

STudent REseArch Mobility Programme (STREAM) Project proposal

Host University:
Université Paris-Saclay

Field (drop-down list):
Natural sciences, mathematics and statistics

Specified field, subject:
Organic Chemistry

Research project title:
Design, synthesis of new fluorinated scaffolds and incorporation in peptides

Possible starting month(s):

Sep	Oct	Nov	Dec	Jan	Fev	Mar	Apr	May	Jun	Jul	Aug
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Possible duration in months:

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exact starting and end dates will be discussed between the supervisor and the student

Date of validity: from DD/MM/YY till DD/MM/YY

Suitable for students in: ☐ Bachelor level ☒ Master level

Prerequisites: Organic chemistry theoretical and experimental knowledge

Restrictions:

Description (maximum 2,000 characters):

Many studies of the literature allowed showing certain effects inferred by the presence of fluoroalkyl groups in a molecule. Indeed, the chemical/stereochemical outcome of a reaction, the affinity and the metabolic pathway of a molecule can be strongly modified by the introduction of a fluoroalkyl group. These effects are due to the physico-chemical properties of the fluorine atom (high electronegativity, lipophilicity, and strength of the C-F bond). Thus the consequences are as follow: - modulation the acidity/basicity (pKa) of a parent compound and thus the hydrogen bonding capability, - changes in the conformation of the molecule via steric and electrostatic interactions, - modification of hydrophobicity and/or replacement of the side chains of the proteogenic amino acids. Consequently the "fluorine effect" provides quite attractive opportunities in drug design as shown by the current number of fluorine-containing drugs on the market which has grown to about 35%.

The project will be to develop innovative methods to prepare N-fluorinated building blocks and introducing them into bioactive molecules. We will focus on the synthesis of peptidomimetics as inhibitors of the aggregation of amyloid peptides.

Research laboratory:FluoPEPIT / BioCIS

Faculty and/or Department: Faculty of Pharmacy

Contact person, including position: Dr. Benoit Crousse

Contact email:benoit.crousse@universite-paris-saclay.fr



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Universiteit
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Zurich^{UZH}

Deadline for nomination to reach host university: June 2021

Notification of admission given by the end of: July 2021

Additional information: <https://www.biocis.universite-paris-saclay.fr/?-FLUOPEPIT-&lang=en>