



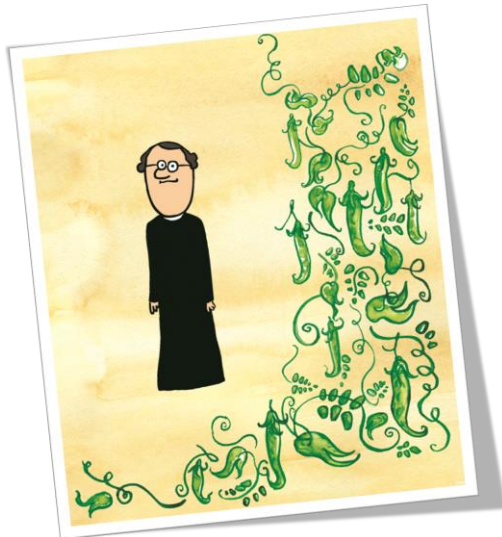
## 21<sup>st</sup> Annual Meeting of the Oomycete Molecular Genetics Network

### Program

# OMGN2022

## Oomycete biology, pathology and ecology

Faculty of Forestry and Wood Technology  
Mendel University in Brno, Czech Republic



**OMGN2022:**  
We walk on the footsteps of  
Gregor Johann Mendel...  
We pay him a tribute on his 200<sup>th</sup> birthday.

## Programme

### Day 1: Monday, 22<sup>nd</sup> August 2022

14:30 - 17:00 Registration (building Q).

15:00 - 17:00 Welcome reception (Arboretum).

### Day 2: Tuesday, 23<sup>rd</sup> August 2022

08:00 - 08:20 Poster hanging (building Q).

08:25 - 08:35 Opening: Vice-rector of Mendel University in Brno and Thomas Jung.

#### 08:35 - 09:50 Session 1 - Effectors, Virulence and Pathogenicity

Chair: Michael Seidl.

08:35 - 08:55 **1.1. Wenbo Ma:** "LWY tandem repeat in *Phytophthora* effectors enables elaborate mimicry of a host phosphatase".

08:55 - 09:10 **1.2. Enoch Yuen:** "Traffic control: A conserved *Phytophthora* effector hijacks a host RabGAP protein to inactivate a Rab GTPase that mediates defense-related secretion".

09:10 - 09:25 **1.3. Melanie Mendel:** "Stayin' alive: *In vivo* functional analysis of effectors in spinach".

09:25 - 09:40 **1.4. Edouard Evangelisti:** "A *Phytophthora* effector interferes with 14-3-3 phosphosensors".

09:50 - 10:20 Break.

#### 10:20 - 11:00 Keynote speaker I - **Andrea Sánchez Vallet:**

"Natural variation in an *Avr* gene generates a quantitative gene-for-gene phenotype."



## 11:00 - 12:00 Session 2 - Cell Biology, Signalling and Metabolism I

Chair: Susan Breen.

- 11:00 - 11:20 **2.1. Jochem Bronkhorst**: "An actin mechanostat ensures hyphal tip sharpness in *Phytophthora infestans* to achieve host penetration".
- 11:20 - 11:35 **2.2. Ayelen Tayaqui**: "Turgor regulation in encysted oomycete zoospores".
- 11:35 - 11:50 **2.3. Andrei Kiselev**: "Are proteases from the pathogen *Aphanomyces euteiches* important for legumes infection? Answers from multiomics studies".

**12:00 - 13:00 Lunch (staff canteen, building O).**

**13:00 - 15:30 Tour VILLA TUGENDHAT (includes coffee break).**

## 15:30 - 17:30 Session 3 - Host-pathogen Interaction and Resistance Mechanisms I

Chair: Edouard Evangelisti.

- 15:30 - 15:50 **3.1. Sophien Kamoun**: "Sensor NLR immune proteins activate oligomerization of their NRC helper".
- 15:50 - 16:05 **3.2. Amena Khatun**: "The plant defensin NaD1 inhibits growth of *Phytophthora* species by interfering with cell wall structure and calcium transport".
- 16:05 - 16:20 **3.3. Alexander Guyon**: "A broadly colonisation-responsive synaptotagmin interferes with infection by *Phytophthora palmivora*".
- 16:20 - 16:35 **3.4. Yacine Badis**: "Novel methods and oomycete models for a molecular understanding of Phycopathology".
- 16:35 - 16:50 **3.5. Bradley Dotson**: "Breeding for better biocontrol symbiosis of *Trichoderma* against *Aphanomyces*".

**17:30 - 18:30 Dinner.**

**18:30 - 20:30 Poster Session (with refreshment drinks).**





## Day 3: Wednesday, 24<sup>th</sup> August 2022

### 08:30 - 09:45 Session 4 - Cell Biology, Signalling and Metabolism II

Chair: Laurent Camborde.

- 08:30 - 08:50 **4.1. Maja Brus-Szkalej**: "*Phytophthora infestans* transglutaminases are necessary for the formation of a healthy cell wall and for successful infection".
- 08:50 - 09:05 **4.2. Graham Peers**: "Disruption of mitochondrial fatty acid oxidation reduces the infection efficacy of *Phytophthora sojae*".
- 09:05 - 09:20 **4.3. Carlotta Lupatelli**: "*Phytophthora* zoospores sensing and motion behaviour".
- 09:20 - 09:35 **4.4. Michiel Kasteel**: "*Phytophthora* zoospores display klinokinetic behaviour in response to a chemoattractant".

**09:45 - 10:15 Break.**

### 10:15 - 10:55 Keynote speaker II - Clive Brasier:

**"Progress in understanding breeding systems in the oomycetes"**

### 10:55 - 12:00 Session 5 - Host-pathogen Interaction and Resistance Mechanisms II

Chair: Martin Černý.

- 10:55 - 11:15 **5.1. Aurélien Boisson-Dernier and Celso Litholdo**: "Plant cell wall integrity mechanisms and oomycete susceptibility, an ancient story?"
- 11:15 - 11:30 **5.2. Xiao Lin**: "*Solanum americanum* genomes and effectoromics uncover new resistance genes against potato late blight".
- 11:30 - 11:45 **5.3. Philip Carella**: "Leveraging plant evolution to understand *Phytophthora* infection processes".

**12:00 - 13:00 Lunch (staff canteen, building O).**

### 13:00 - 14:20 Session 6 - Diversity, Taxonomy and Population Studies I

Chair: Bruno Scanu.

- 13:00 - 13:20 **6.1. Thomas Jung**: "*Phytophthora*: an ancient, historic, biologically and structurally cohesive and evolutionarily successful generic concept in need of preservation".
- 13:20 - 13:35 **6.2. Eleanor Gilroy**: "PenSeq of root rot *Phytophthora P. rubi* reveal intraspecies diversity".
- 13:35 - 13:50 **6.3. Cristiana Maia**: "Diversity and ecological roles of *Halophytophthora/Phytophthora* species in marine and estuarine ecosystems at the Algarve coast of Portugal".
- 13:50 - 14:05 **6.4. David Cooke**: "Insights from probing Oomycete diversity at different taxonomic scales".
- 14:05 - 14:20 **6.5. Jenifer Sundar**: "Population genetic analysis of AVR2 in Chinese populations of *Phytophthora infestans*".

**14:30 - 14:55 Break and group photo.**

**15:00 - 18:00 Visit to Mendel Museum (departure at 15.00 from MendelU).**

**18:00 - 22:00 Conference dinner in the Augustinian Abbey.**





## Day 4: Thursday, 25<sup>th</sup> August 2022

### 08:30 - 09:05 Session 7 - Diversity, Taxonomy and Population Studies II

Chair: Tamara Corcobado.

08:30 - 08:50 **7.1. Gautam Shirsekar:** "Entangled co-evolutionary history of *Hyaloperonospora arabidopsidis* and its host *Arabidopsis thaliana*".

08:50 - 09:05 **7.2. Vanessa Tremblay:** "The evolution of *Phytophthora sojae* pathotypes in Quebec indicates a rapid decline of *Rps* efficiency in soybean".

### 09:05 - 09:55 Session 8 - Oomycete Genetics and Genomics

Chair: Maja Brus-Szkalej.

09:05 - 09:25 **8.1. Mahmut Tör:** "Fundamental and translational research on downy mildews: reverse genetics, pathogenomics and biologics".

09:25 - 09:40 **8.2. Petros Skiadas:** "Gapless genome assemblies reveal the effector repertoire of the sexually evolving spinach downy mildew".

09:40 - 09:55 **8.3. Kyle Fletcher:** "Using near-complete genome assemblies to uncover new insights of oomycete biology".

### 10:05 - 10:35 Break.

### 10:35 - 11:55 Session 9 - Ecology, Metagenomics and Microbial Interactions

Chair: David Hoey.

10:35 - 10:55 **9.1. Claire Gachon:** "Weathering a wave of novel marine oomycetes of ecological and economic relevance".

10:55 - 11:10 **9.2. Dora Pavić:** "Physico-chemical properties of natural waters that affect the sporulation of freshwater pathogenic oomycetes *Saprolegnia parasitica* and *Aphanomyces astaci*".

11:10 - 11:25 **9.3. Leticia Botella:** "*Phytophthora* and *Halophytophthora* spp. are the hosts of multiple viral infections".

11:25 - 11:40 **9.4. Carren Burkey:** "Investigating the molecular basis of pathogenicity by a *Pseudomonas fluorescens* isolate on oomycetes".

### 11:50 - 13:00 Lunch (staff canteen, building O).

### 13:00 - 14:30 Session 10 - Host-pathogen Interaction and Resistance Mechanisms III

Chair: Yacine Badis.

13:00 - 13:20 **10.1. Tolga Bozkurt:** "Reprogramming of defense-related trafficking in plants during oomycete infection".

13:20 - 13:35 **10.2. Maryam Hashemi:** "*Pythium oligandrum*: A biocontrol agent with growth promotion and disease resistance properties which does not inhibit mutualistic interactions in legumes".

13:35 - 13:50 **10.3. Robert Heal:** "Dissecting components of *Solanum americanum* non-host resistance to *Phytophthora infestans*".

13:50 - 14:05 **10.4. Daniel Monino-Lopez:** "*Rpi-agf1*, a novel broad-spectrum *R* gene against *P. infestans*, reveals the importance of multivesicular bodies during infection".



14:05 - 14:20 **10.5. Martin Pettersson**: "*Phytophthora* detected in plants imported to Norway".

14:30 - 14:45 **Closing remarks and farewell!!!**

14:45 - 16:00 **Open space for informal conversations and group meetings.**

**Discussion on open science, future research and funding opportunities.**

**Poster removal.**

## Posters



## Topic 1: Cell Biology, Signalling and Metabolism

### Poster 1.1.

Susan Breen: The search for markers of oomycete EVs.

## Topic 2: Diversity, Taxonomy and Population studies

### Poster 2.1

Alicia A. Farmer: Characterising the UK population of *Bremia lactucae*, the cause of lettuce downy mildew.

### Poster 2.2

Ivan Milenković: Decline of *Juglans regia* caused by *Phytophthora* species in Serbia.

### Poster 2.3

Rosita Silvana Fratini: Molecular approaches to detect *Phytophthora infestans* from different varieties of potato seedlings artificially inoculated.

### Poster 2.4

Alessandra Benigno: Six new *Phytophthora* Clade 9 species from South-East Asian forests.

### Poster 2.5

Tomáš Májek: A survey in natural ecosystems of Louisiana revealed a high diversity of previously known and new *Phytophthora* taxa.



## Topic 3: Ecology, Metagenomics and Microbial Interactions

### Poster 3.1

Martin Pettersson: Garden waste - a pathway for *Phytophthora* from urban areas to natural environments.

### Poster 3.2

Milica Raco: High diversity of novel viruses of *Phytophthora* Clade 5 species *P. castaneae* and *P. heveae* from Asia.

### Poster 3.3

David J. Hoey: Natural variation in oomycete infection of *Marchantia polymorpha*.

### Poster 3.4

Christian B. Andersen: The microbial BCA *Pythium oligandrum* induces growth promotion in potatoes and causes dynamic changes to the rhizosphere microbiome.

## Topic 4: Effectors, Virulence and Pathogenicity

### Poster 4.1

Renuka Kolli: A *Phytophthora* effector targets actin-mediated plastid movement in the host.

### Poster 4.2

Laurent Camborde: *Aphanomyces euteiches* Crinkler effector interferes with RNA silencing.

### Poster 4.3

Rajender Kumar: Comparative sequences, structural and functional insights of Pectinesterase - *Phytophthora infestans*.

### Poster 4.4

Richard Bélanger: Defining genomic signatures of *Phytophthora sojae* effectors to better exploit soybean genetic resistance.

### Poster 4.5

Siel Goethals: Identification of *Phytophthora* effectors targeting intracellular organelles in plants.

### Poster 4.6

Yufei Li: Understanding the evolution of LWY effector repertoire in *Phytophthora*.

## Topic 5: Host-pathogen interaction and resistance mechanisms

### Poster 5.1

Veronika Berková: Biocontrol and growth inhibition of plant pathogen *Phytophthora cactorum*.

### Poster 5.2

Tamara Corcobado: Effects of a future climate change scenario on three European temperate tree species infested with soilborne *Phytophthora* species.

### Poster 5.3

Valentina Rossi: Gene regulatory networks in sugar beet defense responses to *Aphanomyces cochlioides*.



### Poster 5.4

Bruno Scanu: LIFE-FAGESOS - *Phytophthora*-induced decline of Fagaceae ecosystems in Southern Europe exacerbated by climate change: preserving ecosystem services through improved integrated pest management.

### Poster 5.5

Murilo Sandroni: *Phytophthora infestans* pathogenicity and the efficiency of plant resistance inducers under elevated CO<sub>2</sub>.

### Poster 5.6

Martin Černý: *Phytophthora* resistance mechanisms in diverse plant species.

### Poster 5.7

Yasin Tumtas: Reprogramming of defence-related selective autophagy through surface immune activation during *P. infestans* infection.

### Poster 5.8

Iñigo Bañales: The cell surface barrier of defense against *Bremia lactucae* in lettuce.

## Topic 6: Oomycete Genetics and Genomics

### Poster 6.1

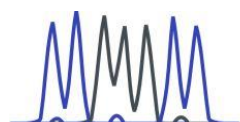
Temitayo Alawiye: New Insights into mycoparasitism in oomycete-oomycete interactions revealed through comparative genomics and transcriptomics.

### Poster 6.2

Deniz Göz: Targeting a tubulin gene in different downy mildews using small RNA inhibits spore germination.



External partners of the OMGN2022 meeting



GenSeq s.r.o.

