



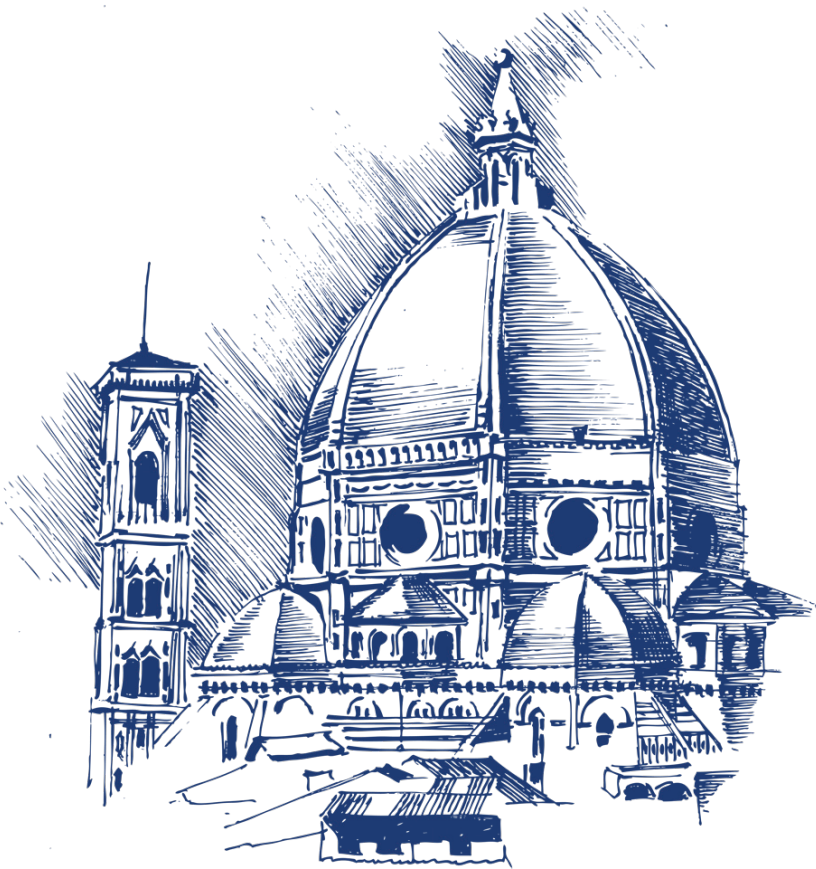
**SIMGBM**  
Società Italiana di  
Microbiologia Generale  
e Biotecnologie Microbiche

# Microbiology 2019

XXXIII SIMGBM Congress

University of Florence

June 19-22, 2019



**Programme**

# Programme

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## Wednesday, June 19<sup>th</sup>

**14.00-16.00 Registration**

### **16.00-17.00 | Opening Lecture**

Chairs: **P. Visca, D. Zannoni**

**Mirko Basen** (*University of Rostock, Germany*)

The anaerobic way of life: how to make a living by producing acetate from carbon dioxide and hydrogen

### **17.00-19.00 | Plenary Session 1**

**Antibiotic resistome: where do antibiotic resistance genes come from?**

Chairs: **S. Borin, F. Marinelli**

**17.00 José Luis Martínez** (*Centro Nacional de Biotecnología, Madrid, Spain*)

The One-Health and Global-Health axes of antibiotic resistance

**17.40 Flavia Marinelli** (*Univ. Insubria, Varese*)

Resistance genes in glycopeptide antibiotic producers

**18.00 Stefania Stefani** (*Univ. Catania*)

In-depth resistome analysis in clinical isolates

**18.20 Christian Milani** (*Univ. Parma*)

Distribution of the antibiotic resistance in the mammalian gut microbiota

**18.40 Gianluca Corno** (*CNR, Verbania*)

Introducing the ecological theory in the study of antibiotic resistances in waters

**19.00 Welcome reception**

WEDNESDAY

## Thursday, June 20<sup>th</sup>

*Morning session*

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### 09.00-11.00 | Plenary Session 2

#### Microbial symbiosis as driving force in plant's life

Chairs: **M. Bazzicalupo, C. Viti**

**09.00 Paola Bonfante** (*Univ. Torino*)

Mycorrhizal fungi between plants and bacteria: a network of interactions

**09.40 Vittorio Venturi** (*ICGEB, Trieste*)

The pathobiomes of two bacterial diseases of rice; identifying microbial cooperators and antagonists of the pathogen

**10.00 Catherine Masson-Boivin** (*INRA, Toulouse, France*)

Experimental evolution of legume symbionts: what have we learnt?

**10.20 Renato Fani** (*Univ. Firenze*)

Metabolic interactions of endophytic bacteria and medicinal plants

**10.40-11.10 Coffee break**

### 11.10-13.30 | Plenary Session 3

#### New antimicrobial strategies in the post-antibiotic era

Chairs: **B. Colonna, D. Schillaci**

**11.10 Makrina Totsika** (*Queensland Univ. of Technology, Australia*)

Bacterial virulence: the superbug's Achilles' heel?

**11.50 Silvia Buroni** (*Univ. Pavia*)

A new molecular strategy to find drug targets in *Burkholderia cenocepacia*

**12.15 Begoña Heras** (*La Trobe Univ., Melbourne, Australia*)

Structural insights into the regulation and inhibition of bacterial autotransporter proteins

**12.40 Orietta Massidda** (*Univ. Trento*)

*Are old and new cell wall growth and division proteins still attractive targets to develop new antibiotics?*

**13.05 Livia Leoni** (*Univ. Roma Tre*)

Repurposing old drugs for new anti-virulence strategies: a *Pseudomonas aeruginosa* story

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**13.30-15.20 Lunch & Posters viewing (Group 1)**

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*Afternoon session*

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**15.20-17.00 | Plenary Session 4**

**Intercellular communication in host-pathogen interactions**

Chairs: **L. Leoni, A.M. Puglia**

- 15.20 Tom Coenye** (*Univ. Ghent, Belgium*)  
Intercellular communication in bacterial biofilm-host interaction
- 16.00 Pietro Alifano** (*Univ. Salento*)  
Trans-kingdom interactions mediated by sialic acids in rhinopharynx
- 16.20 Paolo Landini** (*Univ. Milano*)  
Biofilm and virulence of adherent-invasive *Escherichia coli* in the Crohn's disease
- 16.40 Gianni Prosseda** (*Univ. Roma Sapienza*)  
Role of efflux pumps in the interplay with host cells in pathogenic *Escherichia coli*

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**17.00-17.30 Coffee break**

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**17.30-19.10 | Plenary Session 5**

**New approaches to unravel fungal-host interactions**

Chairs: **D. Cavalieri, A. Tavanti**

- 17.30 Geraldine Butler** (*Conway Institute, Univ. Dublin, Ireland*)  
Large-scale functional analysis in *Candida* species using CRISPR
- 18.10 Monica Di Paola** (*Univ. Firenze*)  
Evolution and variation of *Saccharomyces cerevisiae* in the human and insects gut
- 18.30 Arianna Tavanti** (*Univ. Pisa*)  
Dissecting the role of adhesin encoding genes in the virulence of *non-albicans Candida* species
- 18.50 Robert T. Wheeler** (*Univ. Maine, USA*)  
Intravital imaging of fungal-innate immune interactions in dissemination

## Friday, June 21<sup>st</sup>

*Morning session*

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### 09.00-11.00 | Plenary Session 6

#### Microbiology meets the cultural heritage

Chairs: **T. Rinaldi**, **C. Urzi**

- 09.00** **Guadalupe Piñar** (*Univ. Boku, Austria*)  
Technological development applied to the study of cultural heritage
- 09.40** **Teresa Rinaldi** (*Univ. Roma Sapienza*)  
Calcite biomineralization in the Etruscan tombs of Tarquinia
- 10.00** **Brunella Perito** (*Univ. Firenze*)  
Microbial precipitation of calcium carbonate for stone reinforcement: from single strain to community
- 10.20** **Laura Bruno** (*Univ. Roma Tor Vergata*)  
Cyanobacterial biofilms deteriorating stone monuments
- 10.40** **Clara Urzi** (*Univ. Messina*)  
New methods and molecules to control biodeterioration

### 11.00-11.30 Coffee break

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### 11.30-13.30 | Plenary Session 7

#### Bacterial cell surface and signaling

Chairs: **L. Baccigalupi**, **A. Polissi**

- 11.30** **Jean-François Collet** (*Institut de Duve, Bruxelles, Belgium*)  
Using the lipoprotein RcsF as a tool to explore hidden secrets of the *E. coli* cell envelope
- 12.10** **Paola Sperandeo** (*Univ. Milano*)  
New insights into the Lpt machinery for lipopolysaccharide transport to the cell surface
- 12.30** **Francesco Imperi** (*Univ. RomaTre*)  
LPS modifications, polymyxin resistance and biological fitness in *Pseudomonas aeruginosa*
- 12.50** **Rachele Isticato** (*Univ. Napoli*)  
The spore surface: a dynamic structure
- 13.10** **Isabel Delany** (*GSK Vaccine, Siena*)  
Cell surface antigens as vaccine targets

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**13.30-15.30 Lunch & Posters viewing (Group 2)**

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*Afternoon session*

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**15.20-16.20 | Plenary Lecture 2**

Chairs: **R. Provvedi, C. Thaller**

**Laurent Debarbieux** (*Institut Pasteur, Paris, France*)

Phage therapy: yesterday, today and tomorrow

**16.20-17.20 | Plenary Lecture 3**

Chairs: **M. Bazzicalupo, R. Fani**

**Duccio Cavalieri** (*Univ. Firenze*)

Ecology and biology of wine yeasts: the florentine school

**17.20-17.50 | Prizes Presentation**

**17.20 Franco Tatò Prize 2019**

**Elisa Saccon** (*Univ. Padua*)

Chemical and genetically-based approaches for the treatment of HIV-1 infection

**17.35 Mario Campa Prize 2019**

**Marina Zoppo** (*Eawag, Dübendorf, Switzerland*)

Gene editing and knock-out strategies to dissect the role of ALS genes in *Candida* species

**17.50 Paola Bonfante** (*Univ. Torino*)

The urgent need for microbiology literacy in society

**18.05-20.00 | Annual Assembly of SIMGBM Members**

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**20.40 Social dinner**

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## Saturday, June 22<sup>nd</sup>

09.00-12.00

### PhD day parallel sessions: Short talks from selected abstracts

#### Session A: Microbial genetics and genomics

Chairs: **F. Briani, G. Prosseda**

**Alberto Danielli** (*Univ. Bologna*)

The ferric uptake regulator Fur mediates (iron-dependent) medium-range chromatin interactions and DNA looping in *Helicobacter pylori*

**Alessandra M. Martorana** (*Univ. Milano*)

Dissecting a novel stress-sensing system that preserves bacterial cell envelope architecture

**Alessandra Fortuna** (*Univ. Roma Tre*)

DksA-dependent regulation of virulence and biofilm formation in *Pseudomonas aeruginosa*

**Anna Maria Petrone** (*Univ. Salerno*)

Functional characterization of *Candida albicans* Hst3p histone deacetylase

**Marco Fondi** (*Univ. Firenze*)

The multi-level relationship between heterotrophic bacteria and nutrients

**Giulia Degiacomi** (*Univ. Pavia*)

Dissecting the mechanisms of action of new promising classes of compounds active against *Mycobacterium tuberculosis*

**Annamaria Zannoni** (*Univ. Bologna*)

Study of HP1043, the *Helicobacter pylori* essential transcriptional regulator

**Roberta Stefanelli** (*Univ. Roma Sapienza*)

Effect of LolA depletion on *Pseudomonas aeruginosa* growth, biofilm formation, drug resistance and virulence

**Laura Cioetto Mazzabò** (*Univ. Padova*)

Assessing the role of Rv1222 (RseA) as an anti-sigma factor of the *Mycobacterium tuberculosis* extracytoplasmic sigma factor SigE

**Giulia Barbieri** (*Univ. Pavia*)

Exploring the role of the transcriptional regulator CodY in *Streptococcus agalactiae*

**Irene Bianconi** (*Univ. Trento*)

Functional genomics to decipher the emergence of multiresistant phenotypes in persistent *Pseudomonas aeruginosa* Cystic Fibrosis isolates

## **Session B: Environmental and industrial microbiology**

Chairs: **S. Borin, S. Fedi**

**Laura Treu** (*Univ. Padova*)

Deciphering complex microbial community in biogas upgrading systems by genome-centric metatranscriptomics

**Aide Lasa** (*Univ. Genova*)

Metagenetic study of the microbiota and pathobiota in diseased oysters in Europe

**Marco Tescari** (*Univ. Roma Tre*)

Metagenomic analysis of pink patinas on Georgian medieval mural paintings

**Giulia Daly** (*Univ. Firenze*)

Characterization of the unexplored microbial community of propolis

**Alessandra Adessi** (*Univ. Firenze*)

Biocrust-forming cyanobacteria inoculation assisted by a vegetal fiber mesh, in a semi-arid degraded area: characterization of the polysaccharidic matrix

**Anna Espinoza Tofalos** (*Univ. Milano-Bicocca*)

Microbial communities in different configurations of Microbial Fuel Cell-based sensors

**Simona Crognale** (*CNR, Rome*)

Pilot scale polyhydroxyalkanoates-production from Organic Fraction of Municipal Solid Waste by *Hydrogenophaga* species

**Simone Becarelli** (*BD BioDigressioni Srl, Pisa*)

Sulfur oxidising bacteria from contaminated dredged sediments: the plasticity of an autochthonous *Thioalkalivibrio* sp. isolate

**Francesca Berini** (*Univ. Insubria, Varese*)

*Streptomyces coelicolor* as cell factory for the production of a metagenome-sourced chitinase with insecticide activity

**Gabriele Andrea Lugli** (*Univ. Parma*)

Beyond the tip of the iceberg: illuminating bacterial dark matter through a combination of metagenomics and culturomic approaches

**Paolo Emidio Costantini** (*Univ. Bologna*)

Genotypic and phenotypic characterization of *Lactobacillus* strains with antipathogenic activities



## **Session C: Interactions between microbes/viruses and their hosts**

Chairs: **A. Calistri, F. Iannelli**

**Giovanni Bacci** (*Univ. Firenze*)

The personalized temporal dynamics of microbiome in the airways of cystic fibrosis patients

**Emanuela Frangipani** (*Univ. Urbino*)

Fighting cystic fibrosis pathogens using gallium-based compounds

**Sabrina Duranti** (*Univ. Parma*)

*Bifidobacterium bifidum* and the infant gut microbiota: an intriguing case of microbe-host co-evolution

**Carola Parolin** (*Univ. Bologna*)

Vaginal *Lactobacillus* strains interfere with *Chlamydia trachomatis* infection

**Camilla Fagorzi** (*Univ. Firenze*)

Comparative genomics and deep phenotyping of the plant-associated genus *Ensifer*

**Francesco Pini** (*Univ. Firenze*)

Competition between rhizobia in the race for plant colonization

**Flavio De Maio** (*Univ. Cattolica del Sacro Cuore, Roma*)

PE\_PGSR3 of *Mycobacterium tuberculosis* is specifically expressed at low phosphate concentration, and its arginine-rich C-terminal domain mediates adhesion and persistence in host tissues

**Marco Rinaldo Oggioni** (*Univ. Leicester, UK*)

Intracellular replication of *Streptococcus pneumoniae* in the human spleen

**Mariagrazia Di Luca** (*Univ. Pisa*)

Sb-1 bacteriophage exerts antibacterial activity against methicillin-resistant *Staphylococcus aureus* in a *Galleria mellonella* model of either systemic or implant-associated infection

**Mattia Pirolo** (*Univ. Roma Tre*)

Unidirectional animal-to-human transmission of methicillin-resistant *Staphylococcus aureus* ST398 in pig farming

**Anna Luganini** (*Univ. Torino*)

Repurposing drugs for Human Cytomegalovirus (HCMV) identifies inhibitors of the Immediate-Early 2 (IE2) protein

**Antonio Mastino** (*Univ. Messina*)

Restriction of HSV-1 infection in monocytic cells: possible role of a cross-talk NF- $\kappa$ B/oxidative stress

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