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 *Magnifico Rettore, Università di Siena* **Donata Medaglini** *Pro Rettrice Vicaria, Coordinatrice Dottorato Nazionale, Università di Siena* **Marco Montorsi** *Presidente Fondazione Biotecnopolo Siena* **Andrea Garulli** *Delegato Dottorati di Ricerca, Università di Siena* **Jacqueline Irene Müller** *Responsabile Ufficio Dottorato di Ricerca, Università di Siena*	
	Keynote lecture	
Session 1	**Virus host interaction** *Chair: Guido Antonelli* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
14.00-14.45	*RNA viruses host interaction (TBC)*	**Mirko Cortese** Università della Campania "Luigi Vanvitelli"
14.45-15.00	*Identification of host factors required for SARS-CoV-2 replication as potential target for development of broad-spectrum antivirals.*	**Federica Camerota** Università della Campania "Luigi Vanvitelli"
15.00-15.10	*Tick-Borne diseases in central ITaly: Epidemiological Surveillance, clinical and microbiological investigation (the Tick- BITES project)*	**Serena Scacchi** Università di Firenze
15.10- 15.20	*Pathobiological features and treatment of Toscana virus, a neglected foe*	**Letizia Rizzo** Università di Siena
15.20-15.50	**Coffee break**	

15.50-16.35	*Viral respiratory infections and their interaction with the host: an update*	**Alessandra Pierangeli** Università di Roma "La Sapienza"
16.35-16.50	*Heparan Sulfate Proteoglycans involvement in human infections*	**Giulio Bonucci** Università di Siena
16.50-17.05	*Torque Teno Virus (TTV) as a marker of immune status: an update*	**Lilia Cinti** Università di Roma "La Sapienza"
Session 2	***Antiviral drugs development*** *Chairs: Mauro Pistello, Lucia Nencioni* *Co-chairs: PhD student 39th cycle, PhD student 40th Cycle*	
17.05-17.50	*Antiviral approaches against potentially pandemic arboviruses*	**Mauro Pistello** Università di Pisa
17.50-18.05	*Lipid metabolism and Flavivirus infection: new molecules and antiviral targets for pan-flaviviruses therapy*	**Giulia Sciandrone** Università di Pisa
18.05-18.20	*Antiviral drug development to counteract vector-borne emerging and re-emerging diseases*	**Chiara Paletti** Università di Siena
18.20-18.35	*Synthesis of antiviral drugs (TBD)*	**Maria Chiara Pieroni** Università di Siena
18.35-18.50	*Development of potent and broad-spectrum antiviral compounds against respiratory viruses with both epidemic and pandemic potential*	**Alessia Zago** Università di Padova
18.50-19.05	*In vitro study of Echovirus 11 infection: focus on virus-induced inflammatory pathways*	**Maria Rita Leccese** Sapienza Università di Roma
19.05-19.15	*Supramolecular attack particles (Smaps): a new weapon against virus-infected cells*	**Maria Carmela Cavallo** Università di Siena
19.15-19.25	*Development of Novel Antiviral Therapeutics Utilizing CRISPR-Cas13d for Epidemic and Pandemic Infections*	**Domenico Favaro** Università di Pisa
20.00	**Dinner**	

Tuesday- 18th March, 2025

Sessione 3	**Bacterial physiology and new drug targets** *Chair: Pietro Alifano* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
08.30 – 09.15	*Revisiting the intracellular/extracellular lifestyle of bacterial pathogens*	**Pietro Alifano** Università del Salento
09.15-09.3	*Exploring the function of new Rid family members to find new targets for antibacterial therapy.*	**Andrea Giuliano** Università del Salento
09.30-09.45	*Employment of two ex vivo infection models, Granuloma-like Structure and Monolayer of macrophages, to evaluate new drugs against Mycobacterium tuberculosis*	**Enrica Campagnaro** Università di Padova
09.45-10.00	*Antimicrobial activity from natural sources*	**Roberta Barletta** Università di Siena
10.00-10.10	*Inhibitors of the stringent response and pyroptosis for the treatment of systemic infections caused by pathogenic bacteria of relevant clinical interest.*	**Davide Schito** Università del Salento
10.10-10.20	*Air-Liquid Interface respiratory model for infection studies with Streptococcus pneumoniae*	**Giulia Gorgoni** Università di Siena
10.20-10.30	*Pseudomonas aeruginosa Quorum Sensing Systems as Drug Targets: design of new tools inhibiting biofilm formation*	**Leonardo Milioni** Università di Siena
10.30-11.00	**Coffee break**	
Sessione 4	**Host response and infections (I)** *Chair: Cosima Baldari* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
11.00-11.45	*CAR-T cell therapy for infectious diseases*	**Cosima Baldari** Università di Siena
11.45-12.00	*Development of Long Pentraxin PTX3 as an Infection Biomarker*	**Francesca Vaino** Humanitas University
12.00-12.15	*Immunological features of post-COVID-19 lung sequelae: study and validation of novel non-invasive biomarkers*	**Irene Paggi** Università di Siena
12.15-13.00	*Mass spectrometry in biological analysis*	**Federica Dal Bello** Università di Torino

13.00-13.15	*A Novel Magnetic Resonance Imaging tool for the diagnosis and monitoring of infectious diseases*	**Chiara Papi** Università di Torino
13.15-13.25	*Mass spectrometry as a methodology for molecular investigation of emerging pharmaceutical pollutants: a diagnostic aid for infection prevention*	**Serena Arpaia** Università di Torino
13.25-14.25	**Lunch**	
Sessione 5	**Host response and infections (II)** *Chairs: Emanuele Andreano, Mario Milco D'Elios,* *Co- chairs: PhD student 39thcycle, PhD student 40th Cycle*	
14.25- 15.10	*B cell original antigenic sin at atomic resolution*	**Emanuele Andreano** Fondazione Toscana Life Sciences
15.10-15.20	*Pandemic and epidemic viral infection as risk factor for bacterial and fungal superinfections in immunocompromised host*	**Filippo Medioli** Humanitas University
15.20-15.30	*Pneumonia (TBD)*	**Margherita Silani** Humanitas University
15.30-16.15	*Modulation of adhesion molecules in the pathogenesis of eosinophilic severe asthma*	**Laura Bergantini** Università di Siena
16.15-16.30	*The Humoral Immune Response against Human Endogenous Retroviruses in Autoimmune and Inflammatory Diseases*	**Alishba Fayaz** Università di Sassari
16.30-17.00	**Coffee break**	
17.00-17.45	*Mucosal immunity in Helicobacter pylori infection*	**Mario Milco d'Elios** Università di Siena
17.45-18.00	*Unravelling immune modulation mechanisms and biomarkers in Helicobacter pylori and gastric diseases*	**Evangelia Asvestopoulou** Università di Siena
18.00-18.10	*Pulmonary fibrosis: A dual face - Comparison of idiopathic pulmonary fibrosis and post-COVID-19 pulmonary fibrosis*	**Bruna Sabbatino** Università di Siena
18.10-18.20	*Investigation of new biomarkers for Long COVID associated with respiratory diseases*	**Giorgia Rossetti** Università di Siena
20.00	**Dinner**	

Wednesday- 19th March, 2025

Sessione 6	**Vaccines (I)** *Chairs: Giuseppe Stefanetti, Luigi Calzolai* *Co-Chairs: PhD student 39thcycle, PhD student 40th Cycle*	
09.00 – 09.45	*Carbohydrate-based vaccines: from bacterial pathogens to viral glycosylation*	**Giuseppe Stefanetti** Università di Urbino Carlo Bo
09.45-10.00	*A murine model of invasive enteric infection with Salmonella enterica serovar Typhimurium as a tool to study host response to infection and vaccine protection*	**Valentina Mocci** Università di Siena
10.00-10.10	*Investigation of the immune response against Salmonella typhimurium O-antigen*	**Chiara Andretta** Università di Siena
10.10-10.55	*Mucus, a barrier to the outside world may become an anti-infective medicine of the future?*	**Sonja Visentin** Università di Torino
10.55-11.05	*Mucosomes and muco-gels: new multifunctional platforms for prophylaxis, diagnosis and therapy against bacterial and viral infections*	**Evelina Fassina** Università di Torino
11.05-11.35	**Coffee break**	
11.35-12.20	*Structural vaccinology. A structural biology approach for vaccine antigen design*	**Rita Berisio** Università della Campania "Luigi Vanvitelli
12.20-12.35	*Discovering orange-derived extracellular vesicles as pioneering nanosystems for drug delivery*	**Chiara Romiti** Università di Torino
12.35-12.45	*Transcriptomic Analysis of the Immune Response to Vaccines*	**Hadiqa Hadiqa** Università di Siena
12.45-12.55	*Co-morbidities and Immune Response: Following vaccination, the production and durability of spike-specific B cells are impacted by co-morbid conditions*	**Ullah Ebad** Università di Siena
12.55-13.55	**Lunch**	
13.55-14.40	*Quality attributes of LNP-RNA therapeutics*	**Luigi Calzolai** European Commission, Joint Research Centre

14.40-14.50	*Optimization and characterization of LNP platform for mRNA delivery*	**Filippo Soldati** Università di Siena
14.50-15.35	*Unravelling the role of smart lipid-based nanoparticles in targeted drug delivery*	**Agnese Magnani** Università di Siena
15.35-15.45	*Development of smart lipid-based nanoparticles for targeted delivery of RNA to improve efficiency and safety of antimicrobial/antiviral therapies*	**Chiara Agnello** Università di Siena
15.45-16.15	**Coffee break**	
16.15-17.00	*Bacterial spore formers: gut colonizers, probiotics and mucosal vaccine platforms*	**Ezio Ricca** Università di Napoli "Federico II"
17.00-17.10	*Bacterial spores as mucosal vaccine vehicles against infectious diseases at epidemic/pandemic risk*	**Chiara Belaeff** Università di Napoli "Federico II"
Session 7	**Machine learning approaches** *Chair: Gastone Castellani* *Co-chair: PhD student 39thcycle, PhD student 40th Cycle*	
17.10-18.10	*Artificial Intelligence*	**Gastone Castellani** Università di Bologna
18.10-18.25	*Developing statistical tests for the hypothesis of bacterial zonation in liver*	**Federico Magnani** Università di Bologna
18.25-18.35	*TBD*	**Gabriel Dos Santos Mouta** Università degli Studi di Siena
20.00	**Dinner**	

Thursday 20th March

Session 8	**Antimicrobial resistance** *Chair: Gian Maria Rossolini* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
08.30-09.15	*Innovative diagnostics for curbing antimicrobial resistance*	**Gian Maria Rossolini** Università di Firenze
09.15-09.30	*Development of Innovative Antibacterial Strategies Targeting Critical Priority Antibiotic-resistant Pathogens*	**Sacha Michele Idriss Cancade** Università di Siena
09.30-09.45	*Impact of antibiotic heteroresistance on the clinical outcomes of infections due to carbapenem-resistant Gram-negative bacteria and on the emergence and spread of resistance to new beta-lactams (TBD)*	**Maurizio Guastalegname** Università di Firenze

09.45-09.55	*Characterization of novel antimicrobial strategia and relevant resistance mechanisms on clinical and environmental isolates of carbapenem-resistant Acinetobacter baumannii*	**Matteo Angeletti** Università di Firenze
09.55-10.05	*Structural and functional studies of bacterial molecular machineries as tools against antimicrobial resistance*	**Ornella Ghilardi** Università della Campania "Luigi Vanvitelli
10.05-10.35	**Coffee break**	
10.35-11.20	*Discovery and development of antibacterial drugs in the era of resistance*	**Jean Denis Docquier** Università di Siena
11.20-11.35	*Bacterial-derived extracellular vesicles: new player in antimicrobial resistance*	**Marco Catania** Università di Catania
11.35-11.50	*Inside beta-lactam resistance: mutation and expression among Penicillin-Resistant Ampicillin-Susceptible Enterococcus faecalis*	**Paola Conti** Università di Catania
11.50-12.05	*Enhancing the efficacy of bacteriophages for the treatment of infections caused by Multidrug Resistant bacteria*	**Sara Bolognini** Università di Pisa
12.05-12.20	*Characterization of the silenced chromosomal Fosfomycin resistance gene of Staphylococcus epidermidis*	**Giulia Cattabriga** Università di Bologna
12.20-12.35	*Metagenomic analysis for the characterization of resistant pathogens carried by healthy residents or migrants from Latin America rural communities*	**Chiara Chilleri** Università di Firenze
12.35-13.35	**Lunch**	
Session 9	**Monoclonal antibodies** *Chairs: Luca Varani, Claudia Sala* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
13.35-14.20	*Monoclonal antibodies against Covid-prion*	**Luca Varani (TBC)** Institute for Research of Bellinzona
14.20-14.35	*Fc-mediated effector functions elicited by monoclonal antibodies against SARS-CoV-2*	**Ludovica Soldateschi** Università di Siena
14.35-14.45	*Identification of neutralizing human monoclonal antibodies against the prototype Toscana virus*	**Miranda Echague Mabel Rocio** Università degli Studi di Siena
14.45-15.15	**Coffee break**	

15.15-16.00	*Antibacterial monoclonal antibodies*	**Claudia Sala** Fondazione Toscana Life Science
16.00-16.15	*Isolation of monoclonal antibodies against Klebsiella pneumoniae ST101 (TBD)*	**Laura Capoccia** Università di Siena
16.15-16.25	*Development and optimisation of functional assays for evaluating bactericidal activity of vaccines and monoclonal antibodies against emerging bacterial diseases using innovative high-throughput technologies*	**Sabrina Lashchuk** Università degli Studi di Siena
16.25	*Visit Siena Vaccine centre (40th cycle PhD students)* *Visit of Siena (39th cycle PhD students)*	
20.00	***Dinner in Siena***	

Friday – 21st March 2025

Session 10	**Vaccines (Part II)** *Chairs: Annalisa Ciabattini, Rino Rappuoli* *Co-chairs: PhD student 39thcycle, PhD student 40th Cycle*	
08.45 – 09.30	*TBD*	**Rino Rappuoli** Fondazione Biotecnopolo Siena
09.30-09.45	*The immune synapse: an immune response biomarker to evaluate the efficacy of vaccination strategies*	**Samuele Montano** Università di Siena
09.45-10.00	*Longitudinal analysis of spike specific antibody and memory B cell responses in SOT recipients following SARS-CoV-2 mRNA vaccination (TBD)*	**Chiara Coppola** Università di Siena
10.00-10.10	*Immune profiling of antigen-specific humoral and cellular immune response after vaccination and analysis of the vaccine induced protection in pre-clinical models (TBD)*	**Marco Fersini** Università di Urbino Carlo Bo
10.10-10.20	*Development of a broad-spectrum glycan-masked RBD based SARS-COV2 vaccine*	**Gemma Temellini** Università di Siena
10.20-10.30	*TBD*	**Al Mousawi Bashar** Università di Siena
10.30-10.40	*Analysis of humoral and cellular responses to SARS-CoV-2, seasonal influenza, and Zoster vaccines in people living with HIV (TBD)*	**Costanza Corbini** Università di Siena
10.40-11.10	**Coffee break**	

11.10-11.55	*Innate immune response in infection and vaccination*	**Eliana Coccia** Istituto Superiore di Sanità
11.55-12.10	*Discovery and validation of biomarkers of the immune response associated with infections and vaccinations*	**Martin Mihula** Humanitas University
12.10-12.20	*Exploiting PBMC/muscle cell crosstalk to dissect adjuvant mechanism of action in intramuscularly administered vaccines*	**Monica Fabiani** Università degli Studi di Siena (Istituto Superiore di Sanità)
12.20-12.30	*Comprehensive Immune Profiling Following Vaccination in Individuals Living with HIV*	**Milad Sarwari** Università di Siena
12.30-13.00	*Conclusions*	
13.00	**Farewell lunch**	