

June 27/29, 2024

Cortona, Italy

Cortona Prokaryotes 2024

Scientific Programme

Scientific Committee:

Prof. Loredana Baccigalupi

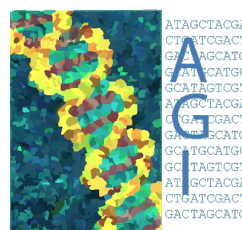
Prof. Renato Fani

Prof. Marco Ventura

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SIMGBM
Società Italiana di
Microbiologia Generale
e Biotecnologie Microbiche



Thursday 27 June

11:00 Lecture - Prof. Renato Fani "Florence 1979-2024: Chronicles of bacterial and evolutionary genetics" (Italy)

11:45 **MICROBIAL GENETICS**
Chairs: Prof. Renato Fani - Prof. Marco Fondi

Valerio Baldelli	Lack of sirB2 gene stimulates virulence, invasion, and small colony variants emergence in <i>Pseudomonas aeruginosa</i>
Matteo Calcagnile	The origin of rpoB merodiploidy in "rare" actinomycetes: how a resistance gene became a master gene
Elena Chiti	Investigating <i>Helicobacter pylori</i> 's transition to the coccoid form: Insights into Chromatin Dynamics and Regulation by HP1043
Greta Segafreddo	Insights on the role and regulation of <i>Mycobacterium tuberculosis</i> Sigma Factor C
Rita Trirocco	PGRP-4 propels the <i>Shigella</i> invasion of the epithelial cells by promoting the virF gene expression
Theresa Strohhammer	Peptidoglycan remodeling under envelope stress: deciphering the interplay between DpaA and ActS

POSTER PRESENTATIONS

Laura Alessandrini	Regulation of L,D-crosslinks (3-3 CLs) to maintain cell envelope homeostasis
Alessia Avesani	First screening of microbial assemblages in corals from Maldives atolls
Sara Basiglio	Exploring the diet influence on the gut microbiome of healthy and diseased <i>Drosophila melanogaster</i>
Sara Bolognini	Direct evolution of a novel <i>Staphylococcus aureus</i> phage to improve its lytic activity
Alessandra Bosc	Strategies of functional characterization of <i>Pseudomonas aeruginosa</i> sirB2 gene
Marco Calvigioni	Development of MICRO-B: from a static to a novel dynamic 3D in vitro model of the human gut microbiota
Flavia Cannizzaro	Extracellular vesicles as communication tool in plant-bacteria interactions
Stacy Julisa Carrasco Aliaga	Preliminary characterization of novel genetic determinants associated with <i>Pseudomonas aeruginosa</i> pathogenicity in cystic fibrosis patients

13:15 Lunch

15:00 **MICROBIAL VIRULENCE**
Chairs: Prof. Luigi Vezzulli - Prof. Ezio Ricca

Agnew Hannah	Contribution of the LuxS/AI-2 quorum sensing system in <i>Streptococcus pneumoniae</i> meningitis isolates
Samuele Irudal	Deciphering the role of CodY in controlling expression of Srr2, a crucial adhesin for Group B <i>Streptococcus</i> virulence
Martina Laudazzi	Deciphering the role of multidrug efflux pumps in the virulence of enteroaggregative <i>Escherichia coli</i>
Marta Mellini	Drug repurposing to inhibit <i>Pseudomonas aeruginosa</i> adaptation to the CF lung environment
Cinzia Spagnoli	Transition to the viable but not culturable state as an adaptive strategy of bacterial pathogens to survive desiccation in hospital settings
Shaiq Sultan	Exploring the role of LysX2 in <i>Mycobacterium tuberculosis</i> pathogenicity and host interaction

POSTER PRESENTATIONS

Giulia Cattabriga	Infection of ex-vivo perfused human spleens with <i>S. aureus</i> and <i>K. pneumoniae</i>
Eleonora Chines	Antimicrobial treatment failure: persistence and toxin/antitoxin systems in carbapenem-resistant <i>Acinetobacter baumannii</i> evolving in colistin-resistant strains
Clara Cipolla	Structural study of Carbonic Anhydrases for bioconsolidation applications
Valentina Cipriani	Microbiota characterization of a traditional raw milk cheese and evaluation of the probiotic activities of selected bacterial strains
Andrea Coletti	Rumping up <i>Pseudoalteromonas haloplanktis</i> TAC125 potential as a cell factory of difficult-to-express protein: developing dedicated quantity tool to define more effective production conditions
Paola Conti	Exploring the affinity between beta-lactams and Penicillin-Binding Proteins (PBPs) in <i>Granulicatella adiacens</i> : is two better than one?
Leonardo Continisio	Assessment of Antimicrobial Efficacy of <i>Punica granatum</i> L. Peel Extract Against ESKAPE Group Pathogens
Monica Correggia	Characterisation of <i>Paracentrotus lividus</i> gut microbiota and isolation of aetiological agents of bald sea urchin disease

16:30 Coffee Break

17:00

HUMAN MICROBIOTA

Chairs: Prof.ssa Loredana Baccigalupi - Prof. Gabriele Andrea Lugli

Chiara Argentini	Evaluation of the molecular impact of amoxicillin-clavulanic acid (AMC) on gut bifidobacteria
Antonia Bruno	The Microbiome of the Built Environment: The Nexus for Urban Regeneration for the Cities of Tomorrow
Marianna Marangi	Metagenomics gut profile of immigrant patients coming from African countries
Niccolò Meriggi	Fecal microbiota transplantation (FMT) of human feces associated with differential dietary treatment modulates the risk of colorectal cancer (CRC) in germ-free rats
Francesco Flandi	Ex vivo human spleen perfusion as a model to study the bacteria-macrophage interaction

POSTER PRESENTATIONS

Francesca Coscione	Investigating the mechanisms of resistance of derm bacteria to Gold-based compounds
Giulia Cosimi	First Assesment of Arbuscular Mycorrhizal Fungi (AMF) in <i>Zelkova sicula</i> (Di Pasquale, Garfi & Quézel, 1992), an endangered and endemic relict of Tertiary flora in Sicily
Benvenuta Sonia Cusenza	Exploring biodiversity in Salt Ponds of Trapani: Harnessing Halophilic microorganisms for Biotech Applications
Marina De Stefano	Characterization of carbohydrate-active genes carried by an intestinal isolate of <i>Bacillus subtilis</i>
Kejsi Dervishi	Exploiting <i>S. Typhimurium</i> 'chassis' for the study of enzymes linked to PG metabolism of uncultured bacteria
Ahmed El Goutbi	Diet impact on vaginal and gut microbiota of polyabortive women
Giorgia Fabrizio	Genotypic and phenotypic characterization of biofilm-forming <i>Borrelia burgdorferi</i> s.l. strains isolated from patients with erythema migrans
Camilla Fagorzi	The impact of the alien plant <i>Carpobrotus</i> spp. on soil bacterial and fungal communities in Giglio islands
Elisa Fausti	Molecular and Phenotypic Characterisation of Novel <i>Klebsiella pneumoniae</i> Bacteriophages for Therapeutic Use

18:30 Poster view

Friday 28 June

09:00 **Lecture - Prof. Paul Ross "Microbiome warfare: bacterial offence and defence systems from microbial communities" (Ireland)**

09:45 **ANTIMICROBIALS AND VACCINES (I)**
Chairs: Prof.ssa Bianca Colonna - Prof. Paolo Landini

Davide Bongiovanni	The impact of urbanization on soil antibiotic resistance
Martina Di Rosario	Investigation of the antimicrobial effect of grape pomace extract against food-borne pathogens
Alessandra Fortuna	The synergistic activity of colistin and clofocetol against Gram-negative pathogens
Diletta Mazzantini	Anti-staphylococcal and anti-biofilm potential of citrus polyphenols
Elena Passarini	Screening of synthetic molecules active towards <i>Bacillus cereus</i> group

POSTER PRESENTATIONS

Alessandra Filieri	Screening of polyhydroxyalkanoates (PHAs) producing bacteria from saline environments
Margherita Finazzi	Design and characterization of a defined in vitro gut microbiota to model microbe-microbe and host-microbe interactions
Eva Furet	Defining the role of two-component systems PhoPQ and QseBC of <i>Shigella flexneri</i> in intracellular survival in macrophages
Giulia Ghezzi	Functional characterisation of novel genes expressed in <i>Pseudomonas aeruginosa</i> lung infection: PA14_37400 and PA14_60480
Alessandra Guiducci	Role of the stringent response in the interaction of <i>Pseudomonas aeruginosa</i> with airway epithelial cells
Ettore Lopo	Microbial analyses of the peculiar biofilm patterns present in the hydrothermal cave system of Monte Kronio (Sicily)
Davide Malacarne	Unraveling the color palette of <i>Actinomyces lepetitiana</i> : a study on carotenoid production in filamentous actinomycetes
Clelia Manna	Engineering of <i>Helicobacter pylori</i> outer membrane vesicles (OMVs) as specific carriers for RNA based therapy against osteosarcoma
Rebecca Martedì	Defeat <i>Staphylococcus aureus</i> by targeting siderophores

11:15 **Coffee Break**

11:45 **ANTIMICROBIALS AND VACCINES (II)**
Chairs: Prof.ssa Arianna Tavanti - Prof. Marco Oggioni

Giorgia Piccioni	Detection of linezolid resistance in minor species <i>Enterococcus</i> genus isolated from intensive swine farm
Valentina Riva	Deciphering the dynamics of antibiotic resistance transfer through natural transformation in the agri-food ecosystems microbiome
Davide Sposato	The type-II signal peptidase LspA is a promising target for anti- <i>Pseudomonas aeruginosa</i> drug development
Anella Saggese	Oral vaccine strategy: probiotic spores displaying <i>Vibrio harveyi</i> antigens

Mariana Tirziu Mucosal priming with live vaccine vector *Streptococcus gordonii* elicits long-term memory response to the RBD of SARS-CoV-2 spike protein

POSTER PRESENTATIONS

Maria Concetta Marturano	In-depth characterization of the mechanism of action of the new anti- <i>Mycobacterium abscessus</i> drug candidate VOMG
Alessio Massimi	Insights into microbial communities driving food waste chain elongation process
Alice Melzi POSTER	Restoration of copper-contaminated wastewater through bacterial biosorbents
Flavia Migliaccio	Environmental diversity, distribution and evolution of microbial metal ion transport systems
Mariela Mejia Monroy	Effect of modified amino acids in infant formulas on the intestinal microbiota of weaning rats
Jimena Nieto Noblecia	Elucidating key steps of <i>Pseudomonas aeruginosa</i> infection by dev lytic phage for phage therapy
Lorenzo Nolfi	The role of microbiological indicators for soil quality and health: A perspective for sustainable development and land management
Diana Olimpo	Exploring antibiofilm activity of recombinant Omp38 the CATASAN key protein
Federica Parisi	The Potential of Natural Peptides from <i>Tirmania pynoi</i> : Development and Optimization through the Use of Computational Tools

13:15 **Lunch**

APPLIED MICROBIOLOGY

15:15

Chairs: Prof.ssa Francesca Turrone - Prof. Paolo Visca

Valerio Bocci	Microbial colonization patterns of petrochemical and biodegradable plastics in lake waters: insights from a field experiment
Stefany Castaldi	the triterpenoid b-curcumene mediates the relative hydrophobicity of <i>Bacillus subtilis</i> spores
Domenico Celi	Rosy discoloration of external white marble of Florence Cathedral
Stefania Di Silvestro	Development of sustainable soil bioremediation strategies by delving into the bacterial interaction with metals and biochar
Eva Donini	Analysis of the microbial colonization of filters for the sustainable treatment of contaminated waters
Jessica Zampolli	Multi-omic approaches to address the polyethylene degradation in bacteria of <i>Rhodococcus</i> genus

POSTER PRESENTATIONS

Camilla Pederzoli	Analysis of the structure-function relationship of AsmA-like proteins involved in outer membrane biogenesis
Asia Pizzi	Beneficial activities of <i>Lactiplantibacillus plantarum</i> isolated from orange
Claudia Ridolfi	Hydrogen sulfide production is dispensable for <i>Pseudomonas aeruginosa</i> pathogenicity
Filippo Pasquale Riggio	Bacterial diversity in water, biofilm, and sediments samples from five urban caves in Rome, Italy
Davide Rossi	Analysis of the cloacal microbiome of a swallow population (<i>Hirundo rustica erythrogaster</i>) with a peculiar phenology
Elisabetta Toni	Microbiome of kefir produced using Amiata donkey milk: characterization of the microbial communities and fatty acid profile
Enrico Tornatore	The actinomycete <i>Kitasatospora</i> sp. SeTe27, subjected to adaptive laboratory evolution (ALE) in the presence of selenite, varies its cellular morphology, redox stability, and tolerance to the toxic oxyanion

Camilla Vullo	Investigation of the impact of the ESX-2 Secretion System on growth of <i>Mycobacterium tuberculosis</i> in human macrophages
Sara Zambon	Soil microbial diversity in Mediterranean oak forest ecosystem subjected to ungulate grazing

16:45 Coffee Break

17:15 MICROORGANISMS/PLANTS INTERACTIONS
Chairs: Prof.ssa Rachele Isticato - Prof. Giordano Rampioni

Antonia Esposito	The use of microbial based inoculants for enhancing the tolerance of tomato plants to different abiotic stress conditions: preliminary results
Giorgia Novello	Rhizosphere bacterial isolation from indigenous plants in Arid and Semi-Arid Algerian soils: implications for plant growth enhancement
Federico Sbarra	The use of culture based approach, metabolic profiling and metagenomics for soil microbiome investigation and preservation strategies
Ivana Staiano	Plant-Microbe Synergy: Employing Coastal Plant Bacteria for Wheat Prosperity under Saline and Temperature Stress
Lorenzo Vergani	Study of PGP bacteria delivery using bio-based materials derived from agri-food waste

17:30 Poster view

19:00 Assemblea soci SIMGBM

20:30 Social dinner

Saturday 29 June

09:00 Lecture - Prof.ssa Emilia Mauriello "Role of the adhesion properties of Type IV Pili in Twitching Motility" (France)

09:45 PhD Day (I)
Chair: Prof. Marco Ventura

Tania Alonso Vásquez	A perspective on how to model microbial communities dynamics
Deborah Bastoni	Tectonic parameters influence geochemical and microbial diversity of Chilean deeply-sourced seeps along the Central Volcanic Zone
Martina Cascone	Hydrogenotrophic metabolisms in the subsurface: insights from natural hydrogen seeps in diverse geological settings
Marco Coluccia	Contribution of the structural homologues VirK and YbjX to the host response and membrane permeability in <i>Shigella flexneri</i>
Vanessa Croatti	Extracellular vesicles from vaginal lactobacilli as potential postbiotics to support the microbiota homeostasis
Ylenia Di Leto	Modulation of sewage sludge microbiota for enhancing the transition from wastewater treatment plants into biorefineries in the circular economy era

11:15 Coffee Break

11:45		PhD Day (II) Chair: Prof. Renato Fani	
Annamaria Gallo	Unveiling Environmental, Biotechnological, and Biomedical Potential of Novel Microorganisms Isolated from Panarea Island		
Andrea Gentile	Paired Omics Analysis on <i>Actinoallomurus</i>		
Paolo Malune	In-silico identification and biochemical validation of novel SARS-CoV-2 RdRp non-nucleoside inhibitors		
Elisa Maria Petta	Bioremediation potential of immobilized aerobic consortia dechlorinating 1,2-DCA vB_KpM_GP7, A Novel Lytic Phage Targeting Multidrug- and Phage-Resistant <i>Klebsiella pneumoniae</i> Strains		
Greta Poncechi			

13:00 **Lunch**

14:00		PhD Day (III) Chair: Prof.ssa Loredana Baccigalupi	
Sonia Mirjam Rizzo	Investigation of the role of GH136-encoding gene (perB) in colonization and persistence of <i>Bifidobacterium bifidum</i> PRL2010 in the human gut		
Arianna Scardino	Potential use of Cinnamaldehyde against <i>Desulfovibrio vulgaris</i> biofilm to mitigate Microbiologically Influenced Corrosion		
Giulia Semenzato	Metabolism, resistance, competition: insights into the driving forces shaping endomicrobiome assemblage in <i>Origanum heracleoticum</i> L.		
Francesca Vaccaro	The dissection of genotype-by-genotype interkingdom interactions can help identify sociomicrobiological clues of synthetic communities assembly: a model with the symbiotic nitrogen-fixer <i>Sinorhizobium meliloti</i> and <i>Trichoderma</i>		
Gaia Vertillo	Effects of knock-out in the bacteriocin cluster of <i>Streptococcus salivarius</i> 24SMBc on bacteriocin production and antimicrobial activity		

15:00 **Prizes**

PREMIO FRANCO TATÒ

Bisaccia Melissa	Microbial Biodiversity by Culture-Independent and -Dependent Approaches of a Marine Biofilm Community in Terra Nova Bay, Antarctica
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PREMIO GENPROBIO

Sofia Chioccioli	Effects of diets, drug and natural compounds on the prevention of colon carcinogenesis: the role of intestinal microbiome.
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PREMIO MIGLIOR LAVORO SIMGBM

Massimiliano Lucidi	Phage-mediated colicin resistance in <i>A. baumannii</i>
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PREMIO SIMGBM 2024

Chiara Tarracchini	Engraftment, development, and roles of the infant gut microbiota
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PREMIO GALIZZI

Best poster award