BioCIS Laboratory, Teams Chemical Biology
CY Cergy Paris Université, Neuville -sur Oise
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Postdoctoral Position

Keywords: organic synthesis, peptide chemistry, peptidyl nucleic acid chemistry,

General informations

- Location: CY Cergy Paris Université, BioCIS Laboratory, Cergy-Pontoise France
- Employment: February 2026
- Duration: 12 months
- Deadline for application: 30/11/2025

Laboratory

The Chemical Biology team brings together researchers on the general theme of chemistry oriented towards the life sciences. We study the synthesis, characterization and evaluation of biomolecules, as well as the development of new synthetic methodologies.
We are specialized in the chemistry of modified amino acids and in particular fluorinated peptides, glycosides, glycopeptides, for applications in the field of biological chemistry and medicinal chemistry. The skills of the team members include, among others, the chemistry of organofluorine compounds and glycosides, organometallic chemistry, asymmetric synthesis, solid surface synthesis of peptides, structural and biophysical analyses.

Scientific proposal

Molecular storage systems are ultradense information recorders that use DNA, proteins, and polymers as media fostering user-defined information. Many efficient implementations have been proposed and tested for DNA-based data storage platforms. However, reducing the cost of DNA data recording remains challenging given that synthesis is inherently sequential and, therefore, slow and costly. To mitigate the above problems associated with DNA-based data storage, we propose to investigate a new approach that combines the benefits of a molecular alphabet extension with those of modifying the topology of the DNA sugar-phosphate backbone. Our model will be based on peptide-derived backbone. Furthermore, the protein nanopore readouts will ensure accuracy. The proposal entails the collaboration of four distinct partners, each contributing expertise essential to developing an entirely new data storage platform, encompassing coding, synthesis, and readout capabilities. Additionally, it involves the integration of three CY University laboratories. The proposal incorporates a networking component to form a collaborative team for future applications.

Missions

The postdoctoral researcher will be responsible for the design, synthesis, and characterization of PNAs in an international environment. He/She will develop PNAs in collaboration with the LAMBE laboratory for their analysis using nanopores. At the same time, he/she will collaborate with computer scientists on the development of the coding component

Candidate profile

- PhD degree in organic chemistry with a solid knowledge in organic synthesis and experiences in peptides/peptidyl nucleic acids synthesis involving appropriate analytic methodologies, as well the purification (HPLC, MS).
- Good communication skills (written and oral)
- Ability to interact with several partners in a multi-disciplinary environment
- Independent, proactive with driving force

Application process

Send documents to Prof Nadège Lubin-Germain Nadege.lubin-germain@cyu.fr , Dr Simon Gonzalez simon.gonzalez1@cyu.fr and Dr Elisa Peroni elisa.peroni@cyu.fr

- A cover letter describing your motivation
- A detailed CV including your publications and communications
- Email of recommendation referee(s)

1- Garoli, D. *ACS Nano* **2022**, *16*, 11, 17552–17571
2- Ng, C.C.A., Tam, W.M., Yin, H. *et al.* Data storage using peptide sequences. *Nat Commun* **2021**, *12*, 4242.
3- De La Torre, B. *Chem. Soc. Rev.* **2023**, *52*, 2764