

18 Months post-doctoral position in coordination chemistry

Synthesis of water-soluble metal complexes with polyamine macrocyclic ligands

Responsibilities

Design new metal ion complexes with high solubility in aqueous media. Performing stability, purity, and solubility tests on these species before transferring them to collaborators (structural biologists). Simultaneously, studying the chirality and potential propensity of these molecules to crystallize and participating in structural and chiroptical studies within the host laboratory.

Project

This contract is part of the development of new structural biology approaches using small-angle X-ray scattering (SAXS), a project funded by the ANR DeepSAXS (project number ANR-21-CE11-0025). The main objective is to use compounds with high electron density as SAXS contrast agents for protein solutions. Initial experiments conducted by our collaborators (IBS Grenoble) with commercial contrast agents have confirmed that the electron density of the solution can be significantly modified without denaturing biological macromolecules (Gabel, Girard et al., *IUCr*, **2019**, *6*, 521-525). The project now aims to produce new compounds that will have higher electron densities. To this end, it will be necessary to increase the electron density of these species (e.g., by using heavy elements such as lanthanide ions) and/or increase the maximum solubilities that can be achieved in an aqueous phase. This work will be carried out under the supervision of François Riobé (CNRS Researcher).

Skills

- Organic synthesis (preparation, purification, and characterization of small molecules)
- Coordination chemistry and purification of macrocyclic complexes Skills in polyamine ligand synthesis and/or purification methods for charged small molecules (ion-exchange chromatography/reversed-phase chromatography) would be particularly appreciated.
- Report and publication writing in English
- Oral presentations in English
- Teamwork
- Openness to interdisciplinary subjects

Information

- Salary: between € 2905 gross and € 4 260 gross according to experience
- Application at <https://emploi.cnrs.fr/Offres/CDD/UMR5026-FREBON0-172/Default.aspx?lang=EN>
- For more information: francois.riobe@icmcb.cnrs.fr