Plant Apoplastic Diffusion Barrier 2022

Dalhousie Building,
Old Hawkhill, Dundee DD1 5EN

DAY 1: TUESDAY 13TH SEPTEMBER

8:30 Registration opens. *Poster presenters to hang posters*

9:15 Welcome: **Sarah McKim (University of Dundee)**

SESSION 1 – DEVELOPMENTAL EVENTS I
Chairs: Charles Hachez and Alice Berhin

09:20 Invited speaker: **Luis Lopez Molina (University of Geneva)**
Identification of a polarly localized oi1 barrier regulated by temperature and promoting dormancy in Arabidopsis seeds

09:50 **Joan Renard (ENS de Lyon)**
Seed apoplastic barriers ensure seed viability and seedling establishment

10:10 **Yiqun Gao (University of Nottingham)**
Dirigent protein complex regulates monolignol polymerization and deposition at Casparian strip

10:30 **David Molina (ZMBP - University of Tübingen)**
From Phellogen to Phellem, a tale of MYBs Transcription Factors

10:50 TEA

SESSION 2 – ABIOTIC/BIOTIC INTERACTIONS I
Chairs: Isabel Molina and Kiran Suresh

11:20 Invited speaker: **Ohkmae Kim Park (Korea University)**
Apoplastic lignin-based barrier spatially restricts invading pathogens and cell death in plant immunity

11:50 **Pedro M Barros (ITQB NOVA)**
The impact of drought on phellem development: assessing morpho-physiological adaptations and gene expression dynamics in cork oak stems

12:10 **Alvaro Luis Jimenez Jimenez (Center for Reasearch in Agricultural Genomics)**
Engineering structural defense responses in tomato for resistance against the bacterial wilt

12:30 LUNCH

SESSION 3 – STRUCTURE/METABOLISM I
Chairs: Ljerka Kunst and Chiara Campoli

14:00 Invited speaker: **Inês Barbosa (University of Lausanne)**
CASPs: MARVELous proteins shaping and sealing the Casparian Strip

14:30 **Concepcion Manzano (UC Davis)**
The role of SlEXO1 and SlEXO2 genes in controlling the exodermis lignification

14:50 **Glenn Philippe (Cornell University)**
Cutin polymerization and remodeling in tomato fruit through the coordinated action of enzymatically diverse GDSL-hydrolases

15:10 Invited speaker: **Teagen Quilichini (National Research Council Canada)** – virtual presentation
Between a cell and a hard shell: how the toughest PADiBa, the pollen wall, is made

15:40 TEA

SESSION 4 – EVOLUTION/ DIVERSITY I
Chairs: Siobhan Brady and Alex Canto-Pastor

16:10 Invited speaker: **Miranda Sinnott-Armstrong (Cambridge University – University of Colorado-Boulder)**
How plants modify their fruit epicarps to generate structural color

16:40 **Jian-Pu Han (University of Geneva)** – virtual presentation
Understanding the Significance of Adaptive Suberin Plasticity

Early Evening Reception at

Discovery Point

17:30

DAY 2: WEDNESDAY 14TH SEPTEMBER

SESSION 5– ABIOTIC/BIOTIC INTERACTIONS II
Chairs: Jocelyn Rose and Glenn Philippe

9:00 Invited speaker: **Mikio Nakazono (Nagoya University)** – virtual presentation
Genetic and physiological analyses of a barrier that restricts radial oxygen loss and prevents the entry of phytotoxins into the root

9:30 **Juan de la Cruz Jimenez (Nagoya University)**
The rice wax synthesis-related gene Leaf Gas Film-1 (LGF1) is involved in the formation of the radial oxygen loss barrier

9:50 **Carlos J. S. Moreira (ITQB-NOVA)**
Cutin depolymerisation generates oligomeric structures able to trigger plant immunity in Arabidopsis thaliana

10:10 TEA

SESSION 6 – SPECIAL SESSION
Chairs: Jens Tilsner and Zoe Barr

10:40 Invited speaker: **Yoselin Benitez-Alfonso (Leeds University)**
Cell walls at plasmodesmata and the regulation of intercellular transport

11:10 Invited speaker: **Tessa Burch-Smith (Donald Danforth Plant Science Center)**
Novel insights into the mechanism of secondary plasmodesmata formation for intercellular communication

11:40 **Oona Lessware (University of Bristol)**
How does the Nepenthes trap rim get its ridges? Common processes in a new combination create a complex hierarchical pattern

12:00 **Ruth Stark (CUNY - City College of New York)**
Potato/Potahto, Tomato/Tomahto: Biological Inspiration for the Design of Protective Barrier Materials

12:20 LUNCH

SESSION 7– EVOLUTION/DIVERSITY II
Chairs: Marie Barberon and Maria Capitão

14:00 Invited speaker: **Hugues Renault (IBMP - University of Strasbourg)**
A glimpse of plant adaptation to land through the biopolymer lens

14:30 Invited speaker: **Andrea Ramirez (Stanford University)**
A Comparative Study of Adaptive Stress Tolerance in the Brassicaceae Family

SESSION 8 – STRUCTURE/METABOLISM II
Chairs: Christiane Nawrath and Yifat Quan

15:00 Invited speaker**: Bénédicte Bakan (INRAE)**
Architecture of the cuticular biocomposite: challenges, news and prospects

15:30 **Alice Berhin (Uclouvain - Belgium)**
GPAT4, GPAT6, and GPAT8 are required for suberin deposition in roots of Arabidopsis seedlings with non-redundant functions to GPAT5 and GPAT7

15:50 **Jessica Sinka (University of Western Ontario)**
Metabolic flux analysis during wound-healing in potato tubers

16:10 – 18:10 TEA AND POSTER SESSION

Symposium Banquet at the

Malmaison Hotel

19:00

followed by a Scottish Ceilidh

DAY 3: THURSDAY 15TH SEPTEMBER

SESSION 9 – DEVELOPMENTAL EVENTS II
Chairs: Sarah McKim and Linsan Liu

9:00 **Christopher Grefen (Ruhr University Bochum)**
Lack of GDSL-motif containing proteins increases drought tolerance via modulation of the stomatal cuticle

9:20 **Trisha McAllister (University of Dundee)**
Identification of a key regulator controlling cuticular wax in barley

9:40 **Johann Petit (INRAE Bordeaux)**
The SlSHN2 transcription factor is essential for cuticle formation and epidermal patterning in tomato fruit

10:00 TEA

SESSION 10 – STRUCTURE/METABOLISM III
Chairs: Mark Bernards and Jessica Sinka

10:30 **Tonni Grube Andersen (Max Planck Institute for Plant Breeding Research)**
Walking the line - whole-plant effects of enhanced Casparian strip formation under natural conditions

10:50 **Olga Serra (University of Girona)**
The apoplastic barriers of potato roots: a tale of the suberin function in exodermis

11:10 **Nicolas Reynoud (INRAE-BIA)**
Architectural dynamics of the tomato cutin polymer matrix over fruit development

11:30 **Rochus Benni Franke (University of Bonn)**
Feeding a cross-linker – the metabolic control of suberin deposition

11:50 *Closing Remarks, EDI Statement, Survey*

12:00 LUNCH AND FAREWELL

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