

PLANT REPRODUCTION AND DEVELOPMENT LABORATORY – RDP

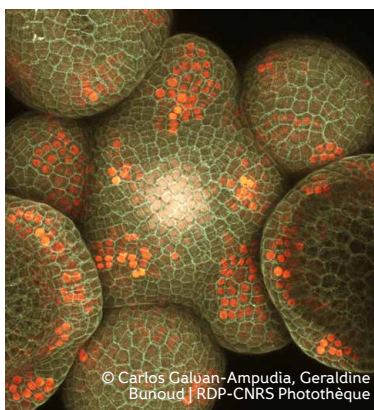


MULTIDISCIPLINARY FUNDAMENTAL RESEARCH LABORATORY,
OPEN TO TRANSLATIONAL RESEARCH

<http://www.ens-lyon.fr/RDP/>



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RESEARCH TOPICS

● BIOLOGY AND EVOLUTION OF THE DEVELOPMENT OF PLANTS AND THEIR REPRODUCTIVE SYSTEMS (molecular genetics, genomics and bioinformatics, cell biology)

● PREDICTIVE BIOLOGY: ROLE OF BIOCHEMICAL AND MECHANICAL SIGNALS IN MORPHOGENESIS (optical and mechanical engineering, imaging on living tissues, biophysics, mathematical and computer modelling)

● SOCIETAL ISSUES: ANTHROPOCENE, AGRICULTURE, ARCHITECTURE AND URBAN PLANNING

RESEARCH EQUIPMENT AND TOOLS

Technical platforms

- Optical and mechanical imaging: AFM, microindenter, SEM, confocal microscopes with microfluidics systems, microfabrication
- Cytology: In situ hybridization and immunolocalization
- Growth rooms, greenhouse
- Maize transformation

Development of tools and databases: some examples

- Genomic databases for Rose and Petunia
- Petunia mutant collection
- GNOMON: computer platform including algorithms for 3D reconstruction, cell segmentation, lineage tracking and modeling

KEY FIGURES

115

staff including **32** permanent researchers, **34** PhD students and post-doctoral fellows and **49** research support staff

Over the last 5 years:

240

publications

12

prizes and distinctions including **2** prizes from the French Academy of Sciences, **2** CNRS crystal medals, **1** CNRS silver medal and **1** member of the IUF

97

publicly funded research contracts including **68** national, **25** European and **4** intercontinental

13

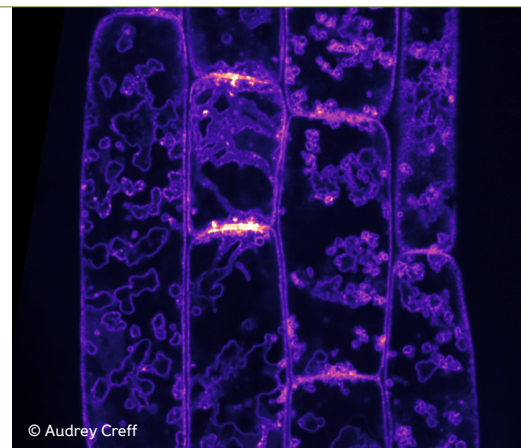
privately funded contracts

2

patents

TRL scale between **1** and **5-6**

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FROM THE LABORATORY TO THE SOCIO-ECONOMIC WORLD

- Close interactions with INRAE centers
- Participation in CNRS inter-institutional research networks (GDRs) and international research networks (IRP and IRN)
- A wide range of national and international academic collaborators
- Strong collaborations (consortia and direct collaborations) with international companies: plant biotechnology, seeds, agri-food, microscopy, etc.
- Citizen science projects with local farmers and stakeholders

FOCUS ON

Institutional partnership research

- **ChromAuxin project (2018 ANR open project call) with the LPCV Laboratory** in Grenoble: generation of fundamental knowledge about auxin signaling mechanisms, which are essential for the development of plants.
- > **Expertise:** imaging living tissues, development of genetically coded fluorescent biosensors, genomics, image analysis and bioinformatics.

Private partnership research

- **Spelt project with 10 farmer-bakers**, the Resource Center in Applied Botany (CRBA), the Fondation des Treilles, and chefs (PhD project): biodiversity of cultivated cereals, adaptation of spelts to climate change, nutritional value compared to soft wheat, using participative research.
- > **Expertise:** biology of plant development, use of plant resources in agriculture, Anthropocene issues.
- **Long-term collaboration with the company Limagrain**, a major international seed group (CIFRE PhD project and bilateral partnership): molecular characterization of fertilization in maize, for the generation of new plant breeding tools.
- > **Expertise:** fertilization of plants and implementation of a varied set of cell biology and molecular genetics approaches.
- **Collaboration with the company Belle de Maïa**, specialized in cosmetics (CIFRE PhD project and bilateral partnership): genomic characterization of roses of interest.
- > **Expertise:** plant developmental biology, rose genomics, molecular biology, bioinformatics.

CONTACT

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INRAE

Inria

