



UNIVERSITÀ
DI SIENA
1240

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 Biotechopolo 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	Antiviral drugs development <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

Chair: Pietro Alifano, Gianni Pozzi

Co-chairs: Sacha Cancade, Giulia Gorgoni

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| 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 |
| 09.45-10.00 | <i>Exploring the function of new Rid family members to find new targets for antibacterial therapy</i> | Andrea Giuliano
Università del Salento |
| 10.55-10.10 | <i>Air-Liquid Interface respiratory model for infection studies with Streptococcus pneumoniae</i> | Giulia Gorgoni
Università di Siena |
| 10.10-10.20 | <i>Pseudomonas aeruginosa Quorum Sensing Systems as Drug Targets: design of new tools inhibiting biofilm formation</i> | Leonardo Milioni
Università di Siena |
| 10.20-10.30 | <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 |

10.30-11.00 Coffee break

Sessione 4

Host response and infections (I)

Chairs: Antonella Naldini, Mario Milco D'Elisio

Co- chairs: Chiara Papi, Filippo Medioli

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| 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 *The Humoral Immune Response against Human Endogenous Retroviruses in Autoimmune and Inflammatory Diseases* **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 Mocchi Università di Siena
10.00-10.10	<i>Investigation of the immune response against induced by carbohydrates-based vaccines</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 (I)

Chairs: Luigi Calzolari, Agnese Magnani

Co-Chairs: Valentina Mocci, Chiara Belaeff

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 Belaeff 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

Chair: Gian Maria Rossolini

Co-chairs: Sara Bolognini, Matteo Angeletti

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 Acinetobacter baumannii</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 Enterococcus faecalis</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</i>	Ludovica Soldateschi Università di Siena
14.20-14.50	<i>mRNA-encoded antibodies against viral and bacterial pathogens</i>	Samuele Stazzoni Toscana Life Sciences
14.50-15.00	<i>Identification of neutralizing human monoclonal antibodies against the prototype Toscana virus</i>	Miranda Echague Mabel Rocio Università di Siena
15.00-15.15	<i>Isolation of monoclonal antibodies against Klebsiella pneumoniae ST101</i>	Laura Capoccia Università di Siena
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	Visit Siena Vaccine centre (40th cycle PhD students) Visit of Siena (39th cycle PhD students)	
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>Strategy for Pandemic Preparedness</i>	Rino Rappuoli Fondazione Biocentro Polo 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
12.20-12.30	<i>Conclusions</i>	
12.45	Farewell lunch	

Contacts: Email: dottoratonazionale@unisi.it

Website: <https://phd-dptip.wp.unisi.it/>