



# Flavio C. Lombardo, PhD

Computational Cancer Biologist · Precision Oncology · Scientific Training

I turn multi-omics and clinical data into biomarkers and tools that support translational medicine and precision oncology programs, and I like teaching people how to do it. I've built and published open-source analytics tools, run multi-omics biomarker discovery in gynecological cancers, and teach hands-on bioinformatics courses as an SIB instructor. Comfortable leading projects end to end with lab, clinical, and software partners.

## EXPERIENCE

### Computational Cancer Biologist

2021 – 2026

Dept. of Biomedicine, University of Basel & University Hospital Basel

- Led multi-omics biomarker discovery in gynecological cancers, combining whole-genome sequencing, single-cell RNA-seq, spatial transcriptomics (CosMx), and machine learning to support precision oncology programs.
- Analysed functional CRISPR screens and drug-response / high-content imaging data to explain treatment response; work published in *Nature Communications*, *npj Precision Oncology*, and *Cell Death & Disease*.
- Built reproducible pipelines (Python, R, Nextflow, Snakemake) on HPC so collaborators could rerun analyses without me.
- Supervised MSc and PhD students and led manuscripts to publication, across scientists, clinicians, and engineers.

### Data Science Intern

2020

Novartis, Basel

- Built R-Shiny apps for Phase III clinical-trial data, giving pharma R&D teams interactive views of complex datasets.

### PhD Researcher, Drug Screening & Disease Modelling

2016 – 2019

University of Basel, with ETH Zürich (D-BSSE)

- Co-developed an impedance-based microfluidic platform for automated, real-time drug screening and dose-response in 3D cultures (*Nature Protocols*, *ACS Sensors*).
- Established liver organoid models for drug-induced liver injury and prodrug metabolism, pairing lab assays with computational analysis.

## EDUCATION

### PhD, Drug Development & Microbiology

2019

University of Basel (with ETH Zürich, D-BSSE)

### MSc, Industrial & Molecular Biotechnology

2014

University of Bologna & Karolinska Institute

### BSc, Molecular Biology

2011

University of Catania, Italy

## TEACHING & PROFESSIONAL ACTIVITIES

- **SIB Instructor**, Cancer Genomic Variants Analysis (2024–2025) · **Solo Instructor**, Physalia Courses (Cancer Variant Analysis; Messy Data in R, 2026): design and teach hands-on courses to scientists from mixed backgrounds.
- **Reviewer** for cancer and computational biology journals · **Member** of SIB, EACR, ISCB.

## SELECTED PUBLICATIONS

Full list: 20+ papers, 310+ citations · [Google Scholar](#)

1. Labrosse KB, **Lombardo FC**, et al. Ex vivo drug sensitivity testing predicts treatment outcomes in advanced ovarian cancer. *npj Precision Oncology*, 2026.
2. Lischetti U, et al. incl. **Lombardo FC**. Ovarian cancer metastasis to the human omentum disrupts organ homeostasis and induces fundamental tissue reprogramming. *Nature Communications*, 2025.
3. Vigo F, Tozzi A, **Lombardo FC**, et al. Binary classification of gynecological cancers by ATR-FTIR spectroscopy and machine learning. *Clinical and Experimental Medicine*, 2025.

## CONTACT

Basel, Switzerland  
fl@flaviolombardo.site

LinkedIn · GitHub · Website · Scholar

## CORE SKILLS

### Multi-omics & Precision Oncology

Biomarker discovery, single-cell RNA-seq (Seurat, Scanpy), spatial transcriptomics (CosMx), somatic variant calling (GATK4/Mutect2)

### Imaging & Assay Analytics

Drug-sensitivity assays, high-content imaging, image analysis (QuPath)

### Programming

R & Python (expert), Shiny, Bash / CLI, Rust

### Pipelines & Infrastructure

Nextflow, Snakemake, Docker, Git, HPC (SLURM), AWS / GCP

### Statistics & ML

Mixed models, survival analysis, random forests, Bayesian methods

### Project & Communication

Project leadership, scientific training, mentoring, cross-team collaboration

## SOFTWARE PUBLISHED

### drugsens (CRAN)

Open R package for quantifying drug-sensitivity assays in 3D models

### vcf-reformatter (Bioconda)

Rust tool for reformatting VCF files, 47 GitHub stars

## LANGUAGES

Italian: native  
English: C2  
Portuguese: B2  
German: B1