

## **Prof Christopher Heeschen**

*PhD or MD - Job Description advertisement*

### **Postdoc and Advanced Technician in Precision Oncology Group**

The interdisciplinary Precision Oncology Group is aiming to improve the outcome of pancreatic cancer, a disease with clear unmet medical need. We are using cutting-edge technologies including single-cell omics to dissect the heterogeneity of pancreatic tumors and develop more effective therapies for our cancer patients. It has now become evident that cancer heterogeneity is not only related to the existence of different sub clones within the tumor, but heterogeneity is further enhanced by so-called cancer stem cells at the subclonal level. These cells are responsible for intraclonal heterogeneity, promote metastasis and are inherently resistant to conventional therapies.

Our research efforts center on large-scale and high-resolution interrogation of (metastatic) cancer stem cells in their natural microenvironment. We use valuable fresh patient material, single-cell omics technologies, and complementary approaches for functional taxonomy of cancer stem cells. This will define the landscape of stemness and therapeutic resistance via non-genetic evolution in cancer stem cells and provide the basis for developing novel, more effective treatment strategies.

We are performing internationally leading research on cancer stem cell biology with a strong emphasis on translational research (e.g. *Cell Stem Cell* 2007, 2011, 2015, *Cell Metab* 2015, 2021, *Cancer Cell* 2008, 2014, 2016, *Nat Methods* 2014, *Nat Comm* 2018, 2020, 2021).

#### **We are particularly interested in the following research areas:**

- Dissecting the heterogeneity of (circulating) cancer cells at single-cell resolution;
- Bioinformatic analysis of large-scale single-cell omics data
- Reprogramming the transcriptional circuitry of stemness / metastasis
- Studying genetic and epigenetic resistance to therapy;
- Identifying novel therapeutic targets using single-cell functional genomics
- Discovery of non-mutational neoantigens as CAR-T cell immunotargets

#### **Selection criteria**

- A PhD (or MD) thesis in life science or a related discipline
- An in-depth understanding of cancer and/or stem cell biology
- A track record in publishing scientific research papers in a relevant area or field, and experience in grant writing
- Research laboratory experience, e.g. advanced molecular biology techniques, cell sorting and confocal microscopy, *in vivo* mouse experimentation, especially cancer models,
- Understanding of the research process and active contribution to the project development process
- Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training
- Good command in Italian and English.

#### ***The successful candidate will:***

- lead the intellectual development of the assigned project, including figure preparation and research writing for publications and grant proposals.
- perform experimental procedures in animals, where necessary

- work towards a publication record of the kind that will enhance the Group's research reputation at national and international level and that will clearly demonstrate originality and scholarship
- make research initiatives and original contributions to the research programme wherever possible and to contribute freely to the team research environment in a manner conducive to the success of the research project as a whole
- attend and participate in Group's academic activities, e.g. laboratory and journal club meetings, and weekly seminars
- are responsible for supervising trainees as required.
- cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

Applicants should send their letter of motivation and CV to  
Prof Christopher Heeschen [christopher.heeschen@ircc.it](mailto:christopher.heeschen@ircc.it)

### **Scientific Direction approval**

Candiolo, September 6<sup>th</sup>, 2021

Prof. Anna Sapino  
Direttore Scientifico FPO-IRCCS



**Approved**