JOB DESCRIPTION – INSERM HR PORTAL FORMAT

Position title:

Postdoctoral Researcher in Multi-Omics, SIGN'IT Project (MIMIC)

Contract type:

Fixed-term postdoctoral contract (Inserm)

Duration:

12 months renewable

Starting date:

2026 (1st semester)

Host structure:

Inserm U1138 – Centre de Recherche des Cordeliers (CRC), Paris

Scientific supervisors:

Prof. Jean-Charles Nault

Project:

SIGN'IT 2025 – MIMIC: Multimodal multi-omics approach to predict response to immunotherapy in advanced hepatocellular carcinoma

Context and research environment:

The SIGN'IT MIMIC project aims to identify tumor-based and blood-based biomarkers predictive of response to immunotherapy in patients with advanced hepatocellular carcinoma (HCC). The project integrates whole-exome sequencing (WES), RNA sequencing, high-throughput serum proteomics (Olink), circulating tumor DNA analyses. The postdoctoral researcher will contribute primarily to Work Package 1 (WP1) and Work Packages 3.2 (WP3).

Main missions:

WP1 – Multi-omics biomarker discovery:
- Perform and analyze tumor whole-exome sequencing (WES) and RNA-seq in the discovery cohort.
- Conduct high-throughput serum proteomic analyses and integrate molecular datasets.
- Validate candidate biomarkers in independent cohorts.

WP3.2 – Integrated predictive modeling:
- Develop integrative multi-modal models combining clinical, genomic, and immune analyses.
- Participate in predictive modeling of oncological outcomes and treatment response.
- Contribute to the identification of novel therapeutic targets.

Main activities:

- Bioinformatic analysis of WES and RNA-seq data.
- Variant calling, annotation, and mutational signature analysis.
- Differential gene expression and pathway analyses.
- Integration of multi-omics datasets (genomics, transcriptomics, proteomics).
- Statistical modeling and survival analysis.
- Collaboration with AI specialists for histology-based prediction models.
- Preparation of manuscripts and presentation of results at international conferences.

Required profile:

- PhD in genomics, bioinformatics, computational biology, molecular oncology, or related field.
- Strong expertise in NGS data analysis (WES, RNA-seq).
- Experience with R and/or Python for statistical and bioinformatic analyses.
- Experience in integrative multi-omics analysis.
- Knowledge of biostatistics and survival modeling.
- Ability to work in a multidisciplinary and translational research environment.
- Excellent scientific English.

Additional skills appreciated:

- Experience in cancer immunology or immunotherapy research.
- Familiarity with circulating biomarkers (ctDNA, immune profiling).
- Experience working with large clinical cohorts.

Scientific environment:

The successful candidate will join a highly interdisciplinary consortium including genomic experts, immunologists, pathologists, artificial intelligence specialists, and clinician-scientists. The CRC provides access to state-of-the-art sequencing platforms, digital pathology resources, bioinformatics infrastructure, and well-annotated clinical cohorts.

Contact

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