DCM – Département de chimie moléculaire

Université Grenoble Alpes – CNRS UMR 5250

Postdoctoral position in organic synthesis

Synthesis of modified amino acids for enzymatic preparation of thioglycosides

Host laboratory :

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Project outline :

In glycochemistry, a vast array of carbohydrate-metabolizing enzymes (CAZYmes), has been engineered and used for the chemo-enzymatic synthesis of glycosides as a more efficient alternative to traditional chemical synthesis. However, few examples in the literature have been describing the use of CAZYmes for the preparation of *S*-glycosides that exhibit a sulfur atom, instead of oxygen or nitrogen, linking the glycoside with the aglycon. These non natural *S*-glycosides have been used as valuable tools as substrate analogs, inhibitors of glycoside hydrolases (involved in many diseases including cancer and viral infection) or potent ligands of lectins involved in bacterial infection and inflammation. The ANR collaborative research project Sweet-ThioPep aims at proposing a chemoenzymatic approach to generate multivalent *S*-glycosides through 3 objectives. (1) Develop a modular approach to generate tailored biocatalysts that will be used for (2) chemenzymatic *S*-glycosylation of multivalent peptidic platforms, combining multivalent display and orthogonal labelling (fluorophore, drug). These chemical objects will be designed to (3) target cancer cells as well as lectins expressed at the surface of microbial pathogens. In the context of this project our team is recruiting a postdoctoral fellow that will be in charge of the organic synthesis part of the project. His task will be to synthesize modified amino acids and integrate them in the sequence of multivalent peptidic platforms. The recruited candidate will also be involved in evaluating the enzymes designed by our partner (Pr. Pierre Lafite, ICOA, Orléans).

Candidate profile :

We are looking for a motivated and methodic candidate to carry out the organic synthesis part of the project. The candidate must hold a PhD in organic synthesis with good skills in synthesis, purification and structural characterization. Additional experience in carbohydrate and/or peptide chamistry would be an asset but is not mandatory. The candidate should have an interest related to biological applications of synthetic chemistry in order to be able to interact with the different partners of the project.

Please provide a CV, a cover letter including a brief summary of past and current research activities and the contact detail of a referee who can be contacted. Please send your application to david.goyard@univ-grenoble-alpes.fr before july 15 2024.

Additional information :

Funding : ANR PRC SweetThioPep
Starting date : October 1st 2024
Duration : 12 months (with the possibility of renewing the contract on a different research topic *via* other funding opportunities available in the team)