**INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS**

**INTERNSHIP SUBJECT FORM**

<table>
<thead>
<tr>
<th>Name of the Host Laboratory</th>
<th>LABORATOIRE DE SYNTHÈSE ORGANIQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website of the Host Laboratory</td>
<td><a href="http://lso.polytechnique.fr/research-groups/bastien-nay/">http://lso.polytechnique.fr/research-groups/bastien-nay/</a></td>
</tr>
<tr>
<td>Research Group</td>
<td>Total synthesis and interfaces</td>
</tr>
<tr>
<td>Internship Supervisor</td>
<td>Bastien Nay</td>
</tr>
<tr>
<td>Internship Subject</td>
<td>Total synthesis of oxepine-containing quinazoline alkaloids</td>
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</tbody>
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**Student’s level**

- [ ] Advanced Undergraduate Students (3rd or 4th year)
- [x] Master’s students (1st or 2nd year)
- [ ] PhD students

**Proposed Duration**

- [ ] 3 months
- [ ] 4 months
- [x] 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 functionalities, 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.