



Transatlantic Summer School - Frontiers in Plant Sciences

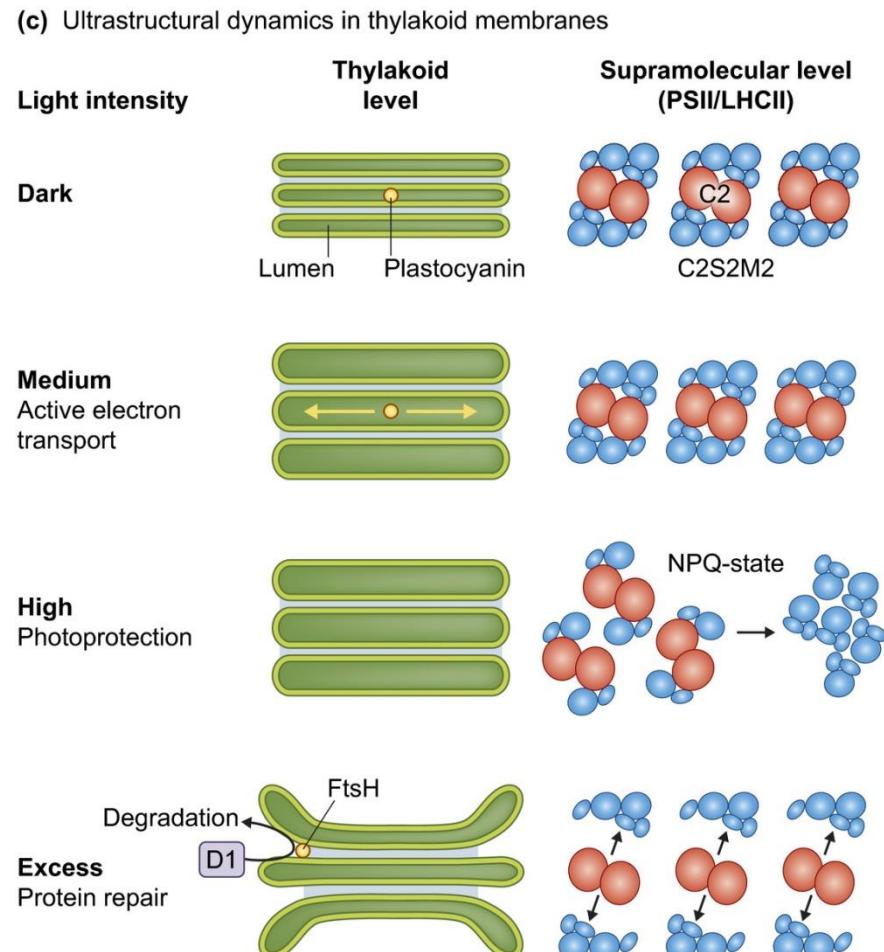
May 27 - 31, 2019
Maria in der Aue, Germany

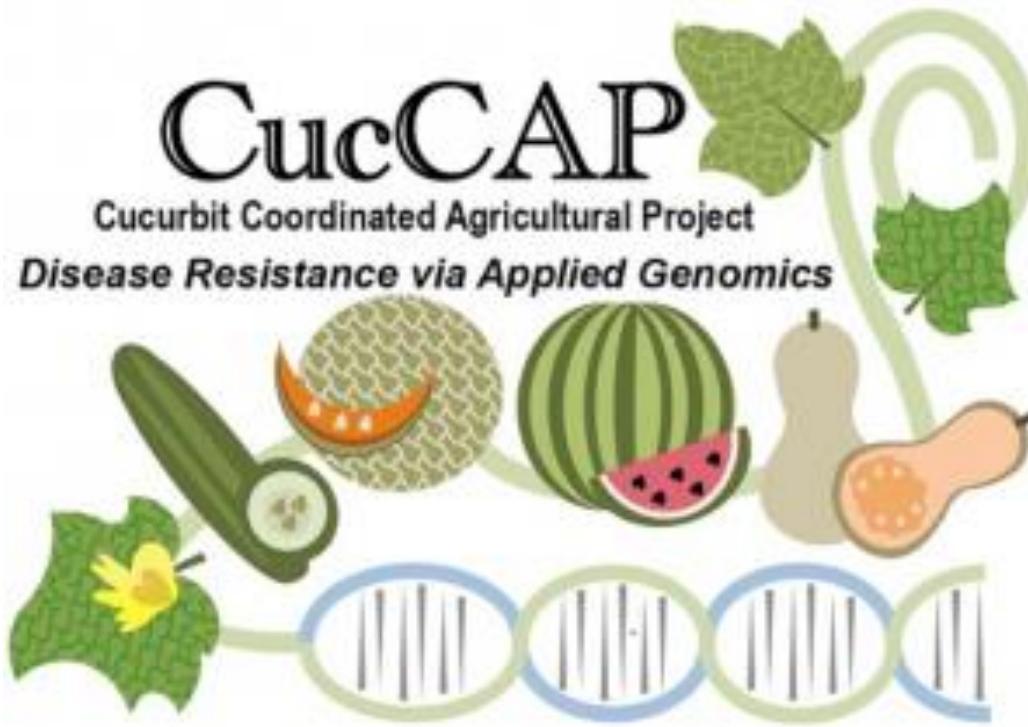
International CEPLAS Summer School 2019



Chloroplast biogenesis

- Associate Prof. Helmut Kirchhoff, Washington State Uni
- In light the grana are fatter (the lumen swells)
 - Space for PC and protein diffusion





- prof. Rebecca Grumet, Michigan State Uni
- <http://www.cucap.org>
- Cucurbit genomics, breeding and disease management
- Cucurbits originated in India/South Asia

From switches to synthetic pathway reconstruction

- Prof. Matias Zurbriggen, Heinrich Heine Uni
- AQUA cloning: It does not require any kits, enzymes or preparations of reagents and is the simplest assembly cloning protocol to date.
- Optogenetic switches
 - PhyB + NLS in mammalian cells

Thrips

- Pauline van Haperen,
Wageningen Uni
- Wild pepper is resistant
 - Blocks L1 -> L2
 - Younger leaves are more
resistant



Shortly

- Lipophilic compounds in phloem sap (PA) + lipid-binding proteins (PLAFPs)
- Germination of seeds (+GA) = degradation of DELLA and escape of TOC159 into plastid



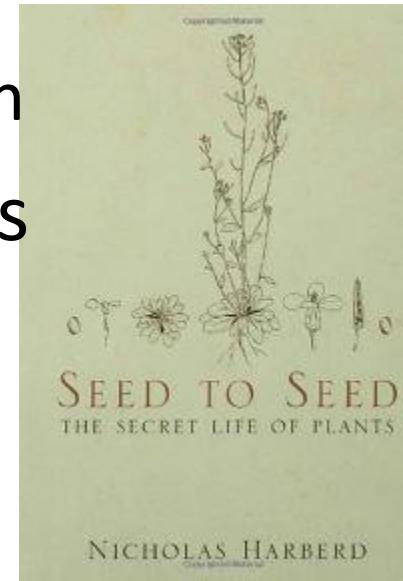
J. Konečný, Ozvěny vědeckých setkání
8.10.2019, PřF Uk

Gibberellins 2019

- Evolution of GA (metabolism) independent in bacteria and plants
- Deactivation of GA is relevant
 - Epoxidation, hydroxylation,
- $\text{GA}_3\text{-Fl}$ – fluorescent GA_3 with 60% activity
 - 9 mm / hour in root (also as auxins)
- Pause of DELLA signalling after stress by temporary (poly)SUMOylation
- <http://plantsinmotion.bio.indiana.edu>

Gibberellins 2019

- *gid1* triple mutant is tiny and immortal
- *WOX9* – feedback regulation of GA/CK
 - *WOX9* competence for other factors (TPL, DELLA, ARR..)
- 30 TF + GA -> salt tolerance
 - 43% interacts directly with DELLA protein
- SWEET uptake GA in absence of sugars
- Nicholas P. Harberd: Seed to Seed





EUSYNBIOS

symposium

Brno, sep30 - oct1 2019

J. Konečný, Ozvěny vědeckých setkání
8.10.2019, PřF UK

EUSynBioS

- Cancer cells
 - Microenvironment (miRNAs, cytokins..)
 - $\text{PIP}_2 \rightarrow \text{PIP}_3$ transition in B-cell proliferation
 - stoichiometry matters!
 - One (miR150) or two (miR34) binding sites in FOXP1
- Organoids – method of the year 2017
- miR183 cluster – in retina, light-regulated
- Unfolded protein response
- Pseudoexons + enhancer/silencer sequences

EUSynBioS

- Bacteriophage drills through CW
- Archea in human gut
- <http://ncbr.muni.cz/> - biomolecular research
- <https://biobricks.org/> - synthetic bio blocks
- <https://igem.org/> - world competition
- <https://www.mygreenlab.org/>
- <https://www.freezerchallenge.org/>