

## Internship position in Organic Chemistry/Biocatalysis/Bioproduction (4-6 months)

### Biocatalysis of resveratrol derivatives and their bioconversion in grapevine cell cultures

Industrial Agro-Biotechnologies Chair (ABI) - AgroParisTech CEBB - 3, rue des Rouges Terres - 51 110 Pomacle  
Resistance Induction and Bioprotection of Plants (RIBP) - UFR Sciences - Université de Reims Champagne-Ardenne (URCA) Campus  
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The ANR PRCE Glycostil (Glycosylated Stilbenes Biobased Production for Cosmetic Applications) project focuses on the production and chemo-enzymatic modification of stilbenoids for the cosmetic market. This project relies on a public private partnership covering the entire value chain: bioproduction by cell culture of stilbenes (RIBP / Novéal), chemo-enzymatic modifications and activities screening (URD ABI), purifications and characterizations (URD ABI / ICMR), determination of biological properties (Medyc / Noveal) and technico- economic and life cycle studies (Novéal). The project was recently selected and funded by the French National Research Agency (ANR).

The Industrial Agro-Biotechnologies research and development unit (URD ABI) has for primary vocation to develop new biotechnological processes (enzymatic, green chemistry) and to demonstrate their feasibility at the laboratory scale. The research activities currently underway within the laboratory are both in the development of new materials / bio-based polymers from renewable building blocks, and in the production of higher added value molecules for the cosmetic or pharmaceutical industries from biorefinery co-products.

The RIBP unit studies the plant innate immunity and one of our fundamental approach is based on stimulation of plant defence using elicitors. We have developed an elicited-cell culture strategy for the biosynthesis of stilbenoids (grapevine phytoalexins), including resveratrol and derivatives produced at the gram scale in bioreactors. The aim is to elucidate the biosynthesis of viniferins (resveratrol oligomers) and to valorize the production of stilbenoids for their uses in cosmetic, therapeutic or biocontrol.

The candidate will work sequentially at URD ABI "Green chemistry" and at RIBP and will be entrusted with the synthesis of resveratrol derivatives. As part of this project, the recruited intern will have to use biotechnological processes (enzymatic catalysis) and conventional organic chemistry processes (metal catalysis) to synthesize resveratrol derivatives (at URD ABI). The derivatives will be then use as precursors for elicited-cell cultures (bioconversion) (at RIBP) to obtained new-modified derivatives. The impact of the resveratrol derivatives on grapevine cells and their transformation by the latter will be evaluated.

**Profile:** The candidate (**Master or Engineer School**) should have a background in **organic / synthetic chemistry**, as well as **strong skills in analytical chemistry**. Experience in **biocatalysis** and **plant cell culture** would be a plus. The candidate will have to demonstrate a scientific openness to collaborate with all the stakeholders of the project as well as an appetite for transdisciplinary projects.

Position required for **January / April 2021 for a period of 4-6 months**.

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