ÉCOLE POLYTECHNIQUE
UNIVERSITÉ PARIS-SACLAY

INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

Name of the Host Laboratory	LABORATOIRE DE SYNTHESE ORGANIQUE
Website of the Host Laboratory	http://lso.polytechnique.fr/research-groups/bastien-nay/
Research Group	Total synthesis and interfaces
Internship Supervisor	Bastien Nay
Internship Subject	Total synthesis of oxepine-containing quinazoline alkaloids
Student's level	☐ Advanced Undergraduate Students (3rd or 4th year) ☒ Master's students (1st or 2nd year) ☐ PhD students
Proposed Duration	☐ 3 months ☐ 4 months ☐ 5 months ☒ 6 months
Prerequisites	The applicant should have received an organic chemistry education and have a strong interest in natural product organic synthesis, synthetic methodologies and the biological interface. A laboratory experience will be highly appreciated. A good level of spoken and written English is expected.
Internship description (max. 15 lines)	Natural products are an important source of chemical leads for biological purposes. Owing to their limited availability, it is important to design efficient synthetic routes amenable to scale-up for applied perspectives. Among natural products, quinazoline alkaloids are a large class of peptide-derived compounds from fungal origin, possessing a wide variety of biological activities (for example antibiotic, anticancer, phytotoxic). On the structural point of view, their diversity results from various oxidative functionnalizations, leading to the hydroxylation or the dehydrogenation of the diketopiperazine ring, or to the conversion of the aromatic part into an oxepin (examples below). All these structural features render the total synthesis of these natural products particularly challenging. This project aims to apply synthetic methodologies already developed in our laboratory to the synthesis of representative natural products of this series, using C-H oxidation and cycloaddition strategies. Collective approaches will allow us to synthesize several quinazoline products in a single divergent synthetic process.