

## Postdoctoral position in medicinal chemistry

**Duration: 12 months (net salary per year: 28000  approx.)**

**Location: SONAS, University of Angers (France)**

**Starting date: January 2022**

### **DIVE : Development of Dual inhibitors Inspired by Vitamin E as anti-inflammatory agents targeting 5-LO and mPGES-1**

Chronic inflammation is a hallmark of cancer, cardiovascular disease and neurodegeneration that is driven by pro-inflammatory lipid mediators, i.e. prostaglandin E2 and leukotrienes. Non-steroidal anti-inflammatory drugs (NSAIDs) suppress prostaglandin formation but are afflicted with severe side effects. Selective inhibition of microsomal prostaglandin E2 synthase (mPGES)-1, preferentially in combination with suppression of leukotriene formation, is considered as a safe alternative. We recently found that vitamin E metabolites along with various semisynthetic analogues accumulate in immune cells and relieve inflammation by targeting 5-lipoxygenase (5-LO), seemingly without impeding resolution, and we revealed mPGES-1 as additional target. This internship is part of DIVE, a scientific project funded by ANR-DFG and FWF. Its aim is to design and characterize potent and balanced inhibitors of mPGES-1 and 5-lipoxygenase starting from endogenous vitamin E metabolites that retain the desired activity of NSAIDs while avoiding their drawbacks. It closely involves other **European partners** from **Austria** (biological assays / expertise in molecular modeling) and **Germany** (biological assays).

Based on the results of *in silico* studies, the applicant, already trained in organic synthesis, will **develop (semi-)synthetic strategies** to access virtually designed chromanol derivatives or analogues. He/she will also **collaborate/discuss** with the other partners to further optimize the identified hits and to **suggest new ideas/directions** for the project. He/she will also contribute to the **research project's dissemination**, in whatever form (report, papers, and book chapters).

### **Key roles and activities**

We are seeking to recruit a postdoctoral researcher with medicinal chemistry experience for 12 months in our multi-disciplinary team, commencing in January 2022. We are looking for a self-motivated individual with transferable skills to be in charge of:

- Design and (semi-)synthesis of chromanol derivatives and chemical libraries of new analogues
- SAR and Structure-Properties Relationship analysis, appraisal of biological data leading to refined design hypotheses
- Supervision of student projects, provide advice to other students who may be involved in the project, assistance in the overall management of this project
- Preparation of research work and results for publication

### **Skills and experience**

- PhD. in Organic Chemistry or Phytochemistry
- Previous experience in the field of medicinal chemistry
- Experience or basic knowledge in molecular modeling is appreciated
- Ability to work in a multidisciplinary team
- Scientific rigour and creativity
- French is a plus, **English is compulsory** (level B2)

### **About SONAS**

SONAS (*Substances d'Origine Naturelle et Analogues Structuraux*) has a long term expertise in natural products chemistry starting with sourcing of strategic plant materials. Over the past few years SONAS managed to gather plants from various locations exhibiting high phenolic contents. Besides this preliminary step, researchers at SONAS are used to develop methods to extract and purify secondary metabolites. SONAS has also set up different methodologies to selectively modify natural products backbones, opening doors to numerous and structurally diverse libraries through semisynthetic strategies. SONAS is a team of 10 professors and/or lecturers teaching mainly organic, analytical and medicinal chemistry, pharmacognosy, phytochemistry and nutrition. These teachers are associated with research engineers, PhD students and postdoc fellows. Our laboratory is equipped with all facilities related to the extraction, purification, analysis, characterization and (semi-)synthesis of natural products such as : accelerated solvent extraction (ASE) system, ultrasonic extractor, flash chromatography, analytical, semi-prep and prep HPLC (DEDL, UV-DAD, fluorescence), UPLC-MS, GC-MS, 400MHz NMR spectrometer and microwave reactor.

### **Application guidelines**

For applications to be valid, candidates must submit a letter of motivation, a free-format curriculum vitae (three pages maximum) including a short abstract of the studies achieved during the PhD position (one half page maximum), a list of publications and two reference names and contact address. These documents have to be sent as pdf files to:

Dr Jean-Jacques HELESBEUX ([jj.helesbeux@univ-angers.fr](mailto:jj.helesbeux@univ-angers.fr))

Depending on the number of applications, people in charge of the recruitment will select a shortlist of candidates whose scientific profiles in their view met more closely the expected criteria. Once a shortlist has been finalized, all applicants will be notified of the status of their application. The final shortlist of candidates will then be invited to an interview. We aim to provide at least one week's notice to all candidates. The interview process will take the format of a video conference.