

Postdoctoral researcher position Prebiotic Chemistry

A postdoctoral position is open at the Université Grenoble Alpes (UGA).

The postdoctoral researcher will work at the “Département de Chimie Moléculaire” (DCM, <https://dcm.univ-grenoble-alpes.fr/>) under the supervision of Pr Yannick Vallée and Dr Véronique Blandin. The project is funded by the UGA program “Origins” and will be run in collaboration with Yvain Nicolet (Institut de Biologie Structurale, IBS).

Contract start: january 2023

Contract duration: 12-18 months

Salary: determined upon experience

Project

Over the past few years we have developed a program dealing with prebiotic chemistry — chemical events which led to the appearance of Life on Earth 4 billion years ago. Recently, we have focused our research on metabolic cycles, more specifically the reductive tricarboxylic acid cycle (rTCA), and are interested in the reactions of this cycle which allow the integration of CO₂ into organic molecules. These reactions give all its synthetic significance to rTCA: thanks to them, the synthesis of increasingly complex molecules can be envisaged. The discovery of paths allowing these CO₂ condensation reactions without the use of enzymes (which did not exist on the primitive earth) is therefore absolutely essential. It is also very challenging, these reactions being particularly difficult to achieve, while the initial catalysts/promoters are not known.

Activities

The postdoctoral researcher will investigate these reactions under prebiotic conditions. To do this, he will have to work under CO₂ pressure, with possibly heterogeneous catalysts. Reactions under UV irradiation will also be considered. The postdoctoral researcher will have to develop analytical methods to identify the formed products and determine yields. For this, he will have the technical means of the DCM (NMR, Mass spectrometry, etc.).

Required competences

- PhD in chemistry.
- Ideally the candidate should have good skills in catalysis, including heterogeneous catalysis, although an organic chemist will be able to adapt to the project.
- Ability to work in a team.
- Ability to report results, both orally and in writing, even to chemists not specialized in prebiotic chemistry.
- Ability to exchange with fellow biologists and astrophysicists (especially within the "Origins" program).
- Good oral and written English.

Application

Application (CV and motivation letter) + references contact should be sent by email at yannick.vallee@univ-grenoble-alpes.fr.

Deadline: september 15, 2022.