

MASTER 2 INTERNSHIP OFFER

URD ABI – AgroParisTech

Duration: 6 months (October 2026 – March 2027)

Engineering Yeast strain to produce PUFAs

Host laboratory:

Located in the Center for Biotechnology and Bioeconomy (CEBB), at the heart of the Pomacle-Bazancourt biorefinery, the URD ABI (Unit of Research & Development in Industrial Agro-Biotechnologies) is interested in the valorization of biomass through an approach combining biotechnologies, green chemistry and process engineering. Thanks to its expertise in chemistry, microbiology/biochemistry/molecular biology, chemical engineering and separation process engineering as well as in analytical chemistry, the URD ABI is able to carry out multi- and transdisciplinary fundamental and applied research projects with the ambition of developing and optimizing sustainable industrial processes and high value-added products from agro-resources and industrial by-products.

Context and objectives:

Polyunsaturated fatty acids (PUFAs) like Omega-3 and/or Omega-6 fatty acids have received worldwide attention for almost 50 years and have been known as health-promoting active ingredients.

Vegetable oils are the principle source of Omega-6 PUFAs while flaxseed and chia seed oils are rich sources of Omega-3 α -linolenic acid. In contrast, Omega-3 docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) rely on animal source and more specifically on marine oily fish. Unfortunately, because of climate change, the supplies of these valuable fatty acids are decreasing. Consequently, sustainable alternative sources have to be developed to meet the increasing demand for these PUFAs while limiting the ecological impact of their production. The objective of the internship is to produce PUFAs through biotechnological processes using oleaginous microorganisms in order to produce PUFAs in proportions recommended by the World Health Organization (WHO).

The key objectives are:

- Clone and integrate desaturase and elongase genes
- Construct overexpression cassettes using strong and constitutive promoters
- Screen engineered strains for PUFAs content via GC/MS
- Optimize flask fermentation conditions to maximize lipid accumulation.

The internship is part of the STAMINA project, funded by EXEBIO.

The selected candidate will have skills in biotechnology and microbiology for microbial culture, a strong inclination towards lab work and will integrate easily into a multidisciplinary dynamic team.

Candidate profile:

- Master-level student (M2) in biotechnology/microbiology
- Rigorous, motivated, autonomous with a good adaptability

Location:

Center for Biotechnology and Bioeconomy, 3 Rue des Rouges-Terres, Pomacle (51110), France, located at 15 km from Reims.

Grant:

According to the current scale

To apply, please send a CV and a cover letter to nabila.imatoukene@agroparistech.fr