European School of Molecular Medicine

2026 spring call PhD selections

AVAILABLE POSITIONS

Principal Investigator	PAOLA SCAFFIDI
Institute of Affiliation	European Institute of Oncology

PROJECT INFO	
Title of the proposed project:	Epigenetic mechanisms in health and cancer
Short description of the project	Please watch this video describing our lab's interests and potential projects. Our laboratory investigates how epigenetic mechanisms regulate basic cell function and how their dysregulation favors cancer development, with a particular focus on chromatin-based mechanisms [1]. By combining experimental and computational approaches, we seek to understand: (i) how chromatin structure and modifications define normal cell behavior (ii) the epigenetic basis of malignant cell phenotypes at various stages of cancer development; (ii) associated vulnerabilities that can be exploited to interfere with the disease. Over the years, our research has uncovered both tumour-suppressive and tumour-promoting epigenetic mechanisms [2-5], revealing novel therapeutic opportunities and providing insights into chromatin biology and gene expression regulation. The project the student will work on and actively develop will focus on one the following themes: • Histone modifiers in physiology and cancer • Epigenetic mechanisms of therapy resistance in cancer • Functional interactions among epigenetic regulators of diverse molecular functions (e.g. chromatin modifiers, chromatin remodelers, DNA modifiers) and synthetic lethality Investigation of all areas involves a broad range of techniques including CRISPR-mediated genome editing, microscopy and image analysis, advanced cell biology, genome-wide biochemical techniques (e.g. bulk and single-cell RNA-seq, ATAC-seq, CUT&Run/CUT&Tag, proteomics). Specific approaches include DNA barcoding/lineage tracing and use of mouse models, high-throughput microscopy, deep learning-based image analysis and system biology. We are looking from students broadly interested in the research topics we focus on. Specific aspects of the projects will be discussed during the interview. [1] Wilson T and Scaffidi P, *Trends in Cancer*, 2025 [2] Torres CM et al. *Science*, 2016 [3] Monserrat J et al. *Nature Cell Biology*, 2021 [4] Loukas I et al. *Cancer Cell*, 2023 [5] Chakrabarti AM et al. *Molecular Cell*, 2019 First authors of [1] and [3-5] were PhD students

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Main research area for the project	Molecular and Cellular biology
Second research area for the project	Cancer Biology
3 key words for the project	Epigenetics, Chromatin, Cancer

LAB INFO	
Main topic/s of the lab	Chromatin biology, gene expression regulation, cancer biology
Short description of the lab activity	See above
Recent bibliography	https://pubmed.ncbi.nlm.nih.gov/?term=scaffidi+p&sort=date
Group composition	1 Group scientist, 3 Postdocs, 5 PhD students, 3 Research fellows. International composition (5 foreign members)
Institutional page link	https://www.research.ieo.it/research-and-technology/principal-investigators/paola-scaffidi/
Social media links	https://x.com/ScaffidiLab, https://bsky.app/profile/scaffidilab.bsky.social, https://www.linkedin.com/in/paola-scaffidi-phd-366436230/
Video link	video