

Institut de Chimie Moléculaire de l'Université de Bourgogne
UMR 6302 CNRS, Université Bourgogne Europe
UFR Sciences et Techniques - Faculté des Sciences Mirande
9, avenue Alain Savary

Research engineer position (Radiobiology) - ICMUB - Dijon

Our research group at ICMUB lab. (UMR CNRS 6302, CNRS, Dijon, <http://www.icmub.com/>), recognized as one of the leading French academic players in the field of radiopharmaceutical development, is offering a twenty-one month research engineer position in radiobiology (possibly renewable).

Preferred starting date: As soon as possible

Scientific context:

A novel class of Antibody Radioisotope Conjugates for treating advanced cancers (ANR-PRCE, in collaboration with a biotech company)

This ANR-PRCE project aims at the development of a new class of tTargeted RadioPharmaceuticals (TRP) that ensures selective delivery of the killing payload at the tumor site while avoiding as much as possible off-target payload release, thus reducing deleterious side effects. A versatile platform will be used for modular conjugation on bispecific biovectors of an appropriate chelator for either ^{177}Lu or ^{225}Ac for beta- or alpha-therapy respectively. Proof of concept will be achieved through in vitro and in vivo studies of antitumor efficacy of such TRP, in the context of two clinically relevant case studies. We expect that the outcomes of this project will pave the way for the design of a next generation of targeted therapeutic agents, with complementary activities on different cell subtypes and tumor settings, resulting in more potent antitumor efficacy than standard ADC or TRP on aggressive or advanced cancers. Beyond this project, the skills and knowledge developed by the partners will be implemented in a broader R&D program to prepare for transfer to the clinic. This project is in collaboration with an industrial partner, an innovative start-up led by seasoned entrepreneurs.

Principal duties/responsibilities:

The research engineer will be responsible for optimizing and establishing biological assays and conducting *in vivo* experiments in mouse models of cancer to evaluate the therapeutic efficacy of the developed TRP. The engineer will also ensure the reliability and reproducibility of the assays and will play a key role in analyzing data to provide critical insights into the potential clinical application of the developed TRP.

More specifically, his/her tasks will include:

- Performing *in vitro* assays to evaluate DNA damage, cell death, proliferation, and repair mechanisms post-treatment in both 2D- or 3D-cellular models
- Innovating and improving methodologies for radiobiology research
- Conducting preclinical studies in animal models to assess therapeutic efficacy, pharmacokinetics/biodistribution, and toxicity of radiopharmaceuticals in compliance with ethical standards. These studies will include tumor implantation, caudal vein injection of TRP, nuclear imaging techniques and post-treatment monitoring.
- Handling radioactive materials in compliance with radiation safety guidelines
- Collecting experimental data, performing statistical analyses, and generating meaningful conclusions.
- Writing experimental protocols, technical reports as well as regular progress reports
- Attending meetings with the different partners and redacting minutes

Research environment:

This ambitious program, funded by the Agence Nationale de la Recherche (ANR), is supported by our lab, the CRCM lab in Marseille and a biopharmaceutical company specializing in precision medicine to treat cancers. This multidisciplinary consortium will provide a highly collaborative work environment with both academic and industrial perspectives.

The candidate will be recruited by the Université de Bourgogne Europe and his/her research will be conducted at the Institut de Chimie Moléculaire de l'Université de Bourgogne, within the RITM (Radiopharmaceuticals, Imaging, Theranostics, Multimodality) team. The lab is fully equipped for biological assays (biological cabinets, plate-readers, western blot, PCR, flow cytometer, fluorescent microscope, live-cell analyzer). Thanks to the small animal imaging platform, IMATHERA, located at Centre Georges François Leclerc (1 km radius from ICMUB), the candidate will have access to a controlled and safe radioactive work environment with radioactive “hot” cells, biological cabinets, radioactive flow cytometer, small animal nuclear imagers, animal housing, .

Candidate profile:

Minimum Qualifications: Ph.D. in Radiobiology, Radiation Biology, Molecular Biology, or a related field. Proficiency in cell culture techniques, clonogenic assays, flow cytometry, and molecular biology methods such as PCR, or Western blotting. Competence in animal handling, tumor model development (e.g., xenograft or orthotopic models), and administration of therapeutics (IV, IP, SC). Strong understanding of ionizing radiation, its biological effects (DNA damage, cell death pathways). Additionally, the candidate should have a proactive attitude towards problem solving, good written and oral communication skills and be willing to prepare research manuscripts for publication.

Preferred Qualifications: Training or knowledge in radiochemistry, nuclear imaging and/or targeted radiopharmaceutical therapy would be a valuable asset but are not mandatory.

Contacts:

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Application documents: detailed CV (+ 2-3 references), a brief summary of previous research works and a detailed cover letter.