Two postdoctoral positions are available in the Cell Migration laboratory in the Candiolo Cancer Institute FPO-IRCCS (Turin, Italy).

The research project is focused on patient-derived tumor organoids as realistic tumor models that are amenable to single-cell level live observations. We propose to exploit (i) single-cell RNAseq technology to describe populations in untreated and treated organoids; (ii) imaging-based lineage-tracing experiments that will allow to track single cells belonging to different subpopulations and their fates in terms of proliferation/apoptotic rates and differentiation into other subtypes; (iii) mathematical population models to integrate all the experimental data into a comprehensive falsifiable model.

We are seeking for motivated young candidates that are willing to perform research by interacting with a multidisciplinary environment. The salary and duration of research fellowship will be adjusted to the applicant’s profile.

Profile 1
The candidate should ideally be with a quantitative background, i.e. master’s degree and PhD in Physics, Computer Science or Applied Mathematics with experience in computational tools, programming languages, data analysis.

The research activity of the project will involve
1. quantitative image analysis pipeline development, maintenance and use to perform data analysis on imaging experiments
2. bioinformatic analysis on scRNAseq datasets.
3. mathematical modeling and numerical simulations.

It will be crucial for the candidate to have previous experience with numerics/computational data analysis with Python, Matlab, R or other programming languages and similar tools. Overall a motivation for multidisciplinarity, strong computational skills and ability to work in a team will be the most important desired qualifications of the applicant. Previous experience with biology projects, willingness to perform imaging experiments and/or simple wet lab tasks, previous knowledge of image analysis will all be a plus.

Applicants for this profile should send their interest in the application to alberto.puliafito@ircc.it.

Profile 2
The candidate should ideally be with a life science background, i.e. master’s degree and PhD in Biology, Biotechnology or equivalent biomedical degree with previous experience in cell culture techniques and molecular biology.

The research activity of the project will involve
1. maintenance of organoids cultures
2. live microscopy experiments both confocal and widefield
3. design and use of fluorescent reporters, lentiviral vector preparation, organoid infection/transfection
4. scRNAseq experiments on organoids

It will be crucial for the candidate to have previous experience with imaging, either confocal or widefield. Overall a motivation for multidisciplinarity, strong molecular biology skills and ability to work in a team will be the most important desired qualifications of the applicant. Previous experience with 3D cultures, image analysis, and live imaging will all be a plus.

Applicants for this profile should send their interest in the application to luca.primo@ircc.it.