European School of Molecular Medicine

2026 spring call PhD selections

AVAILABLE POSITIONS

Principal Investigator	Denis Schapiro
Institute of Affiliation	IFOM

PROJECT INFO	
Title of the proposed project:	Translational spatial profiling
Short description of the project	We are currently building up a branch of the Translational Spatial Profiling Center at IFOM. The goal is to profile various tumor types – with a focus on CRC – from preclinical models to clinical trials. Therefore, we will leverage several spatial omics technologies with a focus on antibody-based methods like the Lunaphore COMET system. We are currently recruiting several positions with a focus on computational analysis of spatial omics data. Our collaborators at IFOM include Alberto Bardelli, Massimiliano Pagani, Claudio Tripodo, Silvia Marsoni and many more.
Main research area for the project	Quantitative tissue analysis
Second research area for the project	Computational Biology
3 key words for the project	Spatial Biology, Quantitative Biomedicine, Computational Biology

LAB INFO	
Main topic/s of the lab	Our research focuses on the development and application of spatially resolved (single-cell) technologies to understand how tumors evolve, evade immune control, and respond to therapy.
Short description of the lab activity	Cancer is not only a genetic disease but an ecological system of malignant, stromal, and immune cells interacting in space. By mapping these interactions directly in human samples, we aim to define actionable vulnerabilities and biomarkers that can guide clinical decisions. Therefore, use highly multiplexed imaging and other spatial omics readouts, with a focus on antibody-based spatial proteomics technologies. These technologies allow us to measure dozens to hundreds of proteins, cell states, and signaling pathways in situ while preserving the native (three-dimensional) architecture of the tissue. We combine this with digital pathology, AI-assisted image analysis, and machine learning models that learn from millions of archived clinical samples linked to outcome data. In parallel, we integrate various other spatial and non-spatial readouts with relevant clinical metadata to enable us to move beyond descriptive atlases toward mechanistic insight and clinically relevant endpoints. Our programme is inherently collaborative. We are establishing a strong bridge between IFOM in Milan and the Translational Spatial Profiling Center in Heidelberg, enabling bidirectional exchange of technology, data, and expertise. We will also

	engage with international groups for comparative analyses across cohorts, tumor types, and therapeutic settings. The ultimate goal is translation. We work on clinically relevant material (routinely collected biopsies and resections) and aim to deliver spatial biomarkers that can stratify patients, predict response to targeted and immune therapies, and reveal druggable microenvironmental niches. By turning spatial context into clinically usable knowledge, we seek to accelerate precision oncology.
Recent bibliography	Schiller, C., Ibarra-Arellano, M.A., Bestak, K. et al. Comparison and optimization of cellular neighbor preference methods for quantitative tissue analysis. Nat Commun 17, 3514 (2026). https://doi.org/10.1038/s41467-026-71699-z Ingrid Aass Roseth, Lukas Hatscher, et al. Multiplexed Imaging Reveals Immune-Metabolic Niches in Multiple Myeloma Linked to Progression and Bone Disease. Blood Cancer Discov 2026; https://doi.org/10.1158/2643-3230.BCD-25-0334 Tagore, S., Caprio, L., Amin, A.D. et al. Single-cell and spatial genomic landscape of non-small cell lung cancer brain metastases. Nat Med 31, 1351–1363 (2025). https://doi.org/10.1038/s41591-025-03530-z Ibarra-Arellano, M.A., Caprio, L.A., Hada, A. et al. micronuclAI enables automated quantification of micronuclei for assessment of chromosomal instability. Commun Biol 8, 361 (2025). https://doi.org/10.1038/s42003-025-07796-4 Schapiro, D., Sokolov, A., Yapp, C. et al. MCMICRO: a scalable, modular image-processing pipeline for multiplexed tissue imaging. Nat Methods 19, 311–315 (2022). https://doi.org/10.1038/s41592-021-01308-y
Group composition	The group is newly established at IFOM, with a team growing across Milan and Heidelberg (Germany). We offer a collaborative, international environment with direct access to clinical cohorts and state-of-the-art spatial platforms.
Institutional page link	https://www.ifom.eu/en/cancer-research/programs/tumor-spatial-biology.php
Lab website link	https://www.ifom.eu/en/cancer-research/programs/tumor-spatial-biology.php