

GIORNATE DEL DOTTORATO NAZIONALE
Innovazione nella diagnosi, prevenzione e terapia delle infezioni
a rischio epidemico-pandemico
Certosa di Pontignano 17-21 marzo 2025

Programma
Monday -17th March, 2025

12.15 – 13.15	Networking lunch and registration	
13.30-14.00	OPENING SESSION	
	Roberto Di Pietra <i>Magnifico Rettore, Università di Siena</i>	
	Donata Medaglini <i>Pro Rettore Vicaria, Coordinatrice Dottorato Nazionale, Università di Siena</i>	
	Annalisa Santucci <i>Consiglio di amministrazione Biocentro di Siena, Università di Siena</i>	
	Stefania Stefani <i>Presidente Società Italiana di Microbiologia</i>	
	Jacqueline Irene Müller <i>Responsabile Ufficio Dottorato di Ricerca, Università di Siena</i>	
Session 1	Virus-host interaction <i>Chairs: Guido Antonelli, Mirko Cortese</i> <i>Co-chairs: Lilia Cinti, Letizia Rizzo</i>	
14.00-14.45	<i>RNA viruses host interaction</i>	Mirko Cortese Università della Campania "Luigi Vanvitelli"
14.45-15.00	<i>Identification of host factors required for SARS-CoV-2 replication as potential target for development of broad-spectrum antivirals.</i>	Federica Camerota Università della Campania "Luigi Vanvitelli"
15.00-15.10	<i>Tick-Borne diseases in central Italy: Epidemiological Surveillance, clinical and microbiological investigation (the Tick- BITES project)</i>	Serena Scacchi Università di Firenze
15.10- 15.20	<i>Pathobiological features and treatment of Toscana virus, a neglected foe</i>	Letizia Rizzo Università di Siena
15.20-15.50	Coffee break	

15.50-16.35	<i>Viral respiratory infections and their interaction with the host: an update</i>	Alessandra Pierangeli Università di Roma "La Sapienza"
16.35-16.50	<i>Heparan Sulfate Proteoglycans involvement in human infections</i>	Giulio Bonucci Università di Siena
16.50-17.05	<i>Torque Teno Virus (TTV) as a marker of immune status: an update</i>	Lilia Cinti Università di Roma "La Sapienza"
Session 2	<i>Antiviral drugs development</i> <i>Chairs: Mauro Pistello, Lucia Nencioni</i> <i>Co-chairs: Giulia Sciandrone, Domenico Favaro</i>	
17.05-17.50	<i>Antiviral approaches against potentially pandemic arboviruses</i>	Mauro Pistello Università di Pisa
17.50-18.05	<i>Lipid metabolism and Flavivirus infection: new molecules and antiviral targets for pan-flaviviruses therapy</i>	Giulia Sciandrone Università di Pisa
18.05-18.20	<i>Antiviral drug development to counteract vector-borne emerging and re-emerging diseases</i>	Chiara Paletti Università di Siena
18.20-18.35	<i>Synthesis of antiviral drugs</i>	Maria Chiara Pieroni Università di Siena
18.35-18.50	<i>Development of potent and broad-spectrum antiviral compounds against respiratory viruses with both epidemic and pandemic potential</i>	Alessia Zago Università di Padova
18.50-19.05	<i>In vitro study of Echovirus 11 infection: focus on virus-induced inflammatory pathways</i>	Maria Rita Leccese Università di Roma "La Sapienza"
19.05-19.15	<i>Supramolecular attack particles (Smaps): a new weapon against virus-infected cells</i>	Maria Carmela Cavallo Università di Siena
19.15-19.25	<i>Development of Novel Antiviral Therapeutics Utilizing CRISPR-Cas13d for Epidemic and Pandemic Infections</i>	Domenico Favaro Università di Pisa
20.00	Dinner Certosa di Pontignano	

Tuesday- 18th March, 2025

Sessione 3	Bacterial physiology and new drug targets <i>Chair: Pietro Alifano, Gianni Pozzi</i> <i>Co-chairs: Sacha Cancade, Giulia Gorgoni</i>	
08.30 – 09.15	<i>Revisiting the intracellular/extracellular lifestyle of bacterial pathogens</i>	Pietro Alifano Università del Salento
09.15-09.30	<i>Employment of two ex vivo infection models, Granuloma-like Structure and Monolayer of macrophages, to evaluate new drugs against Mycobacterium tuberculosis</i>	Enrica Campagnaro Università di Padova
09.30-09.45	<i>Antimicrobial activity from natural sources</i>	Roberta Barletta Università di Siena
09.45-09.55	<i>Inhibitors of the stringent response and pyroptosis for the treatment of systemic infections caused by pathogenic bacteria of relevant clinical interest.</i>	Davide Schito Università del Salento
09.55-10.05	<i>Air-Liquid Interface respiratory model for infection studies with Streptococcus pneumoniae</i>	Giulia Gorgoni Università di Siena
10.05-10.15	<i>Pseudomonas aeruginosa Quorum Sensing Systems as Drug Targets: design of new tools inhibiting biofilm formation</i>	Leonardo Milioni Università di Siena
10.15-10.30	<i>Exploring the function of new Rid family members to find new targets for antibacterial therapy</i>	Andrea Giuliano Università del Salento
10.30-11.00	Coffee break	
Sessione 4	Host response and infections (I) <i>Chairs: Antonella Naldini, Mario Milco D'Elisos</i> <i>Co- chairs: Chiara Papi, Filippo Mediola</i>	
11.00-11.45	<i>Mass spectrometry in biological analysis</i>	Federica Dal Bello Università di Torino
11.45-12.00	<i>A Novel Magnetic Resonance Imaging tool for the diagnosis and monitoring of infectious diseases</i>	Chiara Papi Università di Torino
12.00-12.10	<i>Mass spectrometry as a methodology for molecular investigation of emerging pharmaceutical pollutants: a diagnostic aid for infection prevention</i>	Serena Arpaia Università di Torino
12.10-12.55	<i>Modulation of adhesion molecules in the pathogenesis of eosinophilic severe asthma</i>	Laura Bergantini Università di Siena
12.55-13.10	<i>The Humoral Immune Response against Human Endogenous Retroviruses in Autoimmune and Inflammatory Diseases</i>	Alishba Fayaz Università di Sassari

13.10-13.20 *Pandemic and epidemic viral infection as risk factor for bacterial and fungal superinfections in immunocompromised host* **Filippo Medioli**
Humanitas University

13.20-13.30 *The Puzzle of Pneumonia in Immunocompromised Patients: New Research Perspectives* **Margherita Silani**
Humanitas University

13.30-14.30 Lunch

Sessione 5 **Host response and infections (II)**
Chair: Cosima Baldari, Lucia Morbidelli
Co-chairs: Maria Rita Leccese, Davide Schito

14.30-15.15 *Mucosal immunity in Helicobacter pylori infection* **Mario Milco d'Elis**
Università di Siena

15.15-15.30 *Unravelling immune modulation mechanisms and biomarkers in Helicobacter pylori and gastric diseases* **Evangelia Asvestopoulou**
Università di Siena

15.30-15.45 *Studying infections in an ex-vivo perfusion model* **Giulia Cattabriga**
Università di Bologna

15.45-15.55 *Pulmonary fibrosis: A dual face - Comparison of idiopathic pulmonary fibrosis and post-COVID-19 pulmonary fibrosis* **Bruna Sabbatino**
Università di Siena

15.55-16.05 *Innovative Strategies for Managing Immunity, Inflammation, and Allergies: The Role of Microbiota and Targeted Extracts* **Bashar Al Mousawi**
Università di Siena

16.05-16.30 Coffee break

16.30-17.15 *CAR-T cell therapy for infectious diseases* **Cosima Baldari**
Università di Siena

17.15-17.30 *Development of Long Pentraxin PTX3 as an Infection Biomarker* **Francesca Vaino**
Humanitas University

17.30-17.45 *Immunological features of post-COVID-19 lung sequelae: study and validation of novel non-invasive biomarkers* **Irene Paggi**
Università di Siena

17.45-18.00 *Investigation of new biomarkers for Long COVID associated with respiratory diseases* **Giorgia Rossetti**
Università di Siena

20.00 Dinner Certosa di Pontignano

Wednesday- 19th March, 2025

Sessione 6	Vaccines <i>Chairs: Giuseppe Stefanetti, Luisa Bracci</i> <i>Co-Chairs: Chiara Romiti, Mabel Miranda Echague</i>	
09.00 – 09.45	<i>Carbohydrate-based vaccines: from bacterial pathogens to viral glycosylation</i>	Giuseppe Stefanetti Università di Urbino Carlo Bo
09.45-10.00	<i>A murine model of invasive enteric infection with Salmonella enterica serovar Typhimurium as a tool to study host response to infection and vaccine protection</i>	Valentina Mocci Università di Siena
10.00-10.10	<i>Investigation of the immune response against Salmonella typhimurium O-antigen</i>	Chiara Andretta Università di Siena
10.10-10.55	<i>Mucus, a barrier to the outside world may become an anti-infective medicine of the future?</i>	Sonja Visentin Università di Torino
10.55-11.05	<i>Mucosomes and muco-gels: new multifunctional platforms for prophylaxis, diagnosis and therapy against fungal, bacterial and viral infections</i>	Evelina Fassina Università di Torino
11.05-11.35	Coffee break	
11.35-12.20	<i>Structural vaccinology. A structural biology approach for vaccine antigen design</i>	Rita Berisio Università della Campania "Luigi Vanvitelli"
12.20-12.35	<i>Discovering orange-derived extracellular vesicles as pioneering nanosystems for drug delivery</i>	Chiara Romiti Università di Torino
12.35-12.45	<i>Transcriptomic Analysis of the Immune Response to Vaccines</i>	Hadiqa Hadiqa Università di Siena
12.45-12.55	<i>Co-morbidities and Immune Response: Following vaccination, the production and durability of spike-specific B cells are impacted by co-morbid conditions</i>	Ebad Ullah Università di Siena
12.55-13.55	Lunch	

Vaccines

Chairs: Luigi Calzolari, Agnese Magnani

13.55-14.40	<i>Quality attributes of LNP-RNA therapeutics</i>	Luigi Calzolari European Commission Joint Research Centre
14.40-14.50	<i>Optimization and characterization of LNP platform for mRNA delivery</i>	Filippo Soldati Università di Siena
14.50-15.35	<i>Unravelling the role of smart lipid-based nanoparticles in targeted drug delivery</i>	Luigi Talarico Università di Siena
15.35-15.45	<i>Development of smart lipid-based nanoparticles for targeted delivery of RNA to improve efficiency and safety of antimicrobial/antiviral therapies</i>	Chiara Agnello Università di Siena
15.45-16.15	Coffee break	
16.15-17.00	<i>Bacterial spore formers: gut colonizers, probiotics and mucosal vaccine platforms</i>	Ezio Ricca Università di Napoli "Federico II"
17.00-17.10	<i>Bacterial spores as mucosal vaccine vehicles against infectious diseases at epidemic/pandemic risk</i>	Chiara Belaëff Università di Napoli "Federico II"

Session 7

Machine learning approaches

Chair: Gastone Castellani

Co-chair: Federico Magnani, Gabriel Dos Santos Mouta

17.10-18.10	<i>Artificial Intelligence</i>	Gastone Castellani Università di Bologna
18.10-18.25	<i>Developing statistical tests for the hypothesis of bacterial zonation in liver</i>	Federico Magnani Università di Bologna
18.25-18.35	<i>Unifying Systems Vaccinology: A Platform for Integrative Vaccine Research</i>	Gabriel Dos Santos Mouta Università di Siena
20.00	Dinner Certosa di Pontignano	

Thursday 20th March

Session 8	Antimicrobial resistance <i>Chair: Gian Maria Rossolini</i> <i>Co-chairs: Sara Bolognini, Matteo Angeletti</i>	
08.30-09.15	<i>Innovative diagnostics for curbing antimicrobial resistance</i>	Gian Maria Rossolini Università di Firenze
09.15-09.30	<i>Development of Innovative Antibacterial Strategies Targeting Critical Priority Antibiotic-resistant Pathogens</i>	Sacha Michele Idriss Cancade Università di Siena
09.30-09.45	<i>Antibiotic heteroresistance and the emergence of cefiderocol-resistant Gram-negative bacteria</i>	Maurizio Guastalegname Università di Firenze
09.45-09.55	<i>Characterization of novel antimicrobial strategies and relevant resistance mechanisms on clinical and environmental isolates of carbapenem-resistant <i>Acinetobacter baumannii</i></i>	Matteo Angeletti Università di Firenze
09.55-10.05	<i>Structural and functional studies of bacterial molecular machineries as tools against antimicrobial resistance</i>	Ornella Ghilardi Università della Campania "Luigi Vanvitelli"
10.05-10.35	Coffee break	
10.35-11.20	<i>Discovery and development of antibacterial drugs in the era of resistance</i>	Jean Denis Docquier Università di Siena
11.20-11.35	<i>Bacterial-derived extracellular vesicles: new player in antimicrobial resistance</i>	Marco Catania Università di Catania
11.35-11.50	<i>Inside beta-lactam resistance: mutation and expression among Penicillin-Resistant Ampicillin-Susceptible <i>Enterococcus faecalis</i></i>	Paola Conti Università di Catania
11.50-12.05	<i>Enhancing the efficacy of bacteriophages for the treatment of infections caused by Multidrug Resistant bacteria</i>	Sara Bolognini Università di Pisa
12.05-12.20	<i>Metagenomic analysis for the characterization of resistant pathogens carried by healthy residents or migrants from Latin America rural communities</i>	Chiara Chilleri Università di Firenze
12.20-13.20	Lunch	

Session 9		Monoclonal antibodies
		<i>Chairs: Luca Varani</i> <i>Co-chairs: Federica Camerota, Costanza Corbini</i>
13.20-14.05	<i>Monoclonal antibodies against Covid-prion</i>	Luca Varani Institute for Research of Bellinzona
14.05-14.20	<i>Fc-mediated effector functions elicited by monoclonal antibodies against SARS-CoV-2(TBD)</i>	Ludovica Soldateschi Università di Siena
14.20-14.30	<i>Identification of neutralizing human monoclonal antibodies against the prototype Toscana virus</i>	Miranda Echague Mabel Rocio Università di Siena
14.30-14.45	<i>Isolation of monoclonal antibodies against Klebsiella pneumoniae ST101</i>	Laura Capoccia Università di Siena
14.45-15.15	Coffee break	
15.15-15.25	<i>Development and optimisation of functional assays for evaluating bactericidal activity of vaccines and monoclonal antibodies against emerging bacterial diseases using innovative high-throughput technologies</i>	Sabrina Lashchuk Università di Siena
15.30	<i>Visit Siena Vaccine centre (40th cycle PhD students)</i> <i>Visit of Siena (39th cycle PhD students)</i>	
20.00	Dinner in Ristorante il Tufo, Piazza del Campo di Siena	

Friday – 21st March 2025

Session 10		Vaccines (Part II)
		<i>Chairs: Rino Rappuoli, Annalisa Ciabattini</i> <i>Co-chairs: Ludovica Soldateschi, Monica Fabiani</i>
08.45 – 09.30	<i>Pandemic Preparedness</i>	Rino Rappuoli Fondazione Biocentro Siena
09.30-09.45	<i>The immune synapse: an immune response biomarker to evaluate the efficacy of vaccination strategies</i>	Samuele Montano Università di Siena
09.45-10.00	<i>Longitudinal analysis of spike specific antibody and memory B cell responses in SOT recipients following SARS-CoV-2 mRNA vaccination</i>	Chiara Coppola Università di Siena
10.00-10.10	<i>Immune profiling of antigen-specific humoral and cellular immune response after vaccination and analysis of the vaccine induced protection in pre-clinical models</i>	Marco Fersini Università di Urbino Carlo Bo

10.10-10.20	<i>Development of a broad-spectrum glycan-masked RBD based SARS-COV2 vaccine</i>	Gemma Temellini Università di Siena
10.20-10.30	<i>Systems serology-based analysis of antibody responses induced by SARS-CoV-2 vaccination</i>	Costanza Corbini Università di Siena
10.30-11.00	Coffee break	
11.00-11.45	<i>Innate immune response in infection and vaccination</i>	Eliana Coccia Istituto Superiore di Sanità
11.45-12.00	<i>Discovery and validation of biomarkers of the immune response associated with infections and vaccinations</i>	Martin Mihula Humanitas University
12.00-12.10	<i>Exploiting PBMC/muscle cell crosstalk to dissect adjuvant mechanism of action in intramuscularly administered vaccines</i>	Monica Fabiani Università di Siena Istituto Superiore di Sanità
12.10-12.20	<i>Comprehensive Immune Profiling Following Vaccination in Individuals Living with HIV</i>	Milad Sarwari Università di Siena
12.20-13.00	<i>Conclusions</i>	
13.00	Farewell lunch	