

Two-year postdoctoral position in time-resolved crystallography Development and optimizations of bio-scavengers via artificial intelligence and time-resolved crystallography

A two-year postdoctoral researcher position is available in SNaX team of the DYNAMOP group at the Institute for Structural Biology in Grenoble (France). The successful candidate will work on the development and optimization of bio-scavengers towards toxic organophosphorus compounds. To attain this goal, the researcher will use time-resolved crystallography and *in silico* protein design methods. The position is funded by the French National Research Agency (ANR) via the University Grenoble Alpes (UGA), and is open for a young researcher.

The Institute for Structural Biology: The **Institute for Structural Biology (IBS)** is located on the European Photon and Neutron (EPN) campus in Grenoble (France). The presence of many public and private research institutes makes Grenoble an international hub for fundamental and applied research. Examples include the European Synchrotron Radiation Facility (ESRF), European Molecular Biology Laboratory (EMBL) and Institut Laue-Langevin (ILL), which are all located on the EPN campus. The IBS hosts twelve state-of-the-art technical platforms and nineteen research groups, offering a multi-disciplinary environment for structural biology research.

The DYNAMOP group: The **Dynamics and Kinetics of Molecular Processes (DYNAMOP)** group, headed by Dr. Martin Weik, studies the structure and dynamics of proteins *via* static and time-resolved X-ray diffraction and scattering, and neutron spectroscopy. The DYNAMOP group contains two teams of which the **Serial NanoCrystallography (SNaX)** team is headed by Dr. Jacques-Philippe Colletier. The team focusses on *in-vivo* crystallization and serial crystallography. The team is also active in the development of tools for time-resolved X-ray crystallography (**NanoPeakCell** and **Xtrapol8**).

Project description: The postdoctoral project fits within a new research line in DYNAMOP group at the IBS to use state-of-the-art structural biology techniques to develop and optimize bio-scavengers to detoxify organophosphorus compounds. The project will be carried out in close collaboration with other members of DYNAMOP group and of the team of Dr. Florian Nachon (Biomedical Army Research Institute; IRBA, Brétigny-sur-Orge, France). The project aims at starting early 2024, the exact start date will be agreed on with the candidate.

Main activities: The postdoctoral researcher will be involved in several main tasks in the development and optimization of bio-scavengers: i) *in silico* protein design based on existing template proteins, ii) protein expression and purification, iii) macro- and micro-crystallization, iv) rapid-mixing time-resolved crystallography, v) X-ray diffraction data processing and structure determination, vi) structural analysis, vii) manuscript writing. The charge in each of these tasks will be discussed and varied based on the candidate's background, interests and training opportunities.

Required skills: Applicants must have obtained a Ph.D. in structural biology, biochemistry, biophysics, physics, chemistry, or a related field, no more than two years before the start of the project. The candidate must show a track-record of publications in peer-reviewed journals, and is expected to be proficient in English and highly motivated to learn new skills. The candidate will work in the multidisciplinary DYNAMOP group and thus needs to be a good team player as well as being capable of working independently. While the research will be carried out in English, non-French-speaking candidates are expected to learn the basics of French in order to facilitate communication and integration into the laboratory.

Preferred skills: Experience with one or more of the following skills would be highly evaluated: protein design or the usage of artificial intelligence for structural biology, protein expression and purification, protein crystallization and macromolecular crystallography, serial crystallography, programming or scripting.

Application information: Interested candidates can apply via [this UGA webform](#).

Contact information: Candidates are encouraged to contact Dr. Elke De Zitter (elke.de-zitter@ibs.fr) to obtain more information about the postdoctoral position and application procedure.