



Open Ph.D. and post-doctoral positions for  
'The asymmetry of life: towards a unified view of  
the emergence of biological homochirality'

A-LIFE ERC StG 2018



European Research Council

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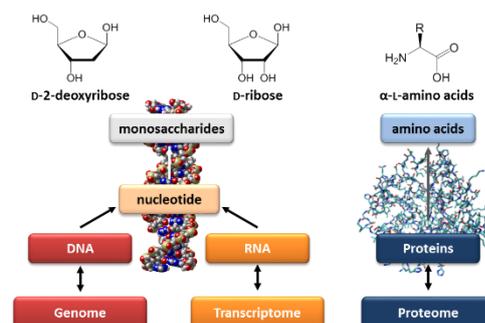
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**Objective:** We seek to hire outstanding researchers at the Ph.D. and post-doctoral level to join our laboratory at the Institut de Chimie de Nice, Université Côte d'Azur. The successful candidates will be involved in the realization of the research funded by the European Research Council ERC StG 2018 'A-LIFE'.

**Abstract:** What is responsible for the emergence of *homochirality*, the almost exclusive use of one enantiomer over its mirror image? And what led to the evolution of life's homochiral biopolymers, DNA/RNA, proteins and lipids, where all the constituent monomers exhibit the same *handedness*?

A synergistic methodology will be developed in **A-LIFE** to build a unified theory for the origin of all chiral biological building blocks and their assembly into homochiral supramolecular entities. *Multidimensional gas chromatographic analyses* of astrophysical-relevant samples (e.g. ice analogues & meteorites) will be combined with *asymmetric photochemistry* triggered by circularly polarized synchrotron and laser sources. Intermediates and autocatalytic reaction kinetics will be monitored to understand the underlying processes. A unified theory on the asymmetric formation and self-assembly of life's biopolymers will impact the conceptual foundation of the origin of life.



**Background:** Recent work central to the proposed research: *i)* An interstellar synthesis of phosphorus oxoacids. *Nat. Comm.* 9 (2018); *ii)* Ribose and related sugars from ultraviolet irradiation of interstellar ice analogs. *Science* 352 (2016); *iii)* Photon-energy-controlled symmetry breaking with circularly polarized light. *Angew. Chem. Int. Ed.* 53 (2014)

**We offer:**

- The possibility to be involved in a timely research project in an emerging field, using state-of-the-art equipment
- A stimulating, diverse and international research team & advanced training opportunities, embedded in a networked research environment
- A competitive salary (1700-3000 EUR/month, depending on the experience)

**We require:**

- M.Sc. (or equivalent) in chemistry for a **Ph.D. student**, preferably specialized in **analytical chemistry**
- Ph.D. with background in **physics or physical chemistry** and experience in the set-up, operation and maintenance of laser sources or the use of optical/spectroscopy equipment would be ideal for a **postdoctoral candidate**

**Starting date:** 1<sup>st</sup> April, 2019; possibility to postpone the starting date

Duration of contract: 3 years for a Ph.D. candidate and 1–2 years for a post-doc, with the possibility of extension

Applications written in English, German or French should be sent to [Dr. Meinert](mailto:Dr.Meinert) (combined as one pdf file), and should include:

- (1) cover letter
- (2) CV including your scientific skills, your research experience and a complete list of publications
- (3) a 2-page summary of your Master thesis (Ph.D. candidate) / a 3-page summary of your PhD thesis (PostDoc)
- (4) for a prospective Ph.D. candidate a transcript of results from the university-level courses taken
- (5) contact information for at least 2 referees (recommendation letters should be sent directly to [Dr. Meinert](mailto:Dr.Meinert))