European School of Molecular Medicine

2026 Summer call PhD selections

AVAILABLE POSITIONS

Principal Investigator	**Diego PASINI**
Institute of Affiliation	IEO

PROJECT INFO	
Title of the proposed project:	Regulatory Mechanisms of Polycomb-mediated Transcriptional Repression in the Control of Cell Identity
Short description of the project	This project investigates the molecular mechanisms that regulate Polycomb-mediated gene repression, a key system controlling cell identity during development, tissue homeostasis, and regeneration. Using an interdisciplinary approach combining genetics, structural biology, biochemistry, and in vivo models, the research will dissect how Polycomb complexes are assembled, recruited to chromatin, and regulated. Particular focus will be placed on the interplay between H2AK119ub1 and H3K27me3 histone modifications, the structural organization of Polycomb complexes, and the role of post-translational modifications in establishing transcriptional identities. The findings will advance our understanding of epigenetic regulation in development and disease, with potential therapeutic implications for cancer and developmental disorders.
Main research area for the project	Computational Biology
Second research area for the project	Molecular Biology
3 key words for the project	Polycomb, transcription, chromatin

LAB INFO	
Main topic/s of the lab	Epigenetic Mechanisms in Cancer
Short description of the lab activity	The work of our laboratory is focused at characterizing the molecular mechanisms underlying distinct chromatin activities under homeostatic and pathological conditions. For this, the lab takes advantage of genetic, biochemical, transcriptomic and epigenomic approaches applied to both in vivoand 3D organoids models derived from compound mice or patient samples down to a single cell level.
Recent bibliography	• Mulè P, Fernandez-Perez D, Amato S, Manganaro D, Oldani P, Brandini S, Diaferia G, Cuomo A, Recordati C, Soriani C, Dondi A, Zanotti M, Rustichelli S, Bisso A, Pece S, Rodighiero S, Natoli G, Amati B, Ferrari KJ, Chiacchiera F, Pasini D. WNT Oncogenic Transcription Requires MYC Suppression of Lysosomal Activity and EPCAM Stabilization in Gastric Tumors. 38971196. Gastroenterology. 2024 • Del Vecchio A, Mulé P, Fernández-Pérez D, Amato S, Lattanzi G, Zanotti M, Rustichelli S, Pivetti S, Oldani P, Mariani A, Iommazzo F, Koseki H, Facciotti F, Tamburri S, Ferrari KJ, Pasini D. PCGF6

	controls murine Tuft cell differentiation via H3K9me2 modification independently of Polycomb repression. 38228142. Dev Cell. 2024 • Conway E, Rossi F, Fernandez-Perez D, Ponzo E, Ferrari KJ, Zanotti M, Manganaro D, Rodighiero S, Tamburri S, Pasini D. BAP1 enhances Polycomb repression by counteracting widespread H2AK119ub1 deposition and chromatin condensation. 34186021. Molecular Cell. 2021 • Tamburri S., Lavarone E., Fernandez-Perez D., Conway E., Zanotti M., Manganaro D. and Pasini D. Histone H2AK119 Mono-Ubiquitination Is Essential for Polycomb-Mediated Transcriptional Repression. 31883952. Molecular Cell. 2020
Group composition	The research group of Prof. Diego Pasini consists of 1 Staff Scientist, 6 Postdoctoral Researchers, 6 PhD students, 2 Technicians, and 3 Postgraduate Research Fellows.
Institutional page link	https://www.research.ieo.it/research-and-technology/principal-investigators/diego-pasini/