

Postdoc in Biology (M/F)

Mechanisms of FLASH Radiotherapy



The hosting structure

The Curie Institute Research Center

The “Institut Curie” is a major player in the research and fight against cancer. It consists of a hospital and a Research Center of more than 1000 employees with a strong international representativeness.

The objective of the Curie Institute Research Center is to develop basic research and to use the knowledge produced to improve the diagnosis, prognosis, and therapeutics of cancers as part of the continuum between basic research and innovation serving the patient.

Job description

Laboratory

The “Repair, Radiation, and Innovative Cancer Therapies” team (U1021/UMR3347/Université Paris Saclay) specializes in developing new therapeutic strategies aimed at increasing the therapeutic index of radiotherapy. One of the team’s research focuses is understanding the molecular mechanisms of toxicities induced by radiotherapy, particularly how FLASH radiotherapy (*Favaudon et al. Science Translational Medicine 2014*) can reduce the development of pulmonary toxicities while maintaining anti-tumor efficacy comparable to that of conventional radiotherapy (i.e., the FLASH effect). In close collaboration with clinicians (radiotherapists, pulmonologists, and thoracic surgeons) at the Institut Curie and the Institut Mutualiste Montsouris, the team seeks to characterize, from patient samples, the cellular and molecular effects of various innovative radiotherapy methods (e.g., FLASH radiotherapy) using molecular approaches (scRNAseq, spatial RNA profiling).

Research Project

Preclinical studies in mice have identified several mechanistic pathways that might explain the FLASH effect. Our current objective is to test these different mechanistic hypotheses using relevant cellular models (e.g., organoids/tumoroids, organotypic slices). Therefore, we are seeking a motivated researcher to take charge of this project in collaboration with other team members. The selected candidate will have recently completed their PhD, with experience in the use of innovative cellular models and a quantitative approach to biological processes. They will aim to: i) integrate into a dynamic, and supportive team, ii) address fundamental questions to accelerate the clinical transfer of new radiotherapy methods, iii) work in an interdisciplinary environment integrating biologists, physicists, and clinicians.

Missions

- Establish and use innovative cellular models (e.g., organoids/tumoroids, organotypic slices) from patients' samples.
- Conduct single-cell RNA sequencing (scRNAseq) and spatial analyses (smFISH) experiments.
- Analyze sequencing data (RNAseq/single-cell RNAseq) and microscopy images.

Candidate Profile

Training and experience required

- PhD in cell biology
- Experience in developing innovative cellular models (e.g., organoids/tumoroids)
- Expertise in microscopy and image analysis methods
- Knowledge of programming languages (Python, R)
- Proficiency in statistical analysis with R software

Skills

- Motivated and able to work independently
- Curious and proactive are key assets
- Essential team spirit
- Ability to communicate effectively with biologists and physicians

All our opportunities are open to people with disabilities

Contract information

Type of contract: CDD

Starting date: July 2024

Duration: 18 months (with extension possibility)

Working time: full time

Remuneration: according to the current grids

Benefits: Collective catering, reimbursement of transportation fees up to 70%, supplementary health insurance

Location of the position: Orsay- near public transportation

Contact

Please send your CV, letter of motivation and 2 references, to job-ref-n7kzr8gpjh@emploi.beetween.com

Deadline for application: Monday 1st of July 2024

Institut Curie is an inclusive, equal opportunity employer and is dedicated to the highest standards of research integrity.

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