



2nd TREE MSc meeting
KIT 18.07.2018



Attractiveness of Strasbourg within the TRi-national EuropEan MasteR of Plant Science



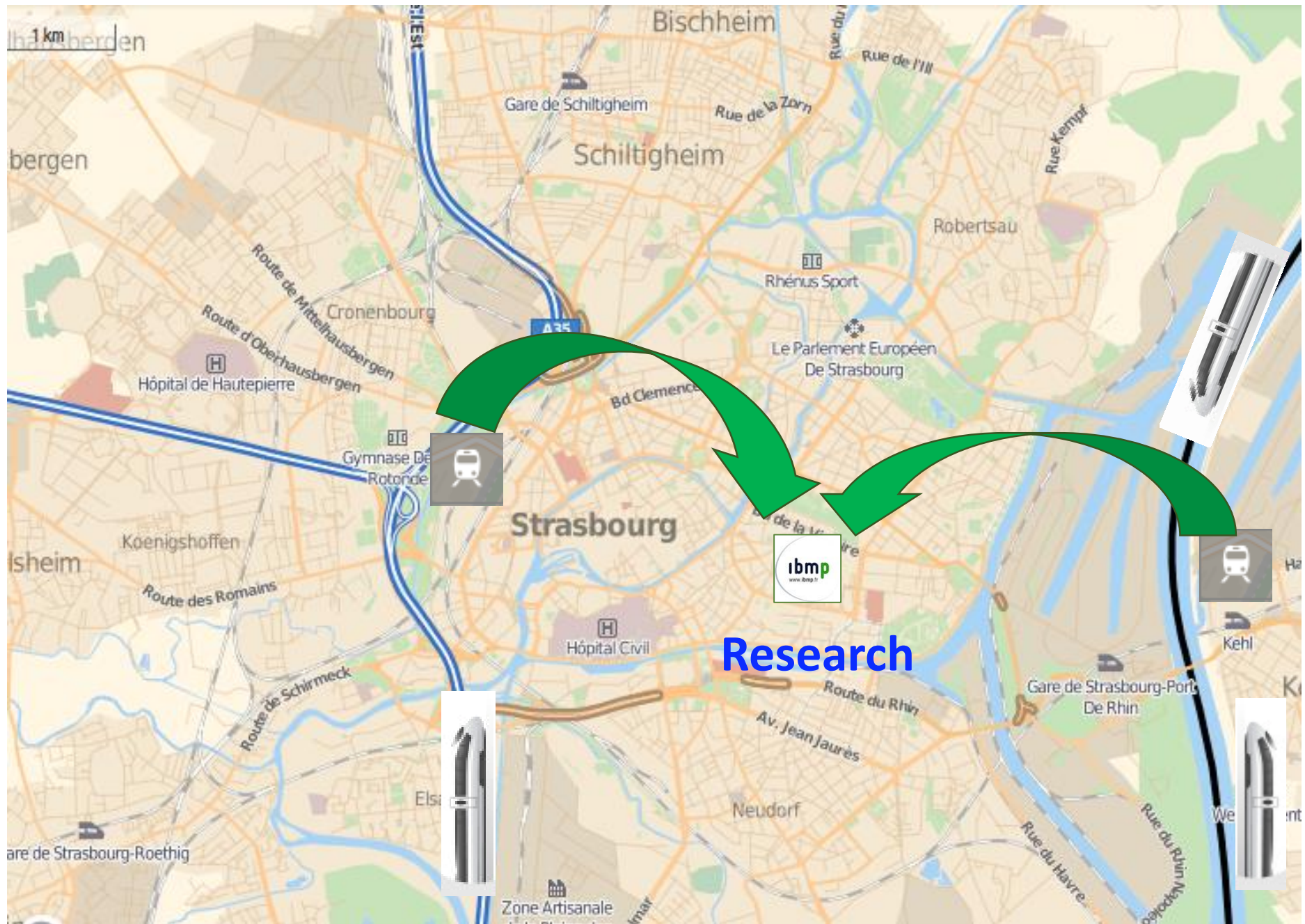
Faculté

des **sciences de la vie**

Université de **Strasbourg**

Pr. Dr. Dr. Anne-Catherine SCHMIT







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				Université de Strasbourg



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Teaching + Research on the campus

3 Master Programmes in plant science

François BERNIER

Responsible of the current bernier@unistra.fr Master studies in **Plant Science** at the Université de Strasbourg

<http://master-vegetal.unistra.fr>

**Plants, Molecular
Biology &
Biotechnology**

13-15 students

**Plants, Environment &
Ecological Engineering**

13-15 students

**Plants, Bioactive
Molecules &
Valorisation**

13-15 students

Resp.: **Etienne HERZOG**
etienne.herzog@ibmp-cnrs.unistra.fr

**Isabelle
COMBROUX**
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**Rozenn
MENARD**
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Various modules + **1 Végé-LAB** = Personal innovating professional project



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Specific domains: **Métabolism, useful phytochemicals, analytical techniques, phytochemistry, ecotoxicology**



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Pharmacognosy, molecular pathology, ecological engineering, french environmental laws



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Pharmacognosy, molecular pathology, ecological engineering,
french environmental laws
Molecular regulations**



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Module organisation: 15 weeks/semester (S)
french lectures ! English slides !

M1S1 and M2S3: September → december

M1S2: January → May

M2S4: January → September =
lab internship (*6 months max*)

Végé-LAB: M1S1 → M2S3 which can be condensed
M1S2 → M2S3



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Master studies in Plant Science (2 years, 120 ECTs)

<https://master-vegetal.unistra.fr/>

Scientific methods
& project

management

Fundamental knowledge
(36 ECTs)

Specific skills
(18 ECTs)

Complementary skills
(9 ECTs)

Végé-LAB 1
(6 ECTs)

Végé-LAB 2
(9 ECTs)

Végé-LAB 3
(12 ECTs)

Master thesis Internship (30 ECTs)



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>15 teachers

Current existing modules, each for 3 ECTs

<http://parcoursup.unistra.fr/?rof-program=ME194#data-rof-tab-cours>

In Strasbourg		S1 – S3
Plant bio-engineering		Microbial metabolic diversity
Plant-Microbiote Interactions		Bio-active compounds: analytical techniques & metabolomics
Plant-Environment Interactions : ecogenetics & ecogenomics		Integrated development of plants in their environment
Phytoremediation		Strategies in plant protection
Industrial valorisation of plant substances		Pharmacognosy
	lant biodiversity	Microbial metabolic diver (english)



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S2 modules

Plant-parasite interactions

Host-phytovirus interactions

Cellular & Molecular Virology

useful phytochemicals

Ecotoxicology

phytochemistry

Plant genetic biodiversity



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Végé-LAB-like project organisation

In France	Stay in France	In the home country
Meetings with group leaders of Academic or private firms • announcement of open project themes • Visit of the students at the partner site and research proposal validation • Poster presentation for evaluation	M1S1: 1 to 3 days	• Building of experimental programmes in relationship with the team (phone/internet/skype...).
-	M1S2 Or end S2 (1 month)	• Writing an experimental projet proposal with bibliographic references on the topic. • Report evaluation (or S3)
• Experimentations and report. The lab book will belong to the partner (3-4 weeks of practice). • Evaluation: Report + oral presentation	M2S3 = One semester	-



Time to follow some scientific modules up to 30 ECTs



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Creation of new possible modules



- **2 Short internships** in 2 different IBMP research groups
2 months each (during home university *free periods*)
Evaluation of a report.
- **TREE MSc Conference Cycle** organized by the students
who select strong points developped at the research
Institutes which can attract new students.
(possibility of video-conferences)



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Mutualized module: TREE MSc Conference Days



- Needs **1 Day per semester** - each one in a different Eucor Site.
- Successively organized in a rotation and opened to all M1 & M2 students in general and to the other eucor teachers/researchers.
- *Morning*: 3 lectures/ *Afternoon*: workshop with the speakers.
 - The students would have to know PI's thematics and read speaker's selected papers in advance to contribute to the discussion on the research topics and perspectives.
 - Research/teaching collaborations could be discussed
- **3 Conf Days** required per student for the module.



16 Research topics at the IBMP

<http://www.ibmp.cnrs.fr>

Individual Lab Projects

Metabolism

RNA
regulations

Cytochromes P450 and associated metabolic pathways

Gibberellins and adaptation to environment

Plant isoprenoid biology

Metabolism and trafficking of RNA within the plant cell

Mechanisms of small RNA biogenesis and action

Export and translation of RNA under TOR signalling control

RNA degradation

Functions of PPR proteins



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Individual Lab Projects

Plant virus interactions during viral cell-to-cell movement

Ins and outs of viral infection in plants

Biology and biotechnology of grapevine viruses

Role of ubiquitin in cellular regulation

Maintenance and segregation of the mitochondrial genome

Chloroplast genetic acclimation

The nucleo-cytoplasmic interface: from signalling to chromatin remodelling

Epigenetic mechanisms in signaling of plant development

**Plant
pathology**

**Plant
development**



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14 Master thesis Offers for 2019



<https://master-vegetal.unistra.fr/stages/stages-de-semester-4/>

- Plant-bacteria metabolic interactions: Study of the role of endophytic bacteria associated with higher plants in isoprenoid metabolism ([Schaller](#))
- Plant metabolic biology and signaling. Implementation of «click chemistry» probes for the cellular localization of steroids involved in root development ([Schaller](#))
- Chemical genetics of phytosterol production in palm trees from the amazon region ([Schaller](#))
- Gibberellins potential transporters involvement in the plant adaptation to environment changes ([Achard](#))
- Towards the elucidation of a new catabolic step in the jasmonate pathway ([Werck](#))
- Identification of cellular partners of the RT protein encoded by Turnip yellows virus ([Ziegler-Graaf](#))
- Functional Study of novel P-body components in the model plant *Arabidopsis thaliana* ([Gagliardi](#))



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- mRNA uridylation and seed physiology in Arabidopsis: study of a novel mechanism of post-transcriptional regulation ([Gagliardi](#))
- Small RNA-mediated repair of UV-induced DNA photolesions ([Schmit/Chabouté](#))
- Role of small non-coding RNAs deriving from tRNAs, the tRFs, in the regulation of gene expression ([Drouard/Duchêne](#))
- Polycytidylation of Chlamydomonas mitochondrial mRNAs: biogenesis and function ([Drouard/Duchêne](#))
- Functional study of an RNA degradosome in plants ([Giegé](#))
- Characterization of Arabidopsis mitochondrial ribosomes ([Giegé](#))
- Characterization of the proteolytic machinery mediating P0-dependant AGO1 degradation ([Genschik](#))