s of the lab	Lymphoma synthetic lethality-based therapies and Cancer immunotherapies
Short description of the lab activity	Our research group bridges clinical and basic/translational science to uncover the molecular drivers of treatment-resistant hematological malignancies and to develop innovative therapeutic strategies. We are committed to rapidly translating preclinical discoveries into precision-medicine clinical trials, with a strong focus on identifying biomarkers of treatment response. Our main research areas include: - Targeting vulnerabilities in chemoresistant lymphomas and leukemias (e.g. MYC, BCL-2, TP53, DNA repair) to develop novel synthetic lethality-based therapies - Enhancing current immunotherapy approaches such as CAR-T, dendritic cell vaccines, and NK-cell therapies Our current focus is the preclinical development of autologous NK cell therapies for aggressive B-cell lymphoproliferative disorders. We are pioneering an adoptive immunotherapy strategy combining NK cell infusion with monoclonal antibodies and NK-cell engagers. To enable clinical translation, our NK cell expansion protocol is being adapted to the CliniMACS Prodigy platform for GMP-compliant manufacturing, supporting upcoming early-phase clinical trials. This work lays the foundation for next-generation NK cell therapies, offering new hope to patients with refractory B-cell malignancies.
Recent bibliography	1- Rossi A, et al. Downregulation of rRNA synthesis by BCL-2 induces chemoresistance in diffuse large B cell lymphoma. iScience 2025.

	2- Rossi A, et al. Dual targeting of the DNA Damage Response Pathway and BCL-2 in Diffuse Large B-cell Lymphoma. Leukemia 2021. 3- Derenzini E, et al. BET Inhibition-Induced GSK3β Feedback Enhances Lymphoma Vulnerability to PI3K Inhibitors. Cell Report 2018. 4- Derenzini E, et al. Genomic alterations of ribosomal protein genes in diffuse large B cell lymphoma. British Journal of Haematology 2018. Derenzini E, Rossi A and Treré D. Treating hematological malignancies with drugs inhibiting ribosome biogenesis: when and why. Journal of Hematology & Oncology 2018.
Group composition	1 PostDoc, 2 PhD, 2 Technician, 1 Master Student
Institutional page link	https://www.research.ieo.it/research-and-technology/principal-investigators/enrico-derenzini/