



Avignon, November 14, 2022

Open Position for a Postdoctoral Researcher in Organic and Polymer Chemistry:
New Polymer Belts for Lipid-Bilayer Nanodiscs to Study the Molecular Basis of GPCR Signalling

JOB AND MISSIONS

BACKGROUND: **G protein-coupled receptors** (GPCRs) are the largest family of receptors and drug targets. GPCRs exhibit complex functional behaviors, as signaling is affected by extracellular ligands, cytoplasmic proteins, oligomerisation, and protein/lipid interactions, which require a membrane environment. **Lipid-bilayer nanodiscs** encapsulated by amphiphilic copolymers are promising nanoscale yet native-like membrane mimics. However, existing polymers suffer from high charge density and other limitations that alter the sensitive conformational landscapes of GPCRs.

PROJECT: The **NanoBelt** project, funded by French National Research Agency (ANR), is dedicated to the development of **polymers with low charge density and mild protein-extraction properties**.

Within this frame, a position is available for an enthusiastic, independent and highly motivated **postdoctoral researcher** at **Avignon University** (Avignon, F-84000) in the team **S2CB**.

The open position in Avignon will involve **organic synthesis** and **polymer synthesis** as well as **colloidal characterization**.

The postdoctoral fellow will be in charge of the **synthesis of polymers** from **commercial** and **“home-made” monomers** and **transfer agents**. He/She will be in charge of the **colloidal characterization**.

He/She will be working side by side with a PhD student (2022–2025). He/She will supervise **Master student internships**.

The postdoctoral fellow will benefit of structured mentoring support and **first-class scientific environment** in a well-equipped lab offering **state-of-the-art analytical facilities** (Free access to NMR 400 MHz, HPLC and GPC systems...).

The project will be led in collaboration with the groups of **Pr. Sandro Keller** (Graz, Austria), **Dr. Jean-Louis Banères** (IBMM-Montpellier) and **Pr Irene Coin** (Leipzig University). The potency of the new polymers to form nanodiscs and to extract membrane proteins will be first evaluated in order to select optimal polymers. The selected polymers will be further studied on the ghrelin receptor (GHSR) as a prototypical class A GPCR and on the corticotropin releasing factor receptor (CRF1R) as a model of class B GPCR. Using new FRET sensors, the conformational dynamics of these challenging drug targets will be dissected in the native-like but controlled environment of new polymer-based nanodiscs.

PROFIL

To apply to this position, you should have

- Extensive and proven experience in **organic and polymer synthesis**.
- Extensive and proven experience in **characterization/purification of polymers**.
- High-level competency in **investigating self-aggregation properties** of amphiphilic polymers.
- Creativity in experimental design.
- Effective **team-working skills**.

HOW TO APPLY?

Deadline: Until the position is filled

Availability: From 1st February 2023 for a period of 12 to 15 months.

Salary: between €2,400 and €3,000 gross monthly, depending on experience; This includes **52 days off per year**.

Application should be sent in *1 single pdf file* including:

- CV
- complete list of publication and oral communications
- copy of the PhD degree diploma
- short statement of research interests (1-2 pages)
- at least 3 references (name, company, e-mail address, and telephone number).

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