UNIVERSITÀ DI SIENA 1240

GIORNATE DEL DOTTORATO NAZIONALE

Innovazione nella diagnosi, prevenzione e terapia delle infezioni a rischio epidemico-pandemico

Siena, Certosa di Pontignano

17-21 marzo 2025

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* **Annalisa Santucci** *Consiglio di amministrazione Biotecnopolo di Siena, Università di Siena* **Stefania Stefani** *Presidente Società Italiana di Microbiologia* **Jacqueline Irene Müller** *Responsabile Ufficio Dottorato di Ricerca, Università di Siena*	
Session 1	**Virus-host interaction** *Chairs: Guido Antonelli, Mirko Cortese* *Co-chairs: Lilia Cinti, Letizia Rizzo*	
14:00-14:45	*RNA viruses host interaction*	**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

15:20-16:05	*Viral respiratory infections and their interaction with the host: an update*	**Alessandra Pierangeli** Università di Roma "La Sapienza"
16:05-16:20	*Heparan Sulfate Proteoglycans involvement in human infections*	**Giulio Bonucci** Università di Siena
16:20-16:35	*Torque Teno Virus (TTV) as a marker of immune status: an update*	**Lilia Cinti** Università di Roma "La Sapienza"
16:35-17:05	**Coffee Break**	
Session 2	***Antiviral drugs development*** *Chairs: Mauro Pistello, Lucia Nencioni* *Co-chairs: Giulia Sciandrone, Domenico Favaro*	
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*	**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** Università di Roma "La Sapienza"
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 Certosa di Pontignano**	

Tuesday - 18th March, 2025

Sessione 3	**Bacterial physiology and new drug targets** *Chairs: Pietro Alifano, Gianni Pozzi* *Co-chairs: Sacha Cancade, Giulia Gorgoni*	
08:30-09:15	*Revisiting the intracellular/extracellular lifestyle of bacterial pathogens*	**Pietro Alifano** Università del Salento
09:15-09:30	*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
09:30-09:45	*Antimicrobial activity from natural sources*	**Roberta Barletta** Università di Siena
09:45-10:00	*Exploring the function of new Rid family members to find new targets for antibacterial therapy*	**Andrea Giuliano** Università del Salento
10:00-10:10	*Air-Liquid Interface respiratory model for infection studies with Streptococcus pneumoniae*	**Giulia Gorgoni** Università di Siena
10:10-10:20	*Pseudomonas aeruginosa Quorum Sensing Systems as Drug Targets: design of new tools inhibiting biofilm formation*	**Leonardo Milioni** Università di Siena
10:20-10:30	*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
10:30-11:00	**Coffee break**	
Sessione 4	**Host response and infections (I)** *Chairs: Antonella Naldini, Mario Milco D'Elios* *Co- chairs: Chiara Papi, Filippo Medioli*	
11:00-11:45	*Mass spectrometry in biological analysis*	**Federica Dal Bello** Università di Torino
11:45-12:00	*A Novel Magnetic Resonance Imaging tool for the diagnosis and monitoring of infectious diseases*	**Chiara Papi** Università di Torino
12:00-12:10	*Mass spectrometry as a methodology for molecular investigation of emerging pharmaceutical pollutants: a diagnostic aid for infection prevention*	**Serena Arpaia** Università di Torino
12:10-12:55	*Modulation of adhesion molecules in the pathogenesis of eosinophilic severe asthma*	**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)** *Chairs: Cosima Baldari, Lucia Morbidelli, Francesco Dotta* *Co-chairs: Maria Rita Leccese, Davide Schito*	
14:30-15:15	*Mucosal immunity in Helicobacter pylori infection*	**Mario Milco D'Elios** 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	*MicroRNAs as regulators of autoimmunity in post-COVID syndrome*	**Laura Capoccia** Università di Siena
18:00-18:10	*Investigation of new biomarkers for Long COVID associated with respiratory diseases*	**Giorgia Rossetti** Università di Sien
20:00	**Dinner**	

Wednesday - 19th March, 2025

Sessione 6	**Vaccines** *Chairs: Giuseppe Stefanetti, Luisa Bracci* *Co-Chairs: Chiara Romiti, Mabel Miranda Echague*	
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 induced by carbohydrates-based vaccines*	**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 fungal, 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*	**Ebad Ullah** Università di Siena
12:55-13:55	**Lunch**	

	Vaccines (I) *Chairs: Luigi Calzolai, Agnese Magnani* *Co-Chairs: Valentina Mocci, Chiara Belaeff*	
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*	**Luigi Talarico** 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-chairs: Federico Magnani, Gabriel Dos Santos Mouta*	
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	*Unifying Systems Vaccinology: a Platform for Integrative Vaccine Research*	**Gabriel Dos Santos Mouta** Università di Siena
20:00	**Dinner Certosa di Pontignano**	

Thursday - 20th March

Session 8	**Antimicrobial resistance** *Chairs: Gian Maria Rossolini, Jean Denis Docquier* *Co-chairs: Sara Bolognini, Matteo Angeletti*	
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	*Antibiotic heteroresistance and the emergence of cefiderocol-resistant Gram-negative bacteria*	**Maurizio Guastalegname** Università di Firenze
09:45-09:55	*Characterization of novel antimicrobial strategies 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	*Metagenomic analysis for the characterization of resistant pathogens carried by healthy residents or migrants from Latin America rural communities*	**Chiara Chilleri** Università di Firenze
12:20-13:20	**Lunch**	

Session 9	**Monoclonal antibodies** *Chair: Luca Varani* *Co-chairs: Federica Camerota, Costanza Corbini*	
13:20-14:05	*Structure based rational design of neuroprotective antibodies against prion protein*	**Luca Varani** Institute for Research of Bellinzona
14:05-14:20	*Fc-mediated effector functions elicited by monoclonal antibodies against SARS-CoV-2*	**Ludovica Soldateschi** Università di Siena
14:20-15:00	*mRNA-encoded antibodies against viral and bacterial pathogens*	**Samuele Stazzoni** Toscana Life Sciences
15:00-15:10	*Identification of neutralizing human monoclonal antibodies against the prototype Toscana virus*	**Miranda Echague Mabel Rocio** Università di Siena
15:10-15:20	*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 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)** *Chairs: Rino Rappuoli, Annalisa Ciabattini, Eliana Coccia* *Co-chairs: Ludovica Soldateschi, Monica Fabiani*	
08:45-09:30	*Innate immune response in infection and vaccination*	**Eliana Coccia** Istituto Superiore di Sanità 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*	**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*	**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	*Comprehensive Immune Profiling Following Vaccination in Individuals Living with HIV*	**Milad Sarwari** Università di Siena
10:30-11:00	**Coffee break**	
11:00-11:45	*Strategies for Pandemic Preparedness*	**Rino Rappuoli** Fondazione Biotecnopolo
11:45-12:00	*Discovery and validation of biomarkers of the immune response associated with infections and vaccinations*	**Martin Mihula** Humanitas University
12:00-12:10	*Exploiting PBMC/muscle cell crosstalk to dissect adjuvant mechanism of action in intramuscularly administered vaccines*	**Monica Fabiani** Università di Siena Istituto Superiore di Sanità
12:10-12:20	*Systems serology-based analysis of antibody responses induced by SARS-CoV-2 vaccination*	**Costanza Corbini** Università di Siena
12:20-12:30	*Conclusions*	
12:45	**Farewell lunch**	

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