



European Plant Science Organisation  
<https://epsoweb.org>

## **Programme**

# **Gene editing in plant resistance against pathogens and pests**

2<sup>nd</sup> Workshop of the Plant Health Working Group  
online, 15 October 2024, 13.00 – 17.30 CET

---

*Brussels, 2.10.2024*

### **Scope of the workshop**

All the technologies leading to pest control should be safe for human health, have reduced or no impact /risk on the environment and must be efficient and economically sustainable. Agronomic practices should be revisited to identify how they could better contribute to crop protection avoiding deleterious effects on the plants and the environment, improving sustainability and food security.

In this context, the EPSO 'Plant Health' Working Group aims to discuss the contribution of gene editing to improve disease and pest resistance and provide solutions for sustainable agricultural production and reduction of pesticide use. This online workshop will discuss current success stories and future directions of gene editing for sustainable crop protection. The workshop will also include a brief update on the state-of-the-art of the new breeding technologies (NBT) legislation initiative and a general scientific discussion on the advances and challenges ahead.

Please find the programme on the next page.

### **Registration by 9<sup>th</sup> October 2024**

Confirm your participation by sending an email with your registration (name, institution, research field) to: Maria J. Pozo [mariajose.pozo@eez.csic.es](mailto:mariajose.pozo@eez.csic.es)  
Andreas Voloudakis [avoloud@aua.gr](mailto:avoloud@aua.gr).

We look forward to your contributions on gene editing and plant resistance.

### **The organisers**

Maria J. Pozo, Andreas Voloudakis, Mariana Schuster and Beat Keller

## Programme

**13:00**            **Welcome** by Maria J. Pozo, Andreas Voloudakis, Mariana Schuster, Beat Keller and Karin Metzloff

### **Session 1: Gene editing technologies towards plant resistance against pathogens and pests** moderated by Mariana Schuster

15 min presentations & 3 min discussion each

**13:05**            **Jose-Antonio Daros (UPV Valencia, ES)**  
Virus-based tools to facilitate CRISPR-Cas genome engineering in plants

**13:25**            **Eleni Koseoglou (WUR, NL)**  
Susceptibility reversed: modified plant susceptibility genes for resistance to pathogens

**13:45**            **Frank Takken (Univ Amsterdam, NL)**  
CRISPR/Cas targeted gene editing goes viral

**14:05**            **Alain Tissier (IPB Halle, DE)**  
Application of the Cas-Exo technology for allele replacement of disease resistance genes

**14:25**            **General discussion**

**14:45**            **Break**

### **Session 2: Gene editing applications in plant resistance against pathogens and pests** moderated by Andreas Voloudakis

15 min presentations & 3 min discussion each

**15:00**            **Caixa Gao (CAAS, Beijing, China)**  
Engineering of plant immune proteases for crop protection

**15:20**            **Ping Yang (CAAS, China)**  
Editing of host susceptibility factor genes increased wheat yellow mosaic virus resistance without yield penalty

**15:40**            **Mariana Schuster (IPB Halle, DE)**  
Engineering of plant immune proteases for crop protection

**16:00**            **Gisela Quaglia (European Commission, DG AGRI)**  
Update from the EC - Work programmes, strategy, upcoming activities

**16:20**            **Kristina Grunden (NIB, SL)**  
miR160 regulates peroxidase expression in HR resistance response, and links salicylic acid, auxin, and ROS signaling pathways

**16:40**            **Jochen Kumlehn (IPK Gatersleben, DE)**  
Improving barley resistance to bymoviruses by editing susceptibility genes

**17:00**            **General discussion**

**17:20 – 17:30** **Closing** by Maria J. Pozo, Andreas Voloudakis, Mariana Schuster, Beat Keller and Karin Metzloff

## Participants

### Members:

Matthieu CHABANNES, CIRAD, FR  
Jose-Antonio Daros, UPV Valencia, ES  
Véronique DECROOCQ, INRAE, FR  
Abdelhameed Elameen, NIBIO, NO  
Magali Eychenne, INRAE, FR  
Kristina Grunden, NIB, SL  
Selvaraju Kanagarajan, SLU, SE  
Beat Keller, Uni Zurich, CH  
Eleni Koseoglou, WUR, NL  
Jochen Kumlehn, IPK Gatersleben, DE  
Javier Lidoy Logroño, EEZ CSIC, ES  
Ninon Magliaraschi, INRAE, FR  
Pere Mestre, INRAE, FR  
Karin Metzloff, EPSO, BE  
Mohammed Omer Mustafa Mohammed, MATE, HU  
Julie PETIT-BRIAND, CIRAD, FR  
Nam Kieu Phuong, SLU, SE  
Maruša Pompe-Novak, NIB, SV  
Maria J. Pozo, CSIC, ES  
Joerg Romeis, Agroscope, CH  
Mariana Schuster, IPB Halle, DE  
Astrid Sneyers, EPSO, BE  
Merike Sõmera, Tallinn Univ Technol, EE  
Rebeka Strah, NIB, SV  
Frank Takken, Univ Amsterdam, NL  
Alain Tissier, IPB Halle, DE  
Ian Toth, Hutton, UK  
Andreas Voloudakis, AUA, GR

### Guests:

Caixa Gao, CAAS, Beijing, China  
Gisela Quaglia, European Commission DG AGRI, BE  
Ping Yang, CAAS, China

### Observers:

Cristina Azevedo, InnovPlantProtect, Elvas, PT  
Ullrich Dubiella, KWS, DE  
Claudius Maroneddze, Euroseeds, BE

### Links:

- EPSO Plant Health Working Group <https://epsoweb.org/working-groups/plant-health/>
- EPSO: [Healthy Plants for a sustainable production](#) – statement by the EPSO ‘Plant Health’ Working Group, 11.7.2023

### About EPSO

EPSO, the European Plant Science Organisation, is an independent academic organisation that represents around 200 research institutes, departments and universities from 31 countries, mainly from Europe. EPSO’s mission is to improve the impact and visibility of plant science in Europe. <https://epsoweb.org> | EU Transparency Register Number 38511867304-09