Trinational EUCOR Master Plant Science

„Seed Money“ – not only „grow“, but also „propagate“

We want a new type of Master to….

- ❑ **Represent strengths of our research region**
- ❑ **Merge research and application**
- ❑ **Releases synergies in university teaching**
- ❑ **Lives on Interculturality and makes it happen.**

Trinational EUCOR Master Plant Science

Resilience of crop plants, a key for sustainability.

What for a new Master Plant Science?

- ❑ **Because our civilisation depends on plants.**
- ❑ **Because we need sustainable agriculture.**
- ❑ **Because we have to cope with climate change.**
- ❑ **Because plants are the key for bioeconomy.**

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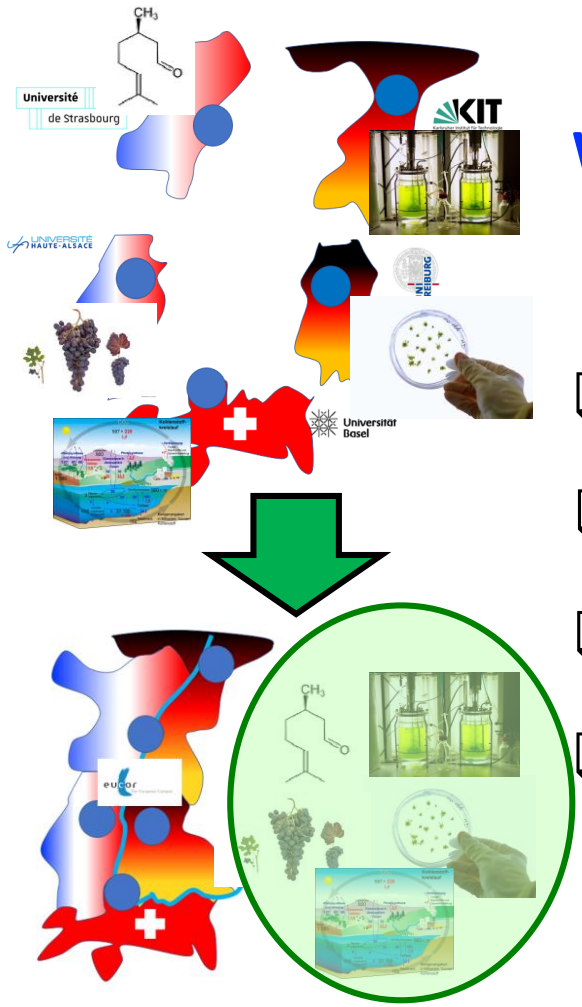
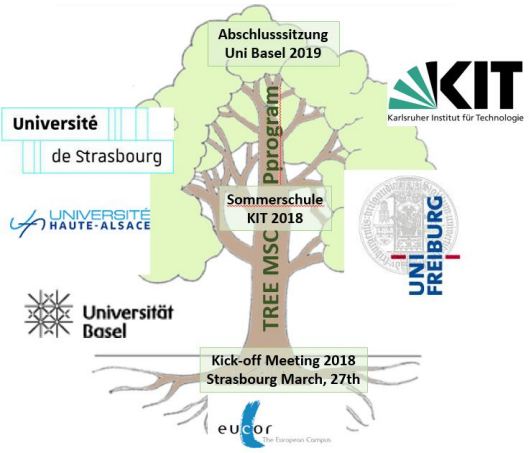


What is our starting point?

- ❑ intense regional research cooperation
- ❑ complementary teaching offers at five sites
- ❑ research oriented teaching
- ❑ pronounced European consciousness

Cooperation = Synergy

Trinational EUCOR Master Plant Science



How do we proceed?

- ❑ we open existing courses for EUCOR students
- ❑ we exploit temporal modularity
- ❑ we search pragmatic solutions for mobility
- ❑ we develop longterm models for synergy

Here you can follow all developments on the TRinational EuropEan Master of Plant Science:
http://www.botanik.kit.edu/eucor/index.php

Trinational EUCOR Master Plant Science

The Botanical Institute of the KIT

Peter Nick

Molecular Cell Biology

Holger Puchta

Genome Engineering

Natalia Requena

Plant-Microbes

Tilman Lamparter

Photoreceptors

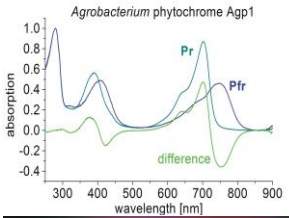
Botanical Garden
Genetic Resources

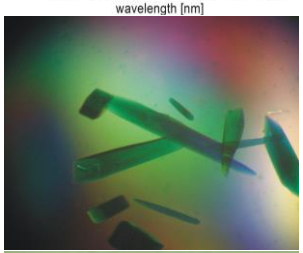
The Botanical Institute of the KIT

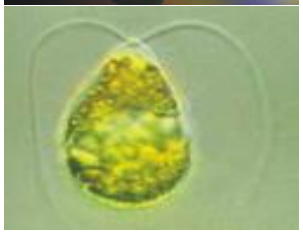
Tilman Lamparter

Photoreceptors

Research Topics







Photoreceptors in plants and bacteria (phytochrome, photolyases)

Protein crystallisation and protein structure

Algal biotechnology (biofuels)

The Botanical Institute of the KIT

Tilman Lamparter

Photoreceptors

Offers for EUCOR

Research Modules

1203 – Cryptogamic plants

Biodiversity, physiology, biotechnology of cyanobacteria, algae, mosses, and ferns

1205 – Photoreceptors in plants and microorganisms

Biochemistry of photoreceptors (phytochromes, cryptochromes), DNA repair

1207- Protein Crystallisation

Students learn how to crystallize a protein and get 3D structures of a protein.

1208 - Photosynthesis

spectroscopy, biochemical analysis, recombinant expression

Individual Lab Projects

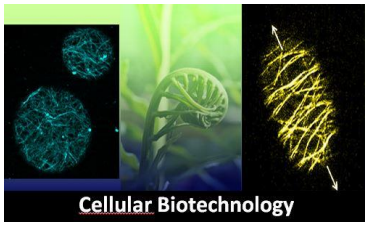
Master thesis

The Botanical Institute of the KIT

Peter Nick

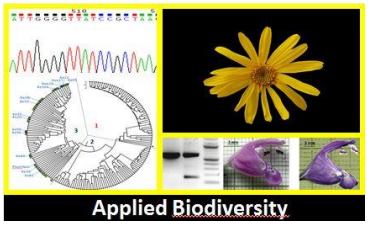
Molecular Cell Biology

Research Topics



Cellular Biotechnology (cytoskeleton, secondary metabolism, cells on a chip)

Plant Stress (jasmonate, defence in grapevine, drought and salt stress in rice)



Applied Biodiversity (evolution of crop plants, molecular phylogeny, food safety)

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Peter Nick

Molecular Cell Biology

Offers for EUCOR

Research Modules

1201 – Plant Cell Biology
Fluorescence microscopy, GFP, cytoskeleton, self organisation, biotechnology
1202 – Plant Evolution
Mechanisms, molecular phylogeny, crop plants, phytopathology
1204 – Seeds
Seed quality and diversity (cooperation with State Institute for Agriculture.
1206 - Phytohormones
molecular physiology, synthesis, signalling, stress signalling

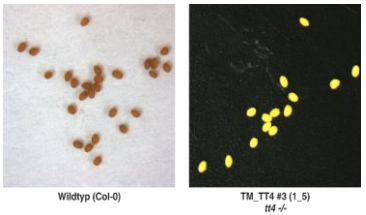
Individual Lab Projects
Master thesis

The Botanical Institute of the KIT

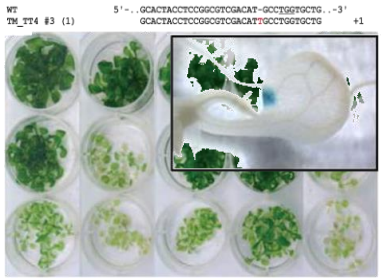
Holger Puchta

Genome Engineering

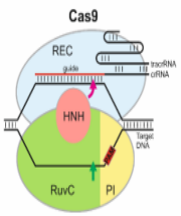
Research Topics



Genome Engineering (CRISPR-Cas)



DNA repair and recombination



Genome editing in tomato (transformation, CRISPR-Cas, biotechnology)

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Holger Puchta

Genome Engineering

Offers for EUCOR

Research Modules

2201 – Genome Engineering
CRISPR-Cas, cytological methods for recombination, breast cancer genes in plants

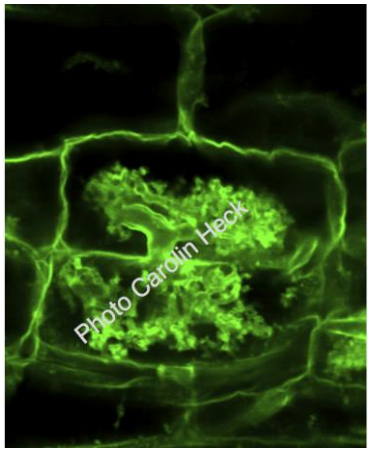
Individual Lab Projects
Master thesis

The Botanical Institute of the KIT

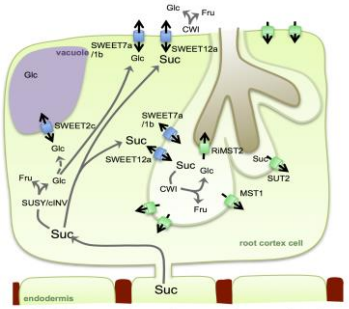
Natalia Requena

Plant-Microbes

Research Topics



Mycorrhiza (chemical signalling, molecular mode of action, cellular aspects)



modified from Manck-Götzenberger and Requena (2016)

Defence versus Symbiosis (how to distinguish „friends“ from „foe“)

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Natalia Requena

Plant-Microbes

Offers for EUCOR

Research Modules

2207 – Mycorrhiza
Molecular and cellular aspects, effectors, reprogramming of the host
2208 – Molecular Plant-Microbe Interaction
Plant pathogen interaction, plant immunity, effectors, symbiosis

Individual Lab Projects
Master thesis