



Raphael Ployet

29 years old, French

- Toulouse, France
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- [ResearchGate](#)

Skills

Plant genetic engineering

- Sequence cloning
- Bacterial transformation
- Plant transient and stable transformation (*A. tumefaciens*, *A. rhizogenes*)
- *In vitro* tissue culture

Plant phenotyping

- Transcriptomics (RNAseq, RT-qPCR)
- Metabolomics (LC-MS, GC-MS)
- Cell wall composition (Klason, thioacidolysis, acetyl-bromide, saccharification)
- Microscopy (histochemistry, SEM/TEM, epifluorescence, confocal)
- Image analysis (ImageJ)

Bioinformatics

- Programming language (R, MATLAB)
- Online cluster work (Linux/Unix)
- Network analysis (Cytoscape)
- Phylogenetic tools (Clustal, MEGA)
- Statistical tools (MixOmics)
- Data-mining

Communication

- Teamwork in international setting
- Presentation of results in international conference and peer-reviewed journals
- Guidance of master students and teaching
- Scientific literature monitoring

Languages

- French, native speaker
- English, full professional proficiency
- Spanish, elementary

Hobbies

Sport, woodworking, electronics...

PhD in Plant Biotechnology and Molecular Biology

CORE COMPETENCIES

- Plant genetic engineering
- Functional genomics
- Molecular biology
- Plant phenotyping
- Transcriptomics
- Metabolomics
- Bioinformatics
- Microscopy
- Protocol development
- Collaborative teamwork
- Communication
- Adaptability

EDUCATION

- 2013 - 2017 **PhD in Plant Biotechnology**
University of Toulouse, France
- 2011 - 2013 **Master of Science in Plant Genetics and Development**
University of Toulouse, France
- 2007 - 2011 **Bachelor of Science in Cell Biology and Microbiology**
University of Toulon, France

WORK EXPERIENCE

Research Experience

Oct. 2013 - **Doctoral candidate in Plant Biotechnology**

- June 2017 ⇒ Oct. 2013 - Sept. 2016 : Postgraduate researcher
Grant of the French Ministry of Education and Research
- ⇒ Oct. 2016 - June 2017 : Research engineer
University of Toulouse III

Project : *Regulation of wood formation during development and in response to environmental constraints in Eucalyptus.* [Full Text](#)

- Transcriptomics : RNAseq
- Metabolomics : LC/GC-MS
- Data-mining : data integration, statistics, networks
- Plant transformation : sequence cloning, *Agrobacterium*-mediated transformation, *in vitro* culture
- Plant phenotyping : DNA/RNA extractions, RT-qPCR, cell wall composition, microscopy, image analysis
- International collaboration

Supervision:

J. Grima-Pettenati (grima@lrsv.ups-tlse.fr)
C. Teulieres (teulieres@lrsv.ups-tlse.fr)

Eucalyptus Functional Genomics group
directed by J. Grima-Pettenati
LRSV (UMR5546), Toulouse, France

Jan. 2013 - **Graduate research assistant**

May 2013 **Project :** *Regulation of wood formation by cold stress in Eucalyptus.*

- Transcriptomics : RNA extractions, RT-qPCR
- Data-mining: statistics, networks
- Plant phenotyping : cell wall composition, microscopy

Supervision:

F. Mounet (mounet@lrsv.ups-tlse.fr)
J. Grima-Pettenati (grima@lrsv.ups-tlse.fr)

Eucalyptus Functional Genomics group
directed by J. Grima-Pettenati
LRSV (UMR5546), Toulouse, France

May 2012 - **Undergraduate research assistant**

Jul. 2012 **Project :** *Functional characterization of two Lipid Transfer Proteins (LTPs) of Arabidopsis.*

- Sequence cloning : primer design, PCR, vector handling, bacterial transformation
- Plant transformation : *Agrobacterium*-mediated transformation, selection, *in vitro* culture
- Plant phenotyping : Western blot, microscopy

Supervision:

E. Jamet (jamet@lrsv.ups-tlse.fr)

Cell Wall Proteins and Development group
directed by E. Jamet
LRSV (UMR5546), Toulouse, France

Teaching Experience

Oct. 2013 - **Teaching assistant University of Toulouse III**

- Sept. 2016 • Seminar and practical work supervisor (64h per year)
- Tutor for literature review (MSc. Students)
- Mentoring of undergraduate research assistants

References

Dr. Jacqueline Grima-Pettenati
Eucalyptus Functional Genomics
Plant Science Research Laboratory -
LRSV
24 Chemin de Borde Rouge
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Mineral Nutrition and Oxidative Stress
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AWARDS

Jean Lesbats Prize 2017 : Best thesis work in forest species functional genomics, XYLOFUTUR center of excellence. [Press Release](#)

PUBLICATIONS

- **Ployet, R.**, Veneziano Labate, M. T., Regiani Cataldi, T., *et al.*
Water deficiency and potassium supply trigger interconnected signals to modulate wood formation in *Eucalyptus grandis* xylem.
In prep.
- **Ployet, R.**, Soler, M., Carocha, V., Ladouce, N., Alves, A., *et al.* (2017).
Long cold exposure induces transcriptional and biochemical remodeling of xylem secondary cell wall in *Eucalyptus*.
Tree Physiology, 18, 3158–3170. [Full Text](#)
- Nguyen, H. C., Cao, P. B., San Clemente, H., **Ployet, R.**, *et al.* (2017).
Special trends in CBF and DREB2 groups in *Eucalyptus gunnii* vs *Eucalyptus grandis* suggest that CBF are master players in the trade-off between growth and stress resistance.
Physiologia Plantarum, 159(4), 445–467. [Full Text](#)

COMMUNICATIONS

- **Ployet, R.**, Soler, M., Carocha, V., Ladouce, N., Alves, A., *et al.*
Low temperatures induce secondary cell wall remodeling in *Eucalyptus* through a complex network of transcription factors.
IUFRO Genomics and Forest Tree Genetics 2016, Arcachon, France.
- **Ployet, R.**, Favreau, B., Denis, M., San Clemente, H., *et al.*
Impact of potassium and sodium fertilization on secondary cell wall formation in *Eucalyptus grandis*: integration of transcriptomic and metabolomic data.
IUFRO Genomics and Forest Tree Genetics 2016, Arcachon, France.
- **Ployet, R.**, Cao, P.B., Ladouce, N., Nguyen, C., Rodrigues, *et al.*
Cold regulation of genes related to secondary cell wall biosynthesis affects wood structure and composition.
IUFRO Tree Biotechnology Conference 2015, Firenze, Italy.
- Nguyen, C., Bang, P.B., Marque, C., **Ployet, R.**, Mounet, *et al.*
Towards elucidating the role of DREB1 and DREB2 transcription factors in *Eucalyptus* whole plants under abiotic stresses: gene regulation in leaves, stems or roots.
IUFRO Tree Biotechnology Conference 2015, Firenze, Italy.
- Favreau, B., Pereira da Silva, H., Maria F.L., Denis, M., **Ployet, R.**, *et al.*
Impact of potassium and sodium fertilization on the leaf transcriptome of *Eucalyptus grandis* submitted to water deficiency.
IUFRO Tree Biotechnology Conference 2015, Firenze, Italy.
- **Ployet, R.**, Mounet, F., Rodrigues, J.C., Marque, C., Teulières, *et al.*
Cold regulation of genes related to secondary cell wall biosynthesis affects wood structure and composition.
10th French Cell Wall Meeting 2014, Amiens, France.

STAYS IN PARTNER LABORATORIES

- **Sept. 2016 - Thünen Institute of Forest Genetics**, Hamburg, Germany
Supervision : Dr. M. Fladung (matthias.fladung@thuenen.de)
Duration : 1 week
- **Oct. 2015 - Laboratory of Wood Anatomy and Identification**, Luiz de Queiroz College of Agriculture, Piracicaba, Brazil
Supervision : Dr. G. Chaix (gilles.chaix@cirad.fr)
Duration : 3 weeks
- **March - May 2014 - Laboratory Max Feffer of Plant Genetics**, Luiz de Queiroz College of Agriculture, Piracicaba, Brazil
Supervision : Dr. C. A. Labate (calabate@usp.br)
Duration : 3 months