

Post-doctoral Position in Organic Synthesis at LCBPT (SORB team) Université Paris Cité UMR 8601 CNRS Paris 75006

Date of publication : 15/01/2024

Type of contrat : CDD on ANR

Contract period : 24 months

Expected date of employment : 01/04/2024

Closing date for the receipt of applications : 15/02/2024

Proportion of work : Full-time

Remuneration : Between 2700 € and 3580 € gross monthly depending on experience after the PhD

Experience required : 1 to 5 years

Key words : Chemobiology, glycobiology, multi-step synthesis, affinity probes, fluorogenic probes.

Missions

The ANR consortium project (MOCALOST) is dedicated to the isolation and characterization of the oligosaccharides transporter, LOST which is an orphan key player in the field of glycobiology. Towards this goal our team develops a chemobiology approach to synthesize smart molecular tools. Preliminary results already allowed the chemists, biologists and chemobiologists partners of the project (C. Gravier-Pelletier, UMR 8601 CNRS Paris, S. Moore INSERM UMR 1149 Paris and S. Fort UPR 5301 CERMAV, Grenoble) to identify substrates and inhibitors of this transport. Based on these first results, the goal will be to synthesize, on the one hand, affinity probes to capture and identify LOST by proteomics analysis and, on the other hand, second generation saccharidic fluorogenic probes able to exhibit fluorescence only when being inside the lysosomes for real time lysosomal oligosaccharide transport measurements and fluorescent microscopy using semi-intact cell systems.

Activities

Main tasks, carried out in collaboration with the members of the SORB team will include:

- Synthesis of affinity and photoactivable probes equipped with various affinity and photoactivable tags.

- Synthesis of saccharidic fluorogenic probes with pH dependent fluorescent tags.

All these probes will be synthesized from di- or tri-saccharidic substrates being chemoenzymatically generated by S. Fort group and then used by the S. Moore biologists team to study and characterize LOST.

- Purification and characterization of the synthesized probes.

Secondary tasks:

- Communication of research results to other consortium members.

- Communication of research results (seminars, publications, ...)

Skills

Applicants should have a PhD in organic chemistry with a strong background in multi-step synthesis and purification techniques of complex hydrophilic/polar molecules in direct and reverse phase. An experience in the synthesis of (saccharidic) probes for biology and a strong interest for the interface between chemistry and biology would be a plus. The candidate should have a very good expertise in NMR (1D and 2D), UV and fluorescence analysis techniques. He/she will participate in regular meetings to monitor the project. The ability to communicate and to work in trans-disciplinary teams is important for the success of the project.

Context of work

The recruited candidate will be assigned to the Laboratoire de Chimie et Biochimie Pharmacologiques et Toxicologiques (UMR 8601 CNRS – Université de Paris) located on the Saint Germain des Prés Campus of the Université de Paris (45, rue des Saints Pères, 75006 Paris) which counts about 90 researchers, Professors and assistant Professors, engineers, technicians and students. The work will be carried out in the team "Organic Synthesis for Biomedical Research" which focuses on projects at the interface of chemistry and biology and develops new synthesis methodologies. The candidate will benefit from a high level scientific environment, will have all the facilities to carry out fine organic synthesis and will have access to various platforms for the characterization of molecules (500 MHz NMR, EPR, mass spectrometry, IR, UV,...). The location of the laboratory in the heart of Paris facilitates the participation in conferences that are regularly organized by Parisian universities and institutes.

Applications should include a curriculum vitae, a list of publications, a research summary and the name and contact of at least two referees.

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