

Welcome to the 14th International Conference of the French Society of Plant Biology



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DETAILED PROGRAM

MONDAY 3 JULY

- 09:00 – 09:30 Opening Ceremony – Amphitheater 900
- 09:30 – 10:15 Plenary – Amphitheater 900
Malcom Bennett, University of Nottingham, United Kingdom
Uncovering the hidden half of plants: discovering novel ways roots sense and adapt to heterogeneous environments.
- 10:15 – 11:00 Plenary – Amphitheater 900
Raffaella Balestrini, National Research Council of Italy (CNR-IPSP), Italy
A central role of root symbionts: the plant response to environmental stresses
- 11:00 – 11:30 Coffee Break
- 11:30 – 13:00 Session 1: Plant and algal development and evolution Plenary Amphitheater 900
Chair: **Yoan Coudert**, CNRS/Ecole Normale Sup. de Lyon, France
- 11:30 – 11:50 **Air channels create a directional light signal to regulate hypocotyl phototropism**
Chrisitan FANKHAUSER
- 11:50 – 12:10 **Understanding how flowering plants build communication devices on their petals**
Lucie RIGLET
- 12:10 – 12:30 **A new framework for root gravitropic response kinetics**
Marta DEL BIANCO
- 12:30 – 12:50 **Developmental patterning of head-like inflorescences in Asteraceae**
Paula Elomaa
- 12:50 – 13:00 **Yoan Coudert**
Q&A



Session 2: Interfaces with plant and soil microbiota

Room 120

Chair: **Raffaella Balestrini**, National Research Council of Italy (CNR-IPSP), Italy

- 11:30 – 11:50 **Impact of double root symbiosis (arbuscular mycorrhiza and nodulation) on nutrient distribution in cereal crop-legume interaction**
Pierre-Emmanuel COURTY
- 11:50 – 12:10 **Evolution of microbial community dynamics during field retting of hemp “*Canabis Sativa L.*”**
Eliane BOU ORM
- 12:10 – 12:30 **Psychrotolerant plant-associated bacteria can enhance cold tolerance in crop plants**
Michelle PERAZZOLLI
- 12:30 – 12:50 **Role of zaxinone a novel growth-promoting apocarotenoid metabolite, in shaping rice rhizomicrobiota**
Teresa MAZZARELLA
- 12:50 – 13:00 **Raffaella Balestrini**
Q&A

Session 3: The genetic architecture of quantitative traits in plants

Room 76

Chair: **Martin Lascoux**, Sweden

- 11:30 – 11:50 **Fusing genome simulation and crop models for computer-aided breeding in future environments**
Arnaud DESBIEZ-PIAT
- 11:50 – 12:10 **Regulation of sulfur content in *Arabidopsis thaliana* natural variants**
Daniela RISTOVA
- 12:10 – 12:30 **Pervasive Under-Dominance in Gene Expression Underlying Emergent Growth Trajectories in *Arabidopsis thaliana* Hybrids**
Wei YUAN

- 12:30 – 12:50 **Reconsidering photoperiod-sensitivity for maize adaption to climate change**
Justine DROUAULT
- 12:50 – 13:00 **Martin Lascoux**
Q&A
- 13:00 – 14:00 Lunch
- 14:00 – 14:45 Plenary – Amphitheater 900
Marie Barberon, University of Geneva, Switzerland
Plasticity of root permeability for nutrient acquisition
- 14:45 – 15:30 Plenary – Amphitheater 900
Juliette de Meaux, University of Cologne, Germany
Polygenic selection and the evolution of gene expression in Arabidopsis lyrata
- 15:30 – 16:00 Coffee Break
- 16:00 – 17:30 Session 4: Macro- and micro- nutrients in plants Amphitheater 900
Chair: **Jérémy Lothier**, University of Angers, France
- 16:00 – 16:20 **The ability of Sorghum bicolor to cope with ammonium nutrition depends on root PEPC activity**
Marin Pena AGUSTIN JAVIER
- 16:20 – 16:40 **Effect of N And Fe deficiencies in poplar roots and root exudates metabolites**
Maria Teresa CIESCHI VILLALBA
- 16:40 – 17:00 **Regulation of CRFs in plant nitrogen (N) sensing and signalling**
Marina BORGES OSORIO
- 17:00 – 17:20 **To be or not to be: a glimpse of micronutrients role in the prediction of plant tissue fate in soybean embryo axis**
Joao Paulo RODRIGUES MARQUES



17:20 – 17:40 **Unravelling the spatiotemporal component of carrier-mediated nutrient transport in Arabidopsis thalian roots**
Kevin ROBE

17:40 – 17:50 **Jérémy Lothier**
Q&A

Session 5: Domestication in retrospect and the future of breeding
Room 120

Chair: **Maud Tenailon**, CNRS, Paris-Saclay, France

16:00 – 16:20 **Changes in competitive ability over the course of durum wheat domestication are mediated by plant functional traits**
Taina LEMOINE

16:20 – 16:40 **Genetic and phenotypic diversity in timothy and a closely related species**
Yousef RAHIMI

16:40 – 17:00 **Genome-wide association studies on DNA pools identifies promising maize landraces and genomic regions to develop next generation varieties**
Stéphane NICOLAS

17:00 – 17:20 **Soil, climate and host genotype shape the seed transmissible microbiome structure in the fonio cereal**
Heribert HIRT

17:20 – 17:30 **Maud Tenailon**
Q&A

17:30 – 17:50 **FESPB Award for Best Young Scientist**
Adaptation and mitigation strategies for grapevine response to climate change based on its physiology
Nazareth Torres

Session 6: Chromosomes and chromatin dynamics

Room 76

Chair: **Mathilde Grelon**, IJPB, Versailles, France

16:00 – 16:20 **Chromatin dynamics during fertilization of a liverwort, *Marchantia polymorpha***

Tetsuya HISANAGA

16:20 – 16:40 **Identification of the first synaptonemal complex central element proteins in plants**

Marion PEUCH

16:40 – 17:00 **Horizontal gene transfer in *Hordeum* species**

Marek SZECOWKA

17:00 – 17:10 **Mathilde Grelon**

Q&A

17:10 – 17:30 **FESPB Award for Best Young Scientist**

Exploring the Genetic Variability of Bean Germplasm for Nutritional Benefits

Carla Sofia Santos

TUESDAY 4 JULY

- 09:00 – 09:45 Plenary – Amphitheater 900
Kirsten Bomblies, ETH Zürich, Switzerland
Getting organised – the (re)evolution of fertility after genome duplication
- 09:45 – 10:30 Plenary – Amphitheater 900
Karel Riha, CEITEC MU, Brno, Czech Republic
P-bodies and post-transcriptional gene regulation in plant reproduction and stress response
- 10:30 – 11:00 Coffee Break

11:00 – 12:30

Session 7: Plant responses to abiotic stresses (Session 1)
Amphitheater 900

Chairs: **Laurent Laplaze**, IRD, Montpellier, France

Abdelazziz Smouni, Université Mohamed V, Rabat, Maroc

11:00 – 11:20 **Improving tomato plant growth under salt and heat stress – rhizosphere-based solutions**

Bruno SOUSA

11:20 – 11:40 **Coupling chloroplast activity to environmental constraints: TOR set the brake on photosynthesis**

Stefano D'ALESSANDRO

11:40 – 12:00 **RabA-mediated plasma membrane trafficking increases plant tolerance to drought and heat**

Yehoram LSHEM

12:00 – 12:20 **New insights on magnesium deficiency-induced molecular alterations in Arabidopsis thaliana**

Armand D. ANOMAN

12:20 – 12:30 **Laurent Laplaze & Abdelazziz Smouni**
Q&A

Session 8: Plant reproduction: mechanisms and evolution
Room 120

Chair: **Susana Coelho**, MPI, Germany

11:00 – 11:20 **The F-box protein UFO controls flower development by redirecting the master transcription factor LEAFY to new cis-elements**

François PARCY

11:20 – 11:40 **Timely endosperm elimination in Arabidopsis requires a programmed cell death pathway regulated by NAC transcription factors**

Nicolas M. DOLL

11:40 – 12:00 **MAP Kinase signaling in cell polarity – a lesson from the plant tolerance to drought and heat**

Martin BAYER



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12:00 – 12:20 **Evolutionary interplay between polyploidy and self-incompatibility in plants: case studies from allo- and autotetraploid Brassicaceae lineages**
Xavier VEKEMANS

12:20 – 12:30 **Susana Coelho**
Q&A

Session 9: Genome editing and its use for plant breeding
Room 76

Chair: **Josep Casacuberta & Ivan Reyna-Llorens**, Spain

11:00 – 11:20 **Controlling transcription from within transcribed regions in plants**
Yoav VOICHEK

11:20 – 11:40 **An iterative gene editing strategy broadens eIF4E1 genetic diversity in Solanum Lycopersicum, triggering resistance to multiple potyvirus isolates**
Kyoka KUROIWA

11:40 – 12:00 **Predictable gene editing through Prime Editing in model plants and potential for crop breeding**
Fabien NOGUE

12:00 – 12:20 **CRISPR-based tool development to engineer plant genomes at the megabase scale**
Julia ARRAIZA RIBERA

12:20 – 12:30 **Josep Casacuberta & Ivan Reyna-Llorens**
Q&A

12:30 – 12:45 **Publishing with Molecular Plant and Plant Communications**
Symposium by Molecular Plant

12:30 – 13:30 Lunch



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- 13:30 – 14:15 Plenary – Amphitheater 900
Mark Aarts, University of Wageningen - WUR, Wageningen, Netherlands
Arabidopsis thaliana natural variation for photosynthesis: a model to guide improving crop photosynthesis?
- 14:15 – 15:00 Plenary – Amphitheater 900
Daide Bulgarelli, University of Dundee – JHI, United Kingdoms
Structure, function and host control of the rhizosphere microbiota
- 15:00 – 15:30 Coffee Break
- 15:30 – 17:00 Session 10: Plant responses to abiotic stresses (Session 2)
Amphitheater 900
Chairs: **Laurent Laplaze**, IRD, Montpellier, France
Abdelazziz Smouni, Université Mohamed V, Rabat, Maroc
- 15:30 – 15:50 **Physiological and molecular responses of the Greek Mustard (*Hirschfeldia incana* L.) to Pb stress**
Said EL HASNAOUI
- 15:50 – 16:10 **Characterization of a uranium-tolerant green microalga with high potential for the remediation of metal-polluted waters**
Camille BEAULIER
- 16:10 – 16:30 **Physiological drought responses of plane trees in an urban context and impact on isoprene emissions**
Juliette LEYMARIE
- 16:30 – 16:50 **Restricted O₂ consumption in pea roots induced by hexanoic acid is linked to depletion of Krebs cycle substrates**
Sara GARGIULO
- 16:50 – 17:00 **Laurent Laplaze & Abdelazziz Smouni**
Q&A

Session 11: Organellar biology

Room 120

Chair: **Ben Field**, BIAM, Marseille, France

- 15:30 – 15:50 **CRY1-to-GUN1 anterograde pathway promotes early PSII biogenesis**
Chaojun CUI
- 15:50 – 16:10 **Genetic inactivation of mitochondrial complexes I and IV in *Physcomitrium patens*: deciphering the role of respiration in plant bioenergetics and primary metabolism**
Antoni Mateu VERA VIVES
- 16:10 – 16:30 **Role of mitochondrial activities in the under-ground early development of *Aravidopsis* seedlings**
Livia MERENDINO-ISENI
- 16:30 – 16:50 **Cytonuclear interactions in auto- and allopolyploids of *Festuca-Lolium* complex**
Jana SZECOWKA
- 16:50 – 17:00 **Ben Field**
Q&A

Session 12: Comparative genomics

Room 76

Chair: **Bruno Contreras-Moreira**, CSIC Zaragoza, Spain

- 15:30 – 15:50 **The first pan-genome of a non-vascular plant broadens the understanding of land plants adaptation to their environment**
Chloé BEAULIEU
- 15:50 – 16:10 **Adapting CRISPR from *Physcomitrium patens* to sexually dimorphic moss, *Ceratodon purpureus***
Emilie-Katherine TAVERNIER
- 16:10 – 16:30 **The evolution of *Arabidopsis* centromeres**
Fernando RABANAL

- 16:30 – 16:50 **Divide and conquer: Evolutionary adaptations of the plant cytoskeleton during cell division**
Katharina BÜRSTENBINDER
- 16:50 – 17:00 **Bruno Contreras-Moreira**
Q&A
- 17:00 – 18:00 Poster Session A

WEDNESDAY 5 JULY

- 09:00 – 09:45 Plenary – Amphitheater 900
Aline Muyle, CEFE – CNRS Montpellier, FRANCE
Gene DNA methylation in plants: selective pressures and sex chromosome evolution
- 09:45 – 10:30 Plenary – Amphitheater 900
Bruno Contreras-Moreira, CSIC, Zaragoza, Spain
*Learning to build and interrogate the pangenome of *Brachypodium distachyon**
- 10:30 – 11:00 Coffee Break
- 11:00 – 12:30 Session 13: Plant adaptation to climate change
Amphitheater 900
Chairs: **Laura de Gara**, Italy
- 11:00 – 11:20 **Partial root drying of maize grown in a split-root system leads to local and systemic metabolic adjustments and hydraulic redistribution**
Monika WIMMER
- 11:20 – 11:40 **Two examples of genome-wide evolutionary responses of European forest trees to past climate changes**
Martin LASCOUX
- 11:40 – 12:00 **Exploring phenotypic space for mining genotypes and alleles in maize**
Jonas RODRIGUEZ



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12:00 – 12:20 **Impact of development-induced structural changes on drought responses of winter oilseed rape leaf – NMR relaxometry, water relations and multi-omics investigations**
Pierre-Nicolas BOULC'H

12:20 – 12:30 **Laura de Gara**
Q&A

Session 14: Epigenetic mechanisms and responses in plants
Room 120

Chair: **Leandro Quadrana**, France

11:00 – 11:20 **Uncovering the gene expression regulatory mechanisms underlying self-incompatibility dominance networks in Arabidopsis**
Rita A. BATISTA

11:20 – 11:40 **Global increase of the nuclear transcriptional regime during Arabidopsis photomorphogenesis: effects on gene expression**
Clara RICHET-BOURBOUSSE

11:40 – 12:00 **Deciphering the epigenetic and molecular logic of WOX5 function in the columella stem cell niche of Arabidopsis thaliana**
Ning ZHANG

12:00 – 12:20 **Mechanism of E3 ubiquitin ligase SIXERICO1/3 regulating high temperature resistance in tomato plants**
Kaixin WANG

12:20 – 12:30 **Leandro Quadrana**
Q&A

Session 15: Mechanics and stress responses
Room 76

Chair: **Benoit Landrein**, France

11:00 – 11:20 **Limited water stress modulates expression of circadian clock genes in Brachypodium distachyon**

roots and induces differential response of proline-metabolism related genes

Janos GYORGYEY

11:20 – 11:40 **Dynamics of the calcium signal elicited by mechanical stimulation of Arabidopsis root**

Sébastien THOMINE

11:40 – 12:00 **Multiscale modelling of cell adhesion and separation in plants**

Rawen BEN MALEK

12:00 – 12:20 **It's just a phase: Structural characterization of LLPS and its role in temperature sensing in plants**

Chloe ZUBIETA

12:20 – 12:30 **Benoit Landrein**

Q&A

12:30 – 13:30

Lunch

13:30 – 14:30

Poster Session B

14:30 – 15:30

Poster Session C

15:30 – 16:00

Coffee Break

16:00 – 17:30

Round table Plant Act

THURSDAY 6 JULY

09:00 – 09:45

Plenary – Amphitheater 900

Rosa Lozano-Duran, University of Tübingen – ZMBP, Tübingen, Germany

How to conquer a plant using just eight genes: learning from geminiviruses

09:45 – 10:30

Plenary – Amphitheater 900

Gwyneth Ingram, CNRS Lyon, FRANCE

Controlling communication during reproductive development: The genesis and roles of apoplastic barriers

10:30 – 11:00

Coffee Break



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11:00 – 12:30

Session 16: Plant Immunity

Amphitheater 900

Chair: **Rosa Loranzo-Duran**, Germany

11:00 – 11:20 **Investigating antiviral defenses protecting plant stem cells and germline**

Marco INCARBONE

11:20 – 11:40 **Gradual immune system maturation in the root affects plant microbe interaction**

Elhanan TZIPILEVICH

11:40 – 12:00 **Role of the plasma membrane signalling during plant virus propagation**

Sébastien MONGRAND

12:00 – 12:20 **Engineering danger sensing and signaling in plant immunity: use of oligosaccharins to enhance durum wheat resistance to fusariosis**

Valentina BIGINI

12:20 – 12:30 **Rosa Loranzo-Duran**

Q&A

Session 17: Photosynthesis: understanding and progress in its manipulation

Room 120

Chair: **Xenie Johnson**, CEA CNRS AMU, France

11:00 – 11:20 **From Algae to Sea Slugs: Functioning of Stolen Chloroplasts in Animal Cells**

Luca MORELLI

11:20 – 11:40 **Two vacuolar channels from the ALMT family regulate C4-organic acids metabolism**

Roxane DOIREAU

11:40 – 12:00 **From oxidative stress to antenna quenching: regulation of qH-energy dissipation in plants**

Aurélie CREPIN



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12:00 – 12:20 **Chloroplast redox status modulates leaf development via changes in proteasomal activity and endoreduplication index**
Arce ROCIO CECILIA

12:20 – 12:30 **Xenie Johnson**
Q&A

Session 18: The genetics of natural variation of plant- plant interactions
Room 76

Chair: **Fabrice Roux**, Montpellier, France, Christophe Robaglia, BIAM, Marseille, France

11:00 – 11:20 **Evolution of cooperation in post-green revolution durum wheat cultivars**
Michel COLOMBO

11:20 – 11:40 **Chromatin regulation of and by gene islands in plants**
Louis-Valentin METEIGNIER

11:40 – 12:00 **Identification of genes and metabolites controlling plant-plant interaction**
Sophie JASINKSI

12:00 – 12:20 **Molecular bases of plant-plant interactions: identification of the molecular pathways depending on ESC-1, a RLK involved in the competitive response in Arabidopsis thaliana**
Marie INVERNIZZI

12:20 – 12:30 **Fabrice Roux**
Q&A

12:30 – 13:00 Closing Plenary

the increasing concentration of the metals compared to the control group, as well as in the cell cycle phases, depending on the variations of the metals and concentration levels with a decrease in the distribution of the cells in the G1 phase and an increase in G2M. Our study shows that the maize plant can be used as a model to evaluate the effect of Ni, Cr and Pb, depending on their concentration in relation to the DNA content and cell cycle phases.

0145-B

ALTERATIONS IN SPECIALIZED METABOLITES' PROFILE OF DAUCUS CAROTA L. CALLI INDUCED BY LOW-TEMPERATURE PLASMA TREATMENT

Suzana ZIVKOVIC^{1*}; Milutinovic MILICA ¹; Danijela MISIC ¹; Nakarada DURA ²; Mojovic MILOS ²; Olivera JAVANOVIC ³; Nikola SKORO ³; Nevena PUAC ³

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Non-thermal plasma (NTP) technology offers a promising future in plant metabolic engineering, being energy efficient and Eco-friendly alternative to the conventional treatments [1]. Plasma environment is enriched with reactive oxygen and nitrogen species (RONS) that participate in various signaling pathways in plants by regulating their metabolic and developmental processes. In the present study calli of different carrot (*Daucus carota* L.) varieties was treated by using plasma needle device designed for biomedical applications [2]. Metabolite profiling revealed that plasma treatment could induce severe qualitative and quantitative changes of the major phenolic compounds detected in carrot calli. Current metabolic alteration was followed by the significant shift in the antioxidant capacity of the treated calli. Obtained results outline the potential application of plasma treatment as a novel elicitor for the production of bio-active compounds in plant in vitro culture systems.

0146-C

COLD STRESS TOLERANCE IN FLAX (LINUM USITATISSIMUM L.): CHARACTERIZATION AT THE PHYSIOLOGICAL, METABOLIC, TRANSCRIPTOMIC AND GENETIC LEVELS.

Henri DESAINT^{1*}; Adèle DE GIULI ¹; Hanine IDELBI ²; Klara CIK ¹; Jean-Xavier FONTAINE ¹; Roland MOLINE ¹; Emmanuel PETIT ¹; Solène BASSARD ¹; Romain ROULARD ¹; Damien HERFURTH ¹; Hervé DEMAILY ³; Stéphanie GUENIN ³; Laurent GUTIERREZ ³; David MATHIRON ⁴; Nicolas MONTRELAY ⁵; David GAGNEUL ¹; Christophe PINEAU ²; Gaëlle MONGELARD ³; Anthony QUERO ¹

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