



3 years PhD candidate position:

Synthesis of theranostic agents for cancer therapy guided by medical imaging

Job type: PhD program fellowship (acquired funding from the University of Lorraine)

Duration: October 2026-2029 (36 months)

Monthly gross salary: 2300 €

Keywords: Organic chemistry, Coordination chemistry, Medicinal chemistry, Optical imaging.

Scientific context:

Metal complexes play a major role in cancer therapy, as illustrated by the success of cisplatin. However, new therapeutic options are still needed to improve the management of some cancers with poor prognosis. Tumor heterogeneity is a significant challenge that limits the effectiveness and precision of current treatments.

Designing more selective metal complexes hence represents a promising strategy to better target tumor cells, enhance therapeutic efficacy, and pave the way for more personalized approaches. By combining these complexes with medical imaging techniques, it becomes possible not only to monitor their effectiveness in real time, but also to overcome the challenges posed by tumor heterogeneity, opening up new perspectives for the treatment of cancers with poor prognosis.

Objectives & working program:

This project brings together synthetic chemistry, structural analysis, photoactivation and optical imaging, and evaluation in pathologic model of the library of new metal-based complexes.

- Design and synthesis of vectorized metal-based complexes
- Structural characterizations of the synthesized intermediates and complexes (NMR, mass spectrometry) and evaluation for optical imaging
- Evaluation of the synthesized complexes in relevant pathologic model

Working environment:

The 'Laboratoire Lorrain de Chimie Moléculaire' (L2CM) is a dynamic laboratory bringing together chemists developing organic and inorganic small molecules or nano-sized objects to solve societal problematics in health and energy transition. The position is on our site in Nancy, in the team 'Synthèse d'Architectures Moléculaires Photo-Actives' (SAMPA). The project is embedded into an established international consortium.

Requirements:

Highly motivated and skilled candidate possessing a master degree or equivalent in organic chemistry and/or coordination chemistry are eligible. Previous experience with photoactivatable, photoactive or photothermic species is a plus, as well as experience at the interface between Chemistry and Biology. Autonomy, strong reliability and team-work spirit are required. Ability to work in cooperative environments is needed for collaboration.



Application (deadline 8th of April 2026):

An updated CV, grades transcript and a brief summary of research experience are required.

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