14th ICPPB ASSISI2022

A.D. 1308 unipg
UNIVERSITÀ DEGLI STUDI DI PERUGIA

Regione Umbria
Giunta Regionale

BOOK OF ABSTRACTS

14th International Conference on Plant Pathogenic Bacteria
"The Impact of Plant Pathogenic Bacteria on Global Plant Health"
Assisi, Italy, 3-8 July, 2022

14TH INTERNATIONAL CONFERENCE ON PLANT PATHOGENIC BACTERIA
Conference program (Opening lecture, Keynote talks, Oral presentations, Poster presentation)

OPENING **Co-Chairs: Iacobellis Nicola Sante and Buonaurio Roberto**	
8.30-9.10	Opening ceremony Memorial of **Nicola Sante Iacobellis** (Italian Working Group in Phytobacteriology)
9.10-9.40	*Opening lecture* OL1. **He Sheng-Yang** Department of Biology-Duke University, Durham, North Carolina (USA) Climate impact on plant-bacterial interactions

Session 1A. Molecular Plant - Bacteria (and Insect) Interactions **Chairs**: **Sundin George, Ichinose Yuki**	
9.40-9.45	Memorial of **Alan Vivian** and **James R. Alfano** (Robert Jackson)
Keynote talk 9.45-10.10	S1A-KN1. **Sundin George** Strategic spatio-temporal control of transitions in pathogenesis are dependent on cyclic-di-GMP and small RNAs
Oral presentation 10.10-10.25	S1A-O1. Tumewu S.A., Watanabe Y., Matsui H., Yamamoto M., Noutoshi Y., Toyoda K., **Ichinose Yuki** Identification of chemoreceptor proteins for amino acids involved in host tobacco infection in *Pseudomonas syringae* pv. tabaci 6605
10.25-10.55	Coffee break

Session 1A. Molecular Plant - Bacteria (and Insect) Interactions
Chairs: **Sundin George, Ichinose Yuki**

Oral presentations

10.55-11.10	S1A-O2. **Waleron Małgorzata**, Jonca J., Jasiecki J., Czaplewska P., Bogucka A., Rychłowski M., Dziomba S., Steć A., Waleron K. Extracellular vesicles of *Pectobacterium* as vehicles for virulence factors
11.10-11.25	S1A-O3. Zárate-Chaves C.A., Audran C., Medina C., Escalone A., Javegny S., Gagnevin L., Thomas E., Pimparé L.L., López C., Jacobs J.M., Noël L.D., Koebnik R., Bernal A., **Szurek Boris** Functional analysis of gene families in plant pathogenic bacteria through CRISPRi
11.25-11.40	S1A-O4. Rodriguez-Puerto C., Chu C., **Rojas Clemencia M.** The *Pseudomonas syringae* type III Effector HopG1 interferes with cellular trafficking of the plant immunity protein AtNHR2B
11.40-11.55	S1A-O5. **Brual Typhaine**, Condemine G., Gueguen E. Regulation of the virulence of pectinolytic bacteria by RsmC protein
11.55-12.10	S1A-O6. **López-Pagán Nieves**, Sánchez-Romero M.A., Rufián J.S., Govantes F., Ruiz-Albert J., Beuzón C.R. *Pseudomonas syringae* flagella display phenotypic heterogeneity

Poster presentations

12.10-12.12	S1A-P1. **Arroyo-Mateo A.**, Leal-López J., Caballo-Ponce E., Ramos C. WhpR, an orphan transcriptional regulator of virulence in the pathogen of woody hosts *Pseudomonas savastanoi* pv. savastanoi
12.12-12.14	S1A-P2. Liu L., Rascle C., Goncalves I., Poussereau N., Rodrigue A., Le Derout B., **Condemine Guy** Identification of new *Dickeya dadantii* virulence factors secreted by the type 2 secretion system
12.14-12.16	S1A-P3. **Calia Giulia**, Moser M., Micheletti D., Donati C., Schuler H. Cestaro A. Effector Hunter: a machine learning approach to phytoplasmas protein classification
12.16-12.18	S1A-P4. **Dimaria Giulio**, Anzalone A., Bertani I., Licciardello G., Paradiso G., Nicotra D., Lo Cicero L., Venturi V., Catara V. SolR, a LuxR-family solo, modulates cyclic lipopeptide production in *Pseudomonas corrugata*
12.18-12.20	S1A-P5. **Domínguez-Cerván Hilario**, Pintado A., Soon G. L., Ramos C. The *iaaL* gene in the *Pseudomonas syringae* complex: functional characterization and biological activity
12.20-12.22	S1A-P6. Nowak D., Zembek P., **Krzymowska Magda** Novel aspects of virulence mechanisms of HopBF1, a bacterial effector that targets host HSP90 protein
12.22-12.24	S1A-P7. **Lavado-Benito Carla**, Martínez-Gil M., Murillo J.; Ramos C.; Rodríguez-M.L. Characterization of the GacS/GacA system in the virulence regulation of *Pseudomonas savastanoi*
12.24-12.26	S1A-P8. Arce-Leal A., Bautista R., Rodríguez-Negrete E.A., Manzanilla-Ramírez M.A., Velázquez-Monreal J.J., Santos-Cervantes M.E., Méndez-Lozano J., Bejarano E.R., Castillo A.G., Gonzalo-Claros M., **Leyva-López Norma Elena** Gene expression changes in pre-symptomatic and symptomatic Mexican lime plants infected with *Candidatus* Liberibacter asiaticus
12.26-12.28	S1A-P9. **Pastacaldi Chiara**, Gaudioso D., Tegli S. A new chapter in the old story of indolacetic acid production and transport by *Pseudomonas savastanoi*
12.28-12.30	S1A-P10. **Zacharia Iosif**, Sheikh A., Ntoukakis V. Dynamic changes of the Prf/Pto tomato resistance complex following effector recognition.
12.30-12.32	S1A-P11. **Hulin Michelle T**., Ma W. Pangenomics facilitated with structural analysis reveals host NAD manipulation as a major virulence activity of bacterial effectors
12.32-14.00	Lunch break and Poster session

Session 2A. New Tools in Disease Diagnostics and Pathogen Identification	
Chairs: Konstantinidis Kostas, Fischer-Le Saux Marion	
14.00-14.02	Memorial of **David Stead**
Keynote talk	
14.02-14.27	S2A-KN1. **Konstantinidis Kostas** Metagenome-based identification of the causative agent of (diarrheal) disease
Oral presentations	
14.27-14.42	S2A-O1. Lira F., Hunault G., Briand M., Portier P., Landès C., **Fischer-Le Saux Marion** Highlighting genomic marker sets to predict plant pathogenicity of bacteria
14.42-14.57	S2A-O2. Dia N.C., Cottyn B., Blom J., Smits T.H.M.**, Pothier Joël F.** Comparative genomics, refined taxonomy, and genome-informed diagnostics for differentiation of the *Xanthomonas hortorum- Xanthomonas hydrangeae* species complex
14.57-15.12	S2A-O3. **Wagner Naama**, Avram O., Gold-Binshtok D., Zerah B., Teper D.,Pupko T. Effectidor: an automated machine-learning based web server for the prediction of type-III secretion system effectors
15.12-15.27	S2A-O4. **Motyka-Pomagruk Agata**, Sledz W., Kaczynska N., Babinska W., Ossowska K., Kowalczyk A., Szulta S., Kaczynski Z., Lojkowska E. Elucidation of the chemical structures of the O-specific polysaccharides within the lipopolysaccharides of diverse soft rot *Pectobacteriaceae*
Poster presentations	
15.27-15.29	S2A-P1. **Alič Špela**, Dermastia M., Dreo T. Genome-informed design of molecular tests for specific detection of bacterial pathogens for non-bioinformaticians using free web-based programs
15.29-15.31	S2A-P2. **Amashukeli Nanuli**, Gaganidze D., Aznarashvili M., Kharadze S., Sturua N., Rezzonico F., Sadunishvili T. Cultural, physiological, and biochemical identification of *Erwinia amylovora* isolates from the fire blight diseased fruit trees in Georgia
15.31-15.33	S2A-P3. **Dia Nay C**., Cottyn B., Aspin A., Studer B., Smits T.H.M., Pothier J.F. Bacterial leaf spot of *Hydrangea*: on a "new old" disease and the importance of getting it right in phytodiagnostics
15.33-15.35	S2A-P4. **Gaganidze Dali**, Carnal S., Amashukeli N., Rezzonico F., Sadunishvili T. Genetic diversity of *Erwinia amylovora* isolates from fire blight diseased apple, pear and quince trees in Georgia
15.35-15.37	S2A-P5. **Motyka-Pomagruk Agata**, Kaczorowska A., Wojciech S., Lojkowska E. Application of MALDI-TOF MS technology for fast and accurate identification of phytopathogenic bacteria from different species of *Pectobacteriaceae*
15.37-15.39	S2A-P6. **Prakoso Ady Bayu**, Joko T., Soffan A., Sari J.P., Ray J.D., Drenth A., Subandiyah S. Whole genome sequence of *Ralstonia syzygii* subsp. *celebesensis* isolate UGMSS_Db01 from Indonesia; the origin of blood disease of banana
15.39-15.41	S2A-P7. **Román-Écija Miguel**, Olivares-García C., Rivas J.C., Velasco-Amo P., Landa B.B., Navas-Cortés J.A Tools for early detection of *Xylella fastidiosa* in almond and olive trees by proximal sensing
15.41-15.43	S2A-P8. **van de Bilt Jeroen**, Bergsma-Vlami M.M., de Vos Paul P., Cottyn Bart B. The EPPO.Q-Bank Database for accurate identification of regulated phytopathogenic bacteria
15.43-15.45	S2A-P9. **Wendland Adriane**, Teixeira N.C., Quezado-Duval A.M. Simultaneous detection of the *Xanthomonas* species complex associated with tomato bacterial spot using a rapid LAMP assay designed with comparative genomics
15.45-15.47	S2A-P10. **Gaudioso Dario**, Calamai L., Chiara P., Agati G., Cavigli L., Tegli S. Volatile fingerprinting and photoacoustic sensing for innovative and no destructive detection of the quarantine plant pathogen *Curtobacterium flaccumfaciens* pv. flaccumfaciens
15.47-16.15	Coffee break

Special session A. Nanotechnology in the Disease Control

Chairs: Balestra Giorgio M., Paret Mathews L.

Keynote talk

16.15-16.40 SSA-KN1. **Balestra Giorgio Mariano**
The power of nanotechnology for sustainable food and plant protection.

Oral presentations

16.40-16.55 SSA-O1. **Paret Mathews L.**, Jones J.B., Carvalho R.B., Parajuli A., Choudhary M., Bushong K., Liao Ying-Yu, Duman K., Strayer-Scherer A., Timilsina S., Hong J., Vallad G., Freeman J.H., Da Silva S., Santra S., Keller A.
Advanced nanomaterials for managing bacterial pathogens affecting vegetable crops and tools for understanding mechanism of action

16.55-17.10 SSA-O2. **Dini Luciana**, Cognignini F., Ciccarella G., Balestra G.M., Tacconi S.
Advanced ultrastructural approaches for the monitoring of nanophytodrugs in plant disease

17.10-17.25 SSA-O3. Naranjo E., Shantharaj D., Merfa M.V., Santra S., **De La Fuente Leonardo**
Mechanism of action of a zinc-based nanoparticle with activity against vascular plant pathogenic bacteria

17.25-17.40 SSA-O4. Young M., Ozcan, Rajasekaran P., Strayer A., Liao Y.Y., Myers M.E., Johnson E., Graham J.H., Jones J.B., Paret M.L., Shantharaj D., De La Fuente L., **Santra Swadeshmukul**
Advanced copper and Cu alternatives for crop protection

17.40-17.55 SSA-O5. **Pereira Jorge**, Smith S., Huang Z., Holderness A., Strayer A., Liao Y.Y., Myers M.E., Johnson E., Graham J.H., Jones J.B., Paret M.L., Santra S.
Nano-Magnesium as an alternative to copper biocide for crop protection

17.55- Poster reviewing

Session 3A. Disease Epidemiology and Pathogen Ecology	
Chairs: Morris Cindy, Rainey Paul B.	
8.30-8.32	Memorial of **Philippe Prior** (Morris Cindy/Cellier Gilles)
Keynote talk	
8.32-8.57	S3A-KN1. **Morris Cindy E.**, Berge O., Lacroix C., Geniaux G., Eddine A.S., Choufany M., Martinetti D., Soubeyrand S. Pervasive reservoirs, long distance aerial spread, variable host range: integrating the challenges of anticipating disease caused by *Pseudomonas syringae*
Oral presentations	
8.57-9.12	S3A-O1. Colombi E., Straub C., Bertels F., Doulicer G., Fortmann-Grote C., McConnell E., Rogers D., McCann H.C.,¶, **Rainey Paul B.** Unravelling contributions of transposon Tn6212 to ecological success of *Pseudomonas syringae* pv. actinidiae (Psa)
9.12-9.27	S3A-O2. **Cellier Gilles**, Nordey T., Cortada-Gonzales, Gauche M., Rasoamanana H., Yahiaoui N., Rébert E., Prior P., Chéron J.J., Guerin F., Poussier S., Pruvost O. Molecular epidemiology of *Ralstonia pseudosolanacearum* Phylotype I strains in the South West Indian Ocean region and their relatedness to African strains
9.27-9.42	S3A-O3. Veeramuthu D., Orgad A., Rotem A., Schulz S., **Helman Yael** Interspecies microbial interactions can intensify disease severity caused by plant-pathogenic bacteria
9.42-9.57	S3A-O4. **Eisfeld Carina**, van der Wolf J.M., van Breukelen B.M., Medema G., Schijven J.F. Removal of plant pathogenic bacteria during managed aquifer recharge and associated risks of recycling irrigation water
Poster presentations	
9.57-9.59	S3A-P1. **Al-Sadi Abdullah**, Al-Subhi A.M., Al-Yahyai R.A. A decade of research on witches' broom disease of acid lime (*Citrus aurantifolia* L.): research findings and future prospects
9.59-10.01	S3A-P2. **Atiq Muhammad**, Fatima K., Rajput N.A., Sahi S.T., Hameed A., Ahmad U., Sultan A., Usman M., Iqbal S., Nawaz A. Bioefficay of desert phytopowder against asiatic citrus canker caused by *Xanthomonas citri* subsp. *citri*
10.01-10.03	S3A-P3. **Caullireau Emma**, Danzi D., Morris C.E., Vandelle E. Temperature plays a decisive role in the ability of *Pseudomonas syringae* strains carrying a recognized avirulence gene to induce a hypersensitive response in *Arabidopsis thaliana*
10.03-10.05	S3A-P4. **Cole Jennifer**, Bryning A., Bryce S., Tomlinson J., Jones E., Kaur S., Van der Linde S., Dickinson, M., Lloyd A.S., Walshaw J., McGreig S., Haynes E., Ostoja-Starzewska S., Fraser K., McCluskey A., Aspin, A., Vicente J.G., Elphinstone J.G. Enhancing the UK diagnostic capabilities for *Xylella fastidiosa*
10.05-10.07	S3A-P5. **Contaldo Nicoletta**, Satta E., Migoni D., Feduzi G., Girelli C.R., Del Coco L., Scortichini M., Fanizzi F.P., Bertaccini A. Identification of phytoplasmas in olive trees infected with *Xylella fastidiosa* in Salento (Italy)
10.07-10.09	S3A-P6. **Cotte-Pattat Nicole**, Briolay J., Van Gijsegem F. Exploring the diversity within the genus *Dickeya*, new genus and species
10.09-10.11	S3A-P7. Motyka-Pomagruk A., Zoledowska S., Kaczynska N., Ossowska K., Kowalczyk A., Kaczynski Z., Sledz W., **Lojkowska Ewa** Comparison of the phenotypic and genomic features of plant pathogenic bacteria from the species *Dickeya solani* and *Pectobacterium parmentieri*
10.11-10.13	S3A-P8. **Marroni Maria Virginia**, Casonato S.G., Jones E.E., Pitman A.R., Beresford R.M., Visnovsky S.B. Dynamics of bud colonization by *Pseudomonas syringae* pathovars in commercial cherry orchards in New Zealand.
10.13-10.15	S3A-P9. **Minardi Paola**, Loreti S., Modesti V., Biondi E., Ardizzi S. Endophytic distribution of *Pseudomonas syringae* pv. actinidiae after a five-year latency into *Actinidia chinensis* var. *chinensis* plants: a real-time-PCR analysis
10.15-10.17	S3A-P10. **Nunoo Isaac**, Adomaa D. Different communicative interventions for collective action in the control and prevention of plant pathogenic bacteria: evidence from a framed field game experiment in Ghana.
10.17-10.19	S3A-P11. **Berge Odile**, Nofal S., Rousset L., Cognard-Plancq A-L., Guilbaud C., Morris C. Groundwater, a reservoir for plant pathogenic bacteria: the case of *P. syringae* complex in alluvial aquifer of Avignon
10.19-10.45	Coffee break

Session 4. Bacterial Pathogens and the Phytobiome	
Chairs: Berg Gabriele, Leach Jan E.	
Keynote talk	
10.45-11.10	S4-KN1. **Berg Gabriele** The plant microbiota in Health and Disease
Oral presentations	
11.10-11.25	S4-O1. **Leach Jan E.**, Luna E., Pinedo S., Hardin J., Caldwell D., Iyer-Pascuzzi A. Bacteria-insect-plant interactions: microbiomes in honeydew of Russian wheat aphids increase aphid virulence to wheat
11.25-11.40	S4-O2. **Brady Carrie** Ten years of bacterial taxonomy associated with Acute Oak Decline – the path forward
11.40-11.55	S4-O3. **Moleleki Lucy L.N.** *Pectobacterium brasiliense*: waging warfare against a multitude of friends and foes.
11.55-12.10	S4-O4. **Anguita-Maeso Manuel**, Olivares-García C., Navas-Cortés J.A., Coletta-Filho H.D., Landa B.B. Systemic distribution of *Xylella fastidiosa* within olive tree branches and changes on the associated xylem microbiome communities
Poster presentations	
12.10-12.12	S4-P1. Aegerter B., Colson G., Coutinho T., du Toit L., Dutta B., Hoepting C., Kvitko B., LaHue G., MacKay H., Rajagopalan K., Uchanski M., Waters T., Woodhall J., **Asma Margreet** Combating onion bacterial diseases with pathogenomics tools and enhanced management strategies: Research objectives and progress towards reducing crop losses
12.12-12.14	S4-P2. **Duque-Jaramillo Alejandra**, Ulmer N., Karasov T., Weigel D. How does *Arabidopsis thaliana* fight off its ever-present opportunistic pathogen *Pseudomonas viridiflava*?
12.14-12.16	S4-P3. **Herold Laura**, Knauf A., Broggini G.A.L., Zipfel C. Investigating the targets of conserved essential bacterial effectors
12.16-12.18	S4-P4. Gomez A., Huguet J., Ameen S., **Huerta Alejandra** Different lifestyles, different polymorhpic-toxin repertoires: abundance, diversity, and function of polymorhpic-toxins in phytopathogenic bacteria
12.18-12.20	S4-P5. Wu G., Zhao Y., Wang B., Li K., **Liu Fengquan** Functional characterization of inositol monophosphatase (Imp) in *Xanthomonas oryzae* pv. oryzae physiology and pathogenicity
12.20-12.22	S4-P6. **Maddock Daniel W.**, Brady C.L., Denman S., Allainguillaume J., Arnold D.L. The root of the problem, potential origins of the bacteria associated with Acute Oak Decline.
12.22-12.24	S4-P7. **Mancera-Miranda Laura**, López-Pagán N., Ruiz-Albert J., Beuzón C. Methylases and methylation in gene regulation of *Pseudomonas syringae*
12.24-12.26	S4-P8. **Teper Doron** Immune Recognition of the Secreted Serine Protease ChpG Restricts the Host Range of *Clavibacter michiganensis* from eggplant varieties
12.26-12.28	S4-P9. Mourou M., Hanani A., Asteggiano A., Davino W.S., Medana C., Balestra G.M., D'Onghia A.M., **Valentini Franco** *In vitro* screening of antimicrobial activity of epiphytes and endophytes against the phytopathogen *Xylella fastidiosa*
12.28-12.30	S4-P10. Carobbi A., Di Nepi S., Fridman C.M., Dar Y., Ben-Yaakov R., Barash I., Salomon D., **Sessa Guido** An antibacterial T6SS in *Pantoea agglomerans* pv. betae delivers a lysozyme-like effector to antagonize competitors
12.30-14.00	Lunch break and Poster session

Session 1B. Molecular Plant - Bacteria (and Insect) Interactions	
Chairs: Burdman Saul, Chen Gongyou	
Keynote talk	
14.00-14.25	S1B-KN1. **Burdman Saul** Uncovering the arsenal of type III effectors of the cucurbit pathogenic bacterium *Acidovorax citrulli*
Oral presentations	
14.25-14.40	S1B-O1. Xu Z.Y., Xu X.M., Li Y., Liu L.L., Wang Y.J., Wang Q., Zou L.F., **Chen Gongyou** "Arms-race" battles between TALEs and R/S genes in *Xanthomonas oryzae*-rice pathosystem

14.40-14.55	S1B-O2. **Moretti Chiaraluce**, Molina-Hernandez J.B., Chaves Lopez C., Caballo-Ponce E., Devescovi G., Ramos C., Venturi V., van den Burg H.A., Buonaurio R. A Na^+/Ca^{2+} exchanger is critical for the virulence of *Pseudomonas savastanoi* pv. savastanoi and *Pseudomonas syringae* pv. tomato
14.55-15.10	S1B-O3. **Kharadi Roshni**, Sundin G. The complex and compartmentalized cyclic di-GMP signaling network is a global regulator of phase-transition and host colonization in *Erwinia amylovora*
15.10-15.25	S1B-04. Ridolfi M., Meoni G., Tenori L., Gaudioso D., Pastacaldi C., **Tegli Stefania** On the deciphering the molecular chat occurring between *Curtobacterium flaccumfaciens* pv. flaccumfaciens and plants
15.25-15.40	S1B-05. **Scala Valeria**, Pucci N., Scortichini M., Salustri M., Cacciotti A., Tatulli G., Reverberi M., Loreti S. Lipid signals in phytopatogenic bacteria *Xylella fastidiosa*
15.40-16.15	Coffee break

Special session B. New insights on *Xylella fastidiosa*	
Chairs: De La Fuente Leonardo, Hopkins Donald	
Keynote talk	
16.15-16.40	SSB-KN1. Merfa M.V., Ranlin L., Potnis N., **De La Fuente Leonardo** Mechanism and distribution of natural competence among *Xylella fastidiosa* strains
Oral presentations	
16.40-16.55	SSB-O1. **Navas-Cortés Juan A.**, Román-Écija M., Arias-Giraldo L.F, Landa B.B. *Xylella fastidiosa* epidemics in Europe in a changing climate scenario
16.55-17.10	SSB-O2. **Cunty Amandine**, Boutigny A.L., Legendre B., de Jerphanion P., Dousset C., Forveille A., Paillard S., Remenant B., Olivier V. *Xylella fastidiosa* situation in France: two new variants detected and a new region contaminated
17.10-17.25	SSB-O3. **Saldarelli Pasquale**, Abou Kubaa R., Giampetruzzi A., D'Attoma G., La Notte P., Boscia D., De Stradis A., Saponari M. Genomic and physiological basis of resistance to *Xylella fastidiosa* in olive
17.25-17.40	SSB-O4. **Scortichini Marco**, Loreti S., Scala V., Pucci N., Pilotti M., Tatulli G., Angilè F.3, Migoni D., Del Coco L., Girelli C.R., Fanizzi F.P. Progress and difficulties for the management of the "olive quick decline syndrome" in Salento (Apulia, Italy)
17.40-17.55	SSB-O5. **Johnson Marcela A.**, Liu H., Bush E., Sharma P., Yang S., Mazloom R., Heath Lenwood S., Nita M., Li S., Vinatzer B.A. Using long-read metagenomics to investigate plant disease outbreaks: a highly-resolved phylogenetic reconstruction of *Xylella fastidiosa*
17.55-	Poster reviewing

Session 5A. Disease Emergence and Pathogen Evolution	
Chairs: Potnis Neha, Vicente Joana	
Keynote talk	
8.30-8.55	S5A-KN1. **Potnis Neha** Monitoring fine-scale adaptations in plant pathogen populations that contribute towards recurring outbreaks and host jumps
Oral presentations	
8.55-9.10	S5A-O1. **Vicente Joana**, Haynes E., Carter B., Aspin A., Bryning A., Cole J., Carroll S., Kennedy M., Gosh S., Bown D., Greer S., Ntoukakis, V., Harrison J., Studholme D., Grant M. Three case studies on *Xanthomonas* spp. diseases that might threaten UK crop production
9.10-9.25	S5A-O2. **Colombi Elena**, Straub C., McCann H., Rainey P.B PsICEs, a family of integrative conjugative elements that contributed to the evolution of the kiwifruit pathogen *Pseudomonas syringae* pv. actinidiae
9.25-9.40	S5A-O3. **Perez-Quintero Alvaro L.**, Lang J.M., Ortiz-Castro M., Rieux A., Wu G., Liu S., Chapman T.A., Chang C., Ziegle J., Peng Z., White F.F., Plazas M.C., Broders K., Leach J.E. Genomic acquisitions in emerging populations of *Xanthomonas vasicola* pv. vasculorum infecting corn in the U.S. and Argentina
9.40-9.55	S5A-O4. Landa B.B., Vicent A., **Saponari Maria** Current scenario and EU funded research projects on *Xylella fastidiosa*
Poster presentations	
9.55-9.57	S5A-P1. Luneau J., Cerutti A., Roux B., Baudin M., Carrere S., Bouchez O., Jardinaud M.F., Ray J., Berthomé R., Lewis J.D., Lauber E., Deutschbauer A.M., **Boulanger Alice**, Noel L. The making of a pathogen: how *Xanthomonas* adapts to plant environments
9.57-9.59	S5A-P2. **Grace Emily**, Rabiey M., Brockhurst M.A., Jackson R.W. Characterisation of phage that lyse *Gibbsiella quercinecans*, a causative agent of Acute Oak Decline
9.59-10.01	S5A-P3. Brual T., Effantin G., Baltenneck J., Rahbé Y., Hugouvieux-Cotte-Pattat N., **Gueguen Erwan** *Dickeya solani* D s0432-1 produces an arsenal of secondary metabolites with anti-prokaryotic and anti-eukaryotic activities against a wide rande of organisms.
10.01-10.03	S5A-P4. **Kałużna Monika**, Pothier J.F. Complete genome sequences and characterization of *Xanthomonas arboricola*, the novel causal agent of bacterial leaf blight of blueberry
10.03-10.05	S5A-P5. **Moser Mirko**, Calia G., Micheletti D., Donati C., Cestaro A. ONT-sequencing for characterization of *Candidatus* Phytoplasma mali strains
10.05-10.07	S5A-P6. **Nikolić Ivan**, Pavlović T., Rosić I., Anteljević M., Medić O., Berić T., Stanković S. Phylogenomic status of two *P. syringae* strains P16 and P21 with different pathogenicity isolated from sugar beet in Serbia
10.07-10.09	S5A-P7. **Novotny Cenek**, Maresova H., Macha H., Benada O., Palyzova A. Killing effect of *Bacillus velezensis* FZB42 on a *Xanthomonas campestris* pv. campestris strain newly isolated from cabbage: a metabolomic study
10.09-10.11	S5A-P8. **Oueslati Maroua**, Holtappels D., Fortuna K., Hajlaoui M. R., Lavigne R., Sadfi-Zouaoui N., Wagemans J. Isolation and molecular characterization of the lytic bacteriophage SoKa against *Pseudomonas syringae* pv. syringae, causal agent of citrus blast and black pit in Tunisia
10.11-10.13	S5A-P9. **Urriza Miriam**, Dimaria G., Añorga M., Catara V., Fernández A.B., Murillo J. Comparative genomics of native plasmids from phytopathogenic bacteria
10.13-10.15	S5A-P10. Van Vaerenbergh J., **Venneman Jolien**, De Paepe B., Van Malderghem C., Baeyen S. Uncommon *Curtobacterium flaccumfaciens* pathovars revive in other plant hosts: pv. betae in sugar beet and pv. oortii in garden lily
10.15-10.45	Coffee break

Session 6A. Disease Control and Prevention

Chairs: Montesinos Emilio, Yang Ching-Hong

Keynote talk

10.45-11.10 S6A-KN1. **Montesinos Emilio**
Bacterial disease prevention and control. Challenges and future prospects

Oral presentations

11.10-11.25 S6A-O1. **Yang Ching-Hong**, Yu M., Huang J.
Novel bacterial metabolites to treat citrus Huanglongbing, citrus canker, and fire blight

11.25-11.40 S6A-O2. **Thomas Ludivine**, Souza-Richards R.
Detection of the pathogenic bacteria *Acidovorax citrulli* and *Pseudomonas syringae* in cucurbit seeds

11.40-11.55 S6A-O3. Hassani M.A., Huntley, R.B., Cui Z., **Zeng Quan**
Colonization of yeast-like fungi on apple flowers induces host immunity and prevents fire blight infection

11.55-12.10 S6A-O4. **Carminati Gaia**, Bianchi G., De Amicis F., Benedetti R., Ermacora P., Martini M., Firrao G.
Investigations on the endophytic bacteria taxonomically related to *Xylophilus ampelinus* that may interfere with the PCR based diagnosis of bacterial blight of grapevine

Poster presentations

12.10-12.12 S6A-P1. **Altin Irem**, and Stefani E.
Proteomic characterization of bacteriophage peptides of pathogenic *Xanthomonas arboricola* pv. juglandis using Matrix-Assisted Laser Desorption Ionization-Time-of-Flight Mass Spectrometry

12.12-12.14 S6A-P2. **Brill Aya**, Menagen B., Malach E., Avnir D., Burdman S., Hayouka Z.
Antimicrobial composites for management of bacterial plant diseases

12.14-12.16 S6A-P3. **Danzi Davide**, Cremonesi S., Bovi M., Polverari A., Tosi L., Bonaconsa M., Lampis S., Spinelli F., Vandelle E.
The high potential of essential oil emulsions in restricting *Pseudomonas syringae* pv. actinidiae virulence

12.16-12.18 S6A-P4. **France Andrés**
Walnut bacterial blight management through chemical and organic products

12.18-12.20 S6A-P5. **Glass Livneh Adi**, Helman Y., Burdman S.
Paenibacillus dendritiformis and *Bacillus mycoides* as biocontrol agents against bacterial plant diseases

12.20-12.22 S6A-P6. **Kaufmann Moritz**, Li L., Cottyn B., Makechemu M., Uyttendaele M., Heyndrickx M., Zipfel C., Pothier J.
Assessment of transcriptional reprogramming of lettuce in response to chitin soil amendment in relation to its effect on plant growth and disease resistance

12.22-12.24 S6A-P7. **Montesinos Laura**, Baró A., Moll L.L., Badosa E., Feliu L., Planas M., Bonaterra A., Montesinos E.
Target oriented functional peptides for control diseases caused by plant-pathogenic bacteria

12.24-12.26 S6A-P8. **Nafari Reza**, Nazirzadeh N., Borhani H.
In vitro and greenhouse inhibition of alfalfa endophytic bacteria against *Clavibacter michiganensis* subsp. *insidiosus*, the causative agent of wilt disease

12.26-12.28 S6A-P9. **Oksel Cansu**, Avin F., Baysal-Gurel F., Mirik M.
Identification and genetic characterization of *Pseudomonas syringae* pv. syringae from sweet cherry in Turkey

12.28-12.30 S6A-P10. **Sakata Nanami**, Taiki I., Chinatsu H., Takako I., Yasuhiro I.
Exploring amino acids for controlling bacterial blight on cabbage

12.30-12.32 S6A-P11. **Tatulli Giuseppe**, Baldassarre F., Vergaro V., Pucci N., Scala V., Cesari E., De Bellis L., Ciccarella G., Loreti S.
Antibacterial properties of nanocrystals based on chitosan and Fosetyl-Al against *Xylella fastidiosa*

12.32-12.34 S6A-P12. **Yang Ruihuan**, Li S., Li Y., Yan Y., Fang Y., Zou L., Chen G.
Bactericidal effect of *Pseudomonas oryziphila* sp. nov., a novel *Pseudomonas* Species Against *Xanthomonas oryzae* reduces disease severity of bacterial leaf streak of rice

12.34-13.55 Lunch break and Poster session

Session 7. Natural and Engineered Plant Disease Resistance	
Chairs: Zipfel Cyril, Jones Jeffrey B.	
Keynote talk	
13.55-14.20	S7-KN1. **Zipfel Cyril** Identification and use of plant cell-surface immune receptors to improve broad-spectrum disease resistance in crops
Oral presentations	
14.20-14.35	S7-O1. Shantharaj D., Minsavage G.V., Römer P., Orbovic V., Horvath D.M., Lahaye T., **Jones Jeffrey B.** Transgenic grapefruit containing a TAL effector trapping promoter provides broad spectrum resistance to *Xanthomonas citri*
14.35-14.50	S7-O2. **Koseoglou Eleni**, Hanika K.,van der Wolf J.M., Visser R.G.F., Bai Y. Inactivation of tomato WAT1 results in auxin-dependent tolerance to genetically diverse *Clavibacter michiganensis* strains
14.50-15.05	S7-O3. Greer S., Vicente J., Hussain R., Harrison J., SmithJ., Teakle G., Studholme D., Grant M., **Ntoukakis Vardis** Identification, characterisation and mapping of resistance to black rot (*Xanthomonas campestris* pv. campestris) in Brassica
15.05-15.20	S7-O4. **Valls Marc** Structural restrictions to *Ralstonia solanacearum* colonization in resistant tomato revealed by a novel resistance screening method
15.20-15.35	S7-O5. **Orfei Benedetta**, Pothier J.F., Fenske L., Blom J., Moretti C., Buonaurio R., Smits T.H.M. Race-specific genotypes of *Pseudomonas syringae* pv. tomato are defined by mobile DNA elements within the genome
15.35-16.10	Coffee break

Session 3B. Disease Epidemiology and Pathogen Ecology	
Chairs: Toth Ian, Czajkowski Robert	
Keynote talk	
16.10-16.30	S3B-KN1. **Toth Ian**, Bienkowski D., Burnett F., Green S., Hollingsworth P., Humphris S., Quine C. Working together to tackle bacterial threats to plant health in Scotland and the wider UK
Oral presentations	
16.30-16.45	S3B-O1. **Czajkowski Robert**, Bartnik P., Lewtak K., Fiolka M., Czaplewska P., Narajczyk M., Jafra S. Receptors used by lytic bacteriophages to interact with soft rot *Pectobacteriaceae* bacteria – from genes to phenotypes and back
16.45-17.00	S3B-O2. **Bophela Khumbuzile N.**, Wang J., Petersen Y, Bull C.T., Coutinho T.A., Zeng Q. Elucidating the phylogeny and host adaptation of *Pseudomonas* strains associated with the bacterial canker of stone fruit trees in Western Cape, South Africa
17.00-17.15	S3B-O3. Cellini A., Donati I., Farneti B., Rodriguez Estrada M.T., Savioli S, Angeli S., **Spinelli Francesco** *Erwinia amylovora*-induced volatile organic emission: effects on plant resistance, pathogen metabolism and honeybees-mediated dispersal
17.15-17.30	S3B-O4. **Mariz-Ponte Nuno**, Moura L., Santos C.,Tavares F. New haplotypes found among the clonal population of *Pseudomonas syringae* pv. actinidiae isolates, biovar 3, obtained from Portuguese orchards
17.30-17.45	S3B-O5. **Ben Moussa Hajar**, Bertrand C., Rochelle-Newall E., Fiorini S., Pédron J., Barny M.A. River water survey of soft rot *Pectobacteriaceae* at the scale of a large watershed

Session 6B. Disease Control and Prevention	
Chairs: Vanneste Joel L., Yedidia Iris	
Keynote talk	
8.30-8.55	S6B-KN1. **Vanneste Joel L.**, Cornish D. A., Yu J., Schipper M. M., Hedderley D., Oldham J. M. Impact of pollen naturally contaminated by *Pseudomonas syringae* pv. actinidiae (Psa) on disease incidence in a commercial kiwifruit orchard
Oral presentations	
8.55-9.10	S6B-O1. Pun M., Joshi J.R., Khazanov N., Senderowitz H., **Yedidia Iris** Interference of plant derived phenolics with AHL mediated communication of *Pectobacterium* spp.
9.10-9.25	S6B-O2. **Lelenaite Ieva**, Cuskin F. It takes guts to deal with black rot: biofilm degrading enzymes for *Xanthomonas* control
9.25-9.40	S6B-O3. Ben Othmen S., Conti Nibali G., Cassanelli S., Pipponzi S., Stefani E., **Giovanardi Davide** Sanitation of carrot seeds infected by *Ca.* Liberibacter solanacearum through a thermal treatment and assesment of its efficacy by a viability qPCR protocol
9.40-9.55	S6B-O4. **Biondi Enrico**, Proto M.R., Perez S., Kuzmanović N., Balestra G.M., Minardi P. *Bacillus amyloliquefaciens* subsp. *plantarum* active against quarantine bacteria causing serious epidemics in North-Central Italy
9.55-10.10	S6B-O5. **Lightbourn Luis**, Amarillas L., Leon R., Estrada M. Biocontrol potential of bacteriophage Attis against the bacterial-spot disease in tomatoes caused by *Xanthomonas euvesicatoria*
10.10-10.45	Coffee break

Session 2B. New Tools in Disease Diagnostics and Pathogen Identification	
Chairs: Vinatzer Boris A., Bull Carolee T.	
Keynote talk	
10.45-11.10	S2B-KN1. **Vinatzer B. A.**, Sharma P., Johnson M. A., Mazloom R., Belay K., Abdelrazek S., Liu H., Li S., Heath L.S., Bush E. Computational approaches to address the challenges inherent to genome-based metagenome-based identification of plant pathogens
Oral presentations	
11.10-11.25	S2B-O1. **Rosenthal Emma**, Bull C.T. Novel race-specific detection method for the lettuce bacterial leaf spot pathogen, *Xanthomonas hortorum* pv. vitians.
11.25-11.40	S2B-O2. **Dreo Tanja**, Alič Š., Turnšek N., Bogožalec A., Milavec M., Pirc M. EURL Proficiency tests and beyond: towards comparable detection of *Xylella fastidiosa* in diagnostics and research
11.40-11.55	S2B-O3. Dutrieux C., Taghouti G., Lathus A., Darrigo C., **Portier Perrine** Evaluation of the MALDI-TOF technique for plant-pathogenic bacteria and construction of the reference spectra database at CIRM
11.55-12.10	S2B-O4. **Sharma Parul**, Mazloom R., Heath L., Vinatzer B.A. Rapid and precise pathogen identification using metagenomics in combination with an exclusively genome-similarity-based classification system
12.10-12.25	S2B-O5. **Martins Leonor**, Silva K., Teixeira M., Pothier J.F., Tavares F. *Xanthomonas euroxanthea*-specific DNA Markers for genotyping and multiplex PCR-based detection
12.25-14.00	Lunch break and Poster session

Session 5B. Disease Emergence and Pathogen Evolution	
Chairs: Jackson Robert W, Scortichini Marco	
Keynote talk	
14.00-14.25	S5B-KN1. Hulin M.T., Rabiey M., Zeng Z., Vadillo A., Arnold D.L., Mansfield J.W., **Jackson Robert W.**, Harrison R.J. Examining the emergence of host-adapted phytopathogens and the role of prophages in transfer of virulence genes
Oral presentations	
14.25-14.40	S5B-O1. **Vandelle Elodie**, Colombo T., Regaiolo A., Maurizio V., Libardi T., Puttilli M.R., Danzi D., Polverari A. Transcriptome profiling uncovers peculiar responsiveness to apoplast-like conditions among *Pseudomonas syringae* pv. actinidiae biovars
14.40-14.55	S5B-O2. **Liao Ying-Yu**, Reeves E., Panwala R., Hernandez K., Ritchie D., Meadows I., Huerta A. Xanthomonad population dynamics and their effect on disease management of bacterial spot of pepper
14.55-15.10	S5B-O3. **Rabiey Mojgan**, Grace E., Pawlos P., Bihi M., Ahmed H., Hampson G.E., Al Riyami A., Harrison R.J., Jackson R.W. Do phages antagonise each other to cause reduced efficiency of killing bacteria?
15.10-15.25	S5B-O4. Zhou J., Xie Y., Liao Y., Li X., Li Y., Li S., Ma X., Lei S., Zhang X., Lin F., Jiang W., **He Yong-Qiang** Complete Genome Sequence of *Bacillus velezensis* strain BR-01, isolated from *Bolbostemmatis* Rhizoma, having broad-spectrum antimicrobial activity against multiple rice pathogens
15.25-15.45	S5B-O5. **D'Amico-Willman Katherine**, Ritchie D.F., Huerta A.I. Building an ecological model of bacteria-bacteriophage interactions using the *Xanthomonas arboricola* pv. pruni-peach pathosystem
15.45-16.15	Coffee break

Session 6C. Disease Control and Prevention	
Chairs: Hopkins Donald, Van der Wolf Jan	
Keynote talk	
16.15-16.40	S6C-KN1. **Hopkins Donald** Biological control of citrus huanglongbing by *Xylella fastidiosa* strain EB92-1 in field trials in Florida
Oral presentations	
16.40-16.55	S6C-O1. **Van der Wolf Jan**, Taparia T. Factors determining the risks of bacterial blotch in *Agaricus bisporus*
16.55-17.10	S6C-O2. **Schiavi Daniele**, Di Lorenzo V., Ronchetti R., Giovagnoli S., Camaioni E., Balestra G. M. Waste valorization for circular protection of tomato by a nanotechnological approach
17.10-17.25	S6C-O3. **Martins Samuel J**., Ramos-Sepulveda L., Bull C.T. Multilocus sequence analysis (MLSA) of *Pseudomonas* spp. causing blotch on mushroom (*Agaricus bisporus*) farms in the U.S.
17.25-17.40	S6C-O4. **Correia Cristiana**, Magnani F., Pastore C., Pennisi G., Paucek I., Orsini F., Vandelle E., Santos C., Spinelli F. Light composition modulation of *Actinidia* - *Pseudomonas syringae* pv. actinidiae interaction
17.40	Closing ceremony

Poster session program

July 4 and July 5, 2022		
Session 1. Molecular Plant - Bacteria (and Insect) Interactions		
S1-P11	Correia Cristiana	Does *Pseudomonas syringae* pv. actinidiae differently perceive Actinidia species displaying different susceptibility to bacterial canker?
S1-P12	Ichinose Yuki	Identification of aeroreceptor proteins involved in host tobacco infection in *Pseudomonas syringae* pv. tabaci 6605
S1-P13	Makechemu Moffat	Soil amendment with crab chitin enhances systemic anti-bacterial resistance via potentiation of pattern-triggered immunity
S1-P14	Ntoukakis Vardis	Dynamic changes of the Prf/Pto tomato resistance complex following bacterial recognition.
S1-P15	Xu Xiameng	Loss-of-Susceptibility enables rice resistance to bacterial leaf blight and bacterial leaf streak
S1-P16	Zhou Jian-Min	ZAR1-mediated immunity and its link to PTI

July 4 and July 5, 2022		
Session 2. New Tools in Disease Diagnostics and Pathogen Identification		
S5-P11	Abdelrazek Sahar	Characterization of the *Xylella fastidiosa* population in Virginia using metagenomics
S5-P12	Ashmawy Nader	Characterization of the fire blight pathogen, *Erwinia amylovora*, using short sequence DNA repeats (SSRs) of plasmid pEa29
S5-P13	Ashmawy Nader	Isolation and molecular characterization of some Egyptian isolates of *Agrobacterium tumefaciens*
S5-P14	Benčič Aleksander	Towards a more reliable detection of *Xylophilus ampelinus* using novel diagnostic markers and real-time PCR tests
S5-P15	Boutigny Anne-Laure	Detection scheme of the European quarantine pathogen *Pantoea stewartii* subsp. *stewartii* in maize seeds
S5-P16	Kaluzna Monika	Specific and sensitive detection systems for *Xanthomonas arboricola* pv. corylina - the causal agent of bacterial blight of hazelnut based on comparative genomics
S5-P17	Loreti Stefania	*Xylella fastidiosa* subspecies and sequence types determination by a third generation sequencing device: the ONT MinION platform
S5-P18	Pirc Manca	FAIR data principles and their applicability to validation of diagnostic tests
S5-P19	Siri María Inés	Phylogeny and identification of pathogenic *Pantoea* species associated with bulb rots and leaf blight of onion crops in Uruguay
S5-P20	Siri María Inés	A TaqMan-based qPCR assay for detection of *Xanthomonas translucens* pv. undulosa in infected wheat plants and seeds.
S5-P21	Wendland Adriane	Rapid detection of *Xanthomonas citri* pv. fuscans and *Xanthomonas phaseoli* pv. phaseoli in common bean by Loop-mediated isothermal amplification

July 4 and July 5, 2022		
Session 3. Disease Epidemiology and Pathogen Ecology		
S3-P12	Ahsan Rafia	Genetic variability among *Xanthomonas oryzae* pv. oryzae (Xoo) population in Pakistan by RAPD-PCR
S3-P13	Berton Laure	Assessing the risk of transmission of '*Candidatus* Liberibacter solanacearum' *Apiaceae* haplotypes to potato crops
S3-P14	Blom Nathalie	Virulence assessment of *Ralstonia solanacearum* (phylotype II) isolated from ornamental *Rosa* spp. plants
S3-P15	Cigna Jérémy	The *Pectobacterium punjabense* in Europe: genomic and phenotypic characterization of European strains
S3-P16	Licciardello Grazia	Evaluation of olive (*Olea europaea*) genotypes for resistance to *Pseudomonas savastanoi* pv. savastanoi at an International olive germoplasm collection

S3-P17	Liu Pu	Transmission of *Pseudomonas syringae* pv. actinidiae by leafhopper *Bothrogonia sinica* on kiwifruit in China
S3-P18	Minardi Paola	Presence of *Pseudomonas syringae* pv. actinidiae in buds of asymptomatic *Actinidia chinensis* var. *deliciosa* plants in late autumn and winter
S3-P19	Pulawska Joanna	The phylogenetic position of *Agrobacterium* strains isolated from blueberries in Poland, *Agrobacterium vaccinii* – new species isolated from galls on shoots.
S3-P20	Spinelli Francesco	*Pseudomonas syringae* pv. actinidiae targets kiwifruit ethylene metabolism and volatile organic compound emission to faciliate host colonisation and insect-mediated dispersal
S3-P21	Waleron Małgorzata	Comparative genomic analysis and phenotypic characterization of *Pectobacterium brasiliense* from different origins
S3-P22	Zeng Quan	Glandular and non-glandular trichomes are colonization sites and host entry points of the fire blight pathogen on apple leaves

July 4 and July 5, 2022		
Session 4. Bacterial Pathogens and the Phytobiome		
S4-P10	Del Grosso Carmine	Investigations on plant-associated bacteria with inactive crown galls of grapevine in Lebanon
S4-P11	Gasic Katarina	Exploring the bacterial community associated with cane gall tumors on thornless blackberry
S4-P12	Khojasteh Moein	Transcription Activator-Like Effectors (TALE) Diversity in Iranian Strains of *Xanthomonas translucens*
S4-P13	Marković Sanja	First report of *Pectobacterium odoriferum* causing bacterial soft rot of cabbage in Serbia
S4-P14	Moretti Chiaraluce	Comparative genomic analysis of the endophytic bacterium *Pantoea agglomerans* DAPP-PG 734 and its synergistic interaction with *Pseudomonas savastanoi* pv. savastanoi DAPP-PG 722 in olive knots
S4-P15	Popović Tatjana	*Pseudomonas savastanoi* pv. glycinea affecting a vegetable soybean for commercial edamame production in Serbia
S4-P16	Raees Ahmed	Investigation of *Pseudomonas syringae* associated with bacterial canker of peach in Azad Jammu and Kashmir
S4-P17	Santos-Cervantes Maria Elena	Genetic Diversity of *Candidatus* Liberibacter asiaticus from Citrus in Mexico.
S4-P18	Spinelli Francesco	Dissecting strawberry microbiota for the selection of improved biological control agents againts *Xantomonas fragariae*
S4-P19	Urriza Miriam	Mobilization of the virulence plasmids from *Pseudomonas syringae* pv. savastanoi NCPPB 3335
S4-P20	Wang Xudong	*Acidovorax citrulli* causes quicker disease developing speed on watermelon than *Nicotiana benthamiana*

July 7 and July 8, 2022		
Session 5. Disease Emergence and Pathogen Evolution		
S5-P11	Babińska Weronika	Could the degradation of antibiotics using cold atmospheric pressure plasma brushes have an impact on the multidrug resistance of various pathogens?
S5-P12	Biondi Enrico	Genetic diversity of *Xanthomonas arboricola* strains isolated from symptomatic hazelnuts in Chile
S5-P13	Oliveira Filho Flávio	Pathogenicity of *Pseudomonas fluorescens* in common bean
S5-P14	Ozaktan Hatice	Obtaining the beneficial bacteria formulations and investigating their using possibilities in greenhouse cucumber cultivation
S5-P15	Popovic Tamara	*Xanthomonas arboricola* pv. pruni associated with leaf spot and twig necrosis of peach and sweet cherry in Montenegro
S5-P16	Sanver Utku	Molecular investigation of tomato bacterial speck disease causal agent *Pseudomonas syringae* pv. tomato in terms of copper tolerance and genetic variation
S5-P17	Venneman Jolien	Exploring *Acidovorax* species causing leaf spot on ornamentals and vegetables
S5-P18	Vicelli Bianca	Isolation and identification of *Pantoea ananatis* as potential causal agents for fire blight-like disease in strawberry
S5-P19	Vogelaar Martijn	*Ralstonia pseudosolanacearum* (phylotype I) in waterways and bittersweet (*Solanum dulcamara*) in the Netherlands

July 7 and July 8, 2022		
Session 6. Disease Control and Prevention		
S6-P13	Babinska Weronika	Are the waterways important paths of spreading plant pathogenic bacteria from the genera *Dickeya* and *Pectobacterium*?
S6-P14	Balestra Giorgio	Evaluation of copper resistance of *Pseudomonas syringae* pv. actinidiae populations in Italy.
S6-P15	Biondi Enrico	New tools for the biological control of *Xanthomonas fragariae* in orchard
S6-P16	Burokiene Daiva	Screening of microorganisms for antagonistic activity against pathogenic bacteria *Xanthomonas* spp.
S6-P17	Chalupowicz Laura	Synthesis and application of artificial lipid nanoparticles to protect plants from bacterial infection
S6-P18	Del Grosso Carmine	Antibacterial activity of new bioactive compounds against *Xylella fastidiosa* subsp. *pauca*
S6-P19	Del Grosso Carmine	Evaluating the antimicrobial activity of natural organic products for their potential use against *Xylella fastidiosa*
S6-P20	Foix Pericot Laura	*Prunus persica* plant endogenous peptides PpPep1 and PpPep2 cause PTI-like transcriptome reprogramming in peach and enhance resistance to *Xanthomonas arboricola* pv. pruni
S6-P21	Francesconi Sara	*In vitro* antibacterial activity of a novel nanotechnology-based green agrochemical to control three *Pseudomonas* spp. bacterial plant pathogens
S6-P22	Jelušić Aleksandra	Biocontrol of black rot on autochthonous cabbage cultivar 'Futoški'
S6-P23	Lelenaite Ieva	Enzymatic disruption of *Erwinia amylovora* biofilms to reduce pathogenicity
S6-P24	Li Leilei	The endophytic fitness of five Salmonella serovars in butterhead lettuce with chitin soil amendment
S6-P25	Loreti Stefania	Criticity on the molecular detection of *Xanthomans citri* pv. citri and *Xanthomans citri* pv. aurantifolii: outputs from the EURL Experience
S6-P26	Martins Paula	New approaches to citrus canker management using nanotechnology
S6-P27	Moll Luís	Peptides with multifunctional activities to protect plants against *Xylella fastidiosa* infections
S6-P28	Nicotra Daniele	Identification and characterization of tomato bacterial endophytes and preliminary evaluation for consortia-based biocontrol products
S6-P29	Orfei Benedetta	Higly efficacy of silver ultra nanoclusters against phytopathogenic bacteria
S6-P30	Pavlović Tamara	Contact-dependent inhibition of *Pseudomonas syringae* growth in the competition with *P. putida* isolates

S6-P31	Pereira Jorge	A novel Zinc Borate nanoformulation for crop protection againts foliar pathogens
S6-P32	Picchi Simone	Effective citrus canker control using the biofilm-disruptive antioxidant NAC
S6-P33	Proto Maria Rita	Defense response induced by essential oils in tomato plants against *Xanthomonas vesicatoria*
S6-P34	Pucci Nicoletta	Screening in vitro of eco-friendly control tools against *Xylella fastidiosa* subspecies.
S6-P35	Rajput Nasir Ahmed	Management of bacterial leaf spot of tomato through chemicals and antibiotics
S6-P36	Schiavi Daniele	Novel CNC and thyme extract-based nanocapsules to control the olive knot causal agent
S6-P37	Shah Syed Mashab Ali	Tal1NXtc01 Contributes to virulence of *Xanthomonas translucens* pv. cerealis
S6-P38	Surano Antony	*Xyella fastidiosa* infections reveal different physiological response in resistant and susceptible olive cultivars
S6-P39	van Doorn Bo	Harmonization of laboratory diagnosis for *Candidatus* Liberibacter spp. on Citrus among National Reference Laboratories in Member States

S1A-O6

Pseudomonas syringae flagella display phenotypic heterogeneity

López-Pagán Nieves[1], Sánchez-Romero María-Antonia[2,3], Rufián José S.[1], Govantes Fernan[4], Ruiz-Albert Javier[1] and Beuzón Carmen R.[1]

[1] *Plant-Microorganism-Insect Interaccion Department, Instituto de Hortofruticultura Subtropical y Mediterránea, University of Málaga, Consejo superior de Investigaciones Científicas, HSM-UMA-CSIC, Málaga, Spain*
[2] *Genetic Department, University of Sevilla, Sevilla, Spain*
[3] *Microbiology and Parasitology Department, Pharmacy Faculty, University of Sevilla, Sevilla, Spain*
[4] *Molecular Biology and Biochemistry Engeneering Department, Centro Andaluz de Biología del Desarrollo-University of Pablo de Olavide, Sevilla, Spain*
E-mail: nieves.lpg@uma.es

Pseudomonas syringae is a plant-pathogenic bacteria that infects a large number of plant hosts including economically relevant crops. It is ubiquitous in nature, colonizing a wide range of niches including water, soil and plant phyllosphere and rhizosphere. Its life cycle is related to the water cycle and when it reaches the plant can colonize the leaf surface and enter into the apoplast through stomata or wounds present in the leaf. For all these processes motility is considered a very important trait. Flagellar motility has been shown to confer epiphytic advantages to *P. syringae,* however, expression of flagellar genes within the apoplast implies the recognition of flagellin, the main component of the flagellar filament and a very well described pathogen-associated molecular pattern (PAMP), by pattern recognition receptors (PRRs) , which leads to activation of PAMP triggered inmunity (PTI). Using single-cell techniques such as flow cytometry and confocal microscopy we have observed that flagella is expressed heterogenously when *P. syringae* is growing within the apoplast and it is cross-regulated with the type III secretion system (T3SS), an key element in suppressing PTI . We have previously described that the T3SS expression is also heterogeneous when *P. syringae* is growing in the apoplast [1], thus the formation of FlagON/OFF, T3SSON/OFF subpopulations is relevant for the pathogenic process. In addition, expression of these two elements has an impact in bacterial fitness so, as in others animals pathogen, we propose their heterogeneous expression a division of labour strategy for *P. syringae* plant adaptation.

[1]Rufián JS. *et al.,* 2016. Environ Microbiol, 18(10):3593-3605

1OM7 → ΔhrpL

S1B-KN1

Uncovering the arsenal of type III effectors of the cucurbit pathogenic bacterium *Acidovorax citrulli*

Burdman S

Department of Plant Pathology and Microbiology, Institute of Environmental Sciences, The Robert H. Smith Faculty of Agriculture, Food and Environment, The Hebrew University of Jerusalem, Rehovot, Israel
E-mail: saul.burdman@mail.huji.ac.il

The *Acidovorax* genus includes several plant-pathogenic species. Among them, *Acidovorax citrulli*, which causes bacterial fruit blotch of melon, watermelon and other cucurbits, is one of the most agronomically important species. Pathogenicity of *A. citrulli* relies on a functional type III secretion (T3S) system that translocates effector proteins into the host cell[1]. Type III-secreted effectors (T3Es) promote virulence by altering the host cell metabolism and/or suppressing defence responses. As similar as in *Xanthomonas* spp. and in *Ralstonia solanacearum*, in *A. citrulli*, the AraC-type transcriptional activator HrpX (HrpB in *R. solanacearum*) is a key regulator of T3S and T3E genes[2,3]. In contrast to the wide knowledge on T3Es of model plant-pathogenic bacteria, the pool of *Acidovorax* T3E effectors is largely uncharacterized. In-depth sequence analysis of the genome of the *A. citrulli* model strain, M6, in combination with a machine learning approach for identification of putative T3E genes and expression analysis of HrpX-regulated genes revealed that *A. citrulli* possesses an arsenal of at least ~60 T3E genes, being much larger than previously estimated. This study also uncovered the HrpX-regulon of *A. citrulli*, and revealed seven novel T3E genes that could be detected only in plant-pathogenic *Acidovorax* spp, and could be thus involved in the pathoadaptive evolution of phytopathogenic bacteria belonging to this genus. In this presentation I will report on ongoing research in our lab focusing on characterization of selected T3E genes, and their contribution to virulence and to host-preferential association towards different cucurbit crops.

This study was supported by research grant IS-5023-17C from the United States-Israel Binational Agriculture Research and Development (BARD) Fund.

[1]Burdman S. and Walcott R., 2012. Mol. Plant Pathol., 13, 805-815.
[2]Zhang X.X. *et al.*, 2018. Front. Microbiol., 9, 507.
[3]Jiménez-Guerrero I. *et al.*, 2020. Mol. Plant Pathol., 21, 17-37.

BFB → bacterial fruit batch (manchas)