**Alice Giustacchini**
*Group Leader, Human Technopole, Milan*
*Associate Professor, University College London*

Alice Giustacchini is a stem cell biologist, focusing her research on the heterogeneity of stem cells in leukemia and its implications for treatment resistance. During her PhD at the Telethon Institute for Gene Therapy in Milan, under Prof Naldini's supervision, she played a pivotal role in identifying the significance of microRNA-126 in the maintenance and malignant transformation of hematopoietic stem cells (HSCs) using lentiviral vector systems. (Lechman*, Gentner*, Van Galen*, Giustacchini* et al., Cell Stem Cell, 2012, citations: 226. *First author (Nucera*, Giustacchini* et al., Cancer Cell, 2016, Citations: 67. *First author)

In her postdoctoral research at the University of Oxford, in the labs of Prof Sten Eirik Jacobsen and Prof Adam Mead, Alice applied single-cell transcriptomics to dissect Chronic Myeloid Leukaemia stem cells (CML-SCs) from normal HSCs in patients, by developing a novel approach for the high sensitivity detection of mutations at the single cell level. This work offered invaluable insights into the gene expression programs of CML-SCs related to therapy resistance. (Giustacchini et al., Nature Medicine 2017. Citations: 383). .

She next became principal investigator at the Great Ormond Street Institute of Child Health (GOS ICH) in London, where she is currently appointed as an Associate Professor. Here, Alice's group has applied single-cell multiomics to characterize low affinity anti-CD19 Chimeric Antigen Receptor (CAR) T cells. Their findings suggest that the enhanced functionality observed for this low affinity CAR, may be driven by a self-reinforcing circuit through cytokine polyfunctional crosstalk ( Michelozzi et al., Star Protocols 2022 and Michelozzi et al., Blood Adv 2023). Their current research is expanding this focus to bi-specific CD22/CD19 CAR T cells.

Since 2023, Alice has taken on the role of group leader at the Human Technopole in Milan. Her laboratory is addressing the complex challenges of therapeutically targeting leukemia stem cells in paediatric Acute Myeloid Leukemia (AML) (Sanchez-Corrales et al., Front Oncol 2021). Employing multiomic single-cell technologies and stem cell functional assays, her group is dedicated to identifying potential therapeutic targets, specifically focusing on surface antigens expressed on AML stem cells (AML-SCs). This approach has the potential to improve the treatment of AML by enabling more effective eradication of AML-SCs and improving patient outcomes.