

AVAILABLE POSITIONS

Principal Investigator	Silvia Marsoni
Affiliation	IFOM ETS - The AIRC Institute of Molecular Oncology
Title of the proposed project:	AI-Driven Integromics in Colorectal Cancer
Short description of the project	<p>We are seeking a motivated PhD candidate to investigate molecular and morphological signatures associated with metastatic risk, and therapy resistance in colorectal cancer. This translational project will integrate multi-omics data with digital pathology from established clinical cohorts of hundreds of patients. The position builds on an existing collaboration between the Marsoni and Buffa lab, and will be co-supervised by Silvia Marsoni (clinical and translational aspects) and Francesca Buffa (computational aspects).</p> <p>Research Objectives:</p> <ul style="list-style-type: none"> • Identify predictive signatures of micrometastasis and therapeutic resistance • Develop AI-driven models for recurrence and treatment response prediction • Pioneer novel approaches for multi-modal data integration in precision oncology <p>Candidate Profile:</p> <ul style="list-style-type: none"> • MSc in bioinformatics, computational biology, data science, or related field • Proficiency in omics data analysis and programming (R/Python) • Strong interest in translational cancer research and AI applications in medicine (plus) <p>Join our interdisciplinary team at the forefront of precision oncology research.</p>
Main research area for the project	Computational Biology
Second research area for the project	Genomic Medicine
3 key words for project	omics, AI, multi-modal
Main topic/s of the lab	Precision oncology
Short description of the lab activity	<p>The Precision Oncology Program headed by Silvia Marsoni is the bridge that translates preclinical discoveries into clinical benefit for cancer patients - often referred to the concept From Bench to Bedside. The group has been crucial to sustain the development of two large consortia and clinical networks within the field of colorectal and breast cancer.</p> <p>Discussion of pre-clinical and clinical evidences with collaborators is essential for the Precision Oncology Unit (POU) to generate hypothesis-driven and "transformative" clinical trials. Thus, POU is focused in trial designing (including protocol and informed consent writing), in supervising study specific-documents, in developing electronic Case Report Forms (eCRFs) and in managing samples shipments and road traffic data produced by</p>

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	our translational partners, acting ultimately as a bridge between clinical centers and laboratories.
Recent bibliography	<ol style="list-style-type: none"> 1. Mauri G., Patelli G., Roazzi L., Valtorta E., Amatu A., Marrapese G., Bonazzina E., Tosi F., Bencardino K., Ciarlo G., Mariella E., Marsoni S., Bardelli A., Bonoldi E., Sartore-Bianchi A., Siena S. Clinicopathological characterisation of MTAP alterations in gastrointestinal cancers (2024) Journal of Clinical Pathology, art. no. 209341. 2. Sartore-Bianchi A., Marsoni S., Amatu A., Torri V., Bonoldi E., Bardelli A., Trusolino L., Siena S. How to Test HER2 for Predicting Resistance to Anti-Epidermal Growth Factor Receptor Therapy in Metastatic Colorectal Cancer? Evidence From the Secondary Analysis of Biomarkers of CALGB/SWOG 80405 (2024) Journal of Clinical Oncology, 42 (30), pp. 3631 - 3632. 3. Mauri G., Patelli G., Sartore-Bianchi A., Abrignani S., Bodega B., Marsoni S., Costanzo V., Bachi A., Siena S., Bardelli A. Early-onset cancers: Biological bases and clinical implications (2024) Cell Reports Medicine, 5 (9), art. no. 101737. 4. Patelli G., Lazzari L., Crisafulli G., Sartore-Bianchi A., Bardelli A., Siena S., Marsoni S. Clinical utility and future perspectives of liquid biopsy in colorectal cancer (2025) Communications Medicine, 5 (1), art. no. 137. 5. Amodio V., Lamba S., Chilà R., Cattaneo C.M., Mussolin B., Corti G., Rospo G., Berrino E., Tripodo C., Pisati F., Bartolini A., Aquilano M.C., Marsoni S., Mauri G., Marchiò C., Abrignani S., Di Nicolantonio F., Germano G., Bardelli A. Genetic and pharmacological modulation of DNA mismatch repair heterogeneous tumors promotes immune surveillance (2023) Cancer Cell, 41 (1), pp. 196 - 209.e5.
Group composition	1Translational/Clinical Study Coordinator, 1 Clinical Project Manager, 2Translational Project Manager, 3 IT Programmer, 1 Junior Data Manager
Institutional page link	https://www.ifom.eu/en
Lab website link	https://www.ifom.eu/en/cancer-research/researchers/silvia-marsoni.php