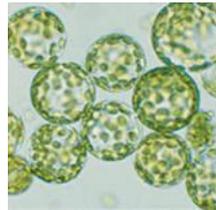




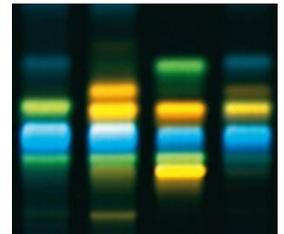
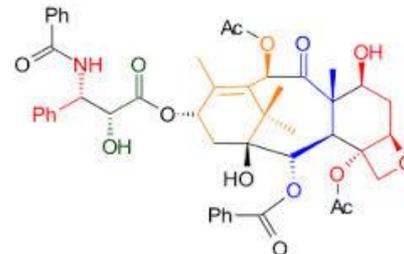
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Creation of an educational laboratory for plant biotech R&D



- Internationalization
 - Interdisciplinarity
 - Teaching by and for research
 - Educational innovation
- ➔ **Success & employability of the students**



Les porteurs du projet

**François
Bernier**

*in charge of
Master's degree
"Biology and
Valorization of
Plants"*

**Laurence
Gondet**

*Coordinator of
the project
Coordinator
In vitro plant
culture*

**Pascaline
Ullmann**

*Coordinator
Phytochemistry*

Annelise Lobstein

*Contact Faculty of pharmacy,
Partner of the project Végé-LAB*

Plant biotechnology

+/- Transgenesis
(→ *metabolic engineering*)



Micropropagation
Organogenesis or Somatic embryogenesis

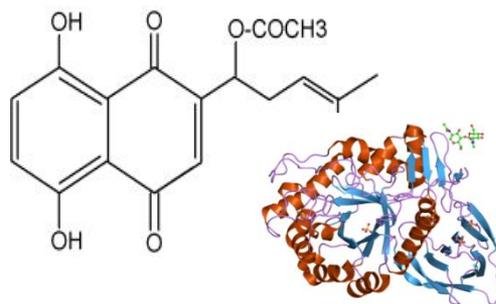


Cell or root culture

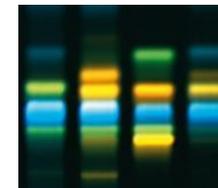
+/- elicitation, permeabilisation,
precursor feeding ...



**Multiplication
of the plant of interest**



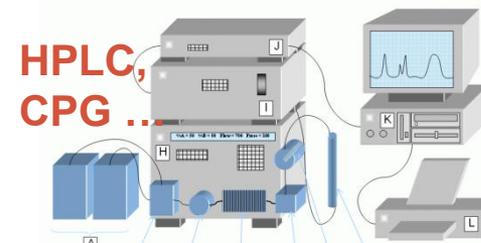
Phytochemistry



HPTLC

High Performance Thin Layer
Chromatography

**Extraction
Identification
Quantification**



**HPLC,
CPG ...**

**Metabolomic Platform
IBMP (Dimitri Heintz)...**

Bioactive Molecules
(*secondary metabolites, proteins*)

Timetable 2014/2015 (Valorization of Plant Resources)

2014 (M1S1)

September
October

Partners

- ⇒ Introduction of the project
- ⇒ Constitution of the teams (1 - 3 students by project)

November

Students

- ⇒ Preliminary bibliographic research / experimental design proposal to the partner

2015 (M1S2 & M2S3)

January - May

Students

- ⇒ in-depth bibliographic research / Purchase of specific products + preliminary experiments

September -
December

Experimental phase

Symposium, presentation of the results

**Starting -up
for all
students**

Partners & projects 2014/2015

Laboratoire de Pharmacognosie et Substances Naturelles Bioactives UMR7200 Illkirch–Graffenstaden.	Phytochemistry & production of metabolites by <i>in vitro</i> culture of orchids and anti-diabetic plants <i>2 students</i>
Laboratoires Lehning Sainte-Barbe (Moselle)	Production of a phytochemical marker for its identification in pharmaceutical specialities <i>2 students</i>
Rootec Bioactifs AG Witterswil (<i>Suisse</i>)	Study of secondary metabolites production in hairy roots culture <i>3 students</i>
SEPPIC – Biotech Marine Pontrieux (Côtes d'Armor)	Establishment of new plant cell suspensions from coastline plants and study of their capacity to produce secondary metabolites <i>3 students</i>
LVMH Recherche Active Ingredient Department St Jean de Braye (Loiret)	Establishment of new plant <i>in vitro</i> cultures for the production of plant metabolites. <i>3 students</i>

Our equipment



- **HPTLC :**

- **Sample application :**

Linomat 5

- **Chromatogram development :**

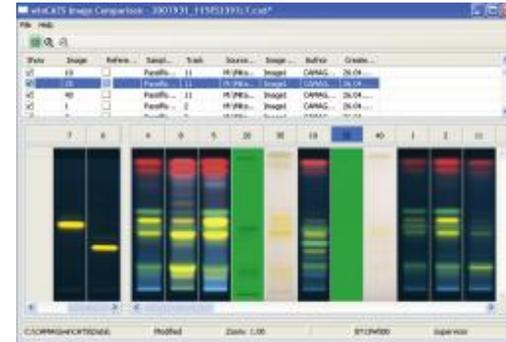
Vertical & horizontal developing chambers
& HPTLC *Vario system*

- **Derivatization :**

Immersion device , TLC plate heater

- **Chromatogram evaluation :**

TLC visualizer & winCATS software



- **Plant *in vitro* culture**

- Climatic rooms for incubation
- Laminary flow clean benches



