CLERMONT-FERRAND
CENTRE HOSPITALIER UNIVERSITAIRE

JOB PROFILE
Research Engineer / Post-Doctoral Researcher in Translational Research

Clinical Investigation Unit (CIU) "Translational Unraveling of Precision Acute Care" (TUPAC), Department of Anesthesiology, Intensive Care and Peri-Operative Medicine (MPO), Clermont-Ferrand University Hospital

Job title: Translational Post-Doctoral Research Engineer
Sub-family: Coordination, Organization and Oversight of Research
Job code: 15F30
(www.métiers-fonctionpubliquehospitaliere.sante.gouv.fr)

DIVISION/SITE: Clinical Research and Innovation Directorate (DRCI)
DEPARTMENT/UNIT: CIU TUPAC, Department of Anesthesiology, Intensive Care and Peri-Operative Medicine (MPO), Clermont-Ferrand University Hospital

POSITION OVERVIEW

Title: Research Engineer / Post-Doctoral Researcher in Translational Research
Work schedule: Full-time (100%)
Contract duration: 36 months
Working days: Monday to Friday, daytime hours.

Reporting line(s):

- **Administrative: Xavier BIJAYE – Director of the DRCI**
- **Functional: Pr. Matthieu JABAUDON & Pr. Marc GARNIER – Heads of the CIU TUPAC**

UNIT PRESENTATION

The Clinical Research and Innovation Directorate (DRCI) plays a central role in shaping and implementing the research policy of the University Hospital. The DRCI supports project leaders in the administrative, regulatory and financial management of clinical research projects (internal and external sponsorship).

The TUPAC Clinical Investigation Unit ("Translational Unraveling of Precision Acute Care"), led by Pr. Matthieu JABAUDON and Pr. Marc GARNIER within the Department of Anesthesiology, Intensive Care and Peri-Operative Medicine (MPO) at Clermont-Ferrand University Hospital, is embedded in the translational ecosystem of the iGReD team ("Translational Approaches to Epithelial Injury and Repair" within the Institute of Genetics, Reproduction and Development, Inserm/CNRS/Université Clermont Auvergne) and the forthcoming 2027–2032 project of the Clermont-Ferrand Clinical Investigation Center (CIC).

The CIU TUPAC develops projects combining precision medicine, in-depth clinical phenotyping, biomarker discovery, and innovative therapeutics, with a focus on acute respiratory distress syndrome (ARDS).

POSITION DESCRIPTION

The recruited post-doctoral researcher will lead a 3-year translational research project focused on ARDS, a severe respiratory condition in critically ill patients for which treatment options remain limited. The project integrates in vivo and in vitro experimental approaches, as well as a prospective multicenter clinical cohort in the ICU setting. The aim is to develop an innovative macrophage reprogramming therapy using targeted nanoparticles (1 ongoing PhD), to identify patient stratification biomarkers in ARDS, and to prepare a biomarker-guided early-phase clinical trial.

DUTIES AND RESPONSIBILITIES:

General Responsibilities:

- Contribution to the scientific and technical design of the research project
- Participation in assessing the feasibility of experiments and proposing adjustments throughout the project
- Preparation and writing of progress reports and scientific publications
- Conducting studies and research work within the candidate's area of expertise
- Development of experimental tools and methods specific to the project
- Supervision and monitoring of experiments; mentoring of research technicians and student interns
- Collection and management of experimental and clinical data
- Scientific and bibliographic monitoring

Specific Responsibilities:

Axis 1. Murine ARDS models and in vivo proof of concept: evaluation of the macrophage reprogramming strategy via nanoparticles in two established models of septic (LPS) and sterile (HCl) ARDS. Measurements of permeability index, in vivo pulmonary imaging, blood and BAL biomarkers (epithelium, endothelium), macrophage phenotyping (FACS, scRNA-Seq). Molecular analyses (RT-qPCR, Western blot, ELISA, Luminex), histology and immunohistochemistry. Mechanical ventilation of animals and assessment of alveolar liquid clearance.

Axis 2. In vitro and ex vivo systems: use of primary human cells (alveolar epithelial, endothelial, macrophages, fibroblasts), 3D co-cultures, organoids, precision-cut lung slices, and an ex vivo perfused piglet lung model to dissect cellular and intercellular mechanisms induced by macrophage reprogramming. Molecular biology analyses (RT-qPCR, Western blot, ELISA, Luminex), epithelial barrier function assessment (ECIS, transwells), in vitro imaging and immunocytochemistry.

Axis 3. Prospective multicenter clinical cohort of ICU patients: in-depth clinical phenotyping and serial biobanking (blood and BAL) in patients with or at risk of ARDS. Cytokine and proteomic profiling, characterization of blood and alveolar macrophages (FACS, scRNA-Seq), identification of prognostic and predictive signatures, analysis of national and international cohorts. Development of point-of-care tests with industrial partners and preparation of a biomarker-guided early-phase adaptive clinical trial.

Axis 4. Scientific dissemination and coordination: writing publications and presenting at conferences; mentoring technicians, M1/M2 students and PhD students; participation in grant applications; contribution to administrative and financial project reports; bibliographic monitoring; collaboration with industrial partners for point-of-care test development.

Additional responsibilities may be assigned according to research needs.

REQUIRED PROFESSIONAL COMPETENCIES

KNOWLEDGE:

- PhD-level training in life sciences
- Clinical research methodology
- Medical terminology
- Regulations applicable to clinical research
- Computer tools and information systems
- Professional communication
- Excellent level of scientific English (written and spoken).
- Data analysis and processing methods
- ARDS biology and pulmonary pathophysiology
- Immunology (macrophages, inflammatory response)
- Nanomedicine / nanoparticles
- Flow cytometry (FACS) and single-cell RNA sequencing (scRNA-Seq)
- Molecular biology (e.g., RT-qPCR, Western blot, ELISA, Luminex)
- Histology and immunohistochemistry
- Animal experimentation, murine models of acute lung injury

SKILLS:

- Design and write technical documentation specific to one's area of expertise
- Design, formalize and adapt procedures / protocols / standard operating procedures / instructions relevant to one's area of expertise
- Design, manage and evaluate a project / process within one's area of expertise
- Communicate, understand and write in a foreign language
- Transfer expertise and professional practice
- Contribution to the scientific leadership of a project
- Autonomy and teamwork within multidisciplinary / network settings in the conduct and dissemination of a research project
- Supervision and mentoring of research technicians and students (e.g., PhD students, master's students)
- Ability to integrate and communicate within a multidisciplinary research team (basic and clinical)
- Compliance with safety, ethical and confidentiality rules
- Analyze and integrate multi-omic clinical and biological data
- Write scientific articles in English and present results at international conferences

PROFESSIONAL QUALITIES:

- Strong motivation and autonomy
- Scientific rigor
- Ability to work in a team in an international environment
- Critical thinking and analytical skills
- Aptitude for mentoring and collaboration
- Scientific curiosity and enthusiasm for bench-to-bedside translational research: ability to navigate between basic science, preclinical models, and clinical practice.

REQUIREMENTS

Degrees / qualifications / experience:

- PhD in cell and molecular biology, life sciences, medicine or a related field (immunology, respiratory physiology, pharmacology…)
- FELASA Level B certification in laboratory animal science (or equivalent professional qualification) required.
- Experience in experimental biology (animal models, cell culture) AND/OR in translational clinical research (cohorts, biobanks, clinical biology) is preferred. Prior experience in transcriptomic or proteomic data analysis would be an asset.

POSITION SPECIFICS

Position based at Clermont-Ferrand University Hospital (CIU TUPAC, MPO Department) and within the iGReD research unit (Inserm/CNRS/UCA).
The project is embedded in an already-active collaboration network (national/international academic partners, industrial partners); travel will be required for coordination of the multicenter cohort and interactions with national and international partners.

The position is funded through a 3-year CHU–Inserm grant.

Preferred start date: September 2026, to be agreed.

Are you driven and eager to join a growing research unit? Do not hesitate to contact us.

GENERAL INFORMATION

Application (CV + cover letter) to be sent to the following email address:

Recrutement@chu-clermontferrand.fr

All internal applications must be submitted to the DRCI via the internal mobility form.

For further information, please contact: Pr. Matthieu JABAUDON & Pr. Marc GARNIER – Heads of the CIU TUPAC

mjabaudon@chu-clermontferrand.fr
mgarnier@chu-clermontferrand.fr

This job profile may be revised in accordance with: regulatory and organizational developments, adjustments to institutional projects and educational frameworks, and environmental constraints.
