



**UNIVERSITÀ
DI SIENA
1240**

GIORNATE DEL DOTTORATO NAZIONALE

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



Certosa di Pontignano, Siena

9-13 marzo 2026



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e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



**UNIVERSITÀ
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12:15 **Networking lunch and registration**

13:15 **OPENING SESSION**

Roberto Di Pietra
Rector, University of Siena

Donata Medaglini
Vice-Rector, National PhD Program Coordinator, University of Siena

Simone Grandini
Director of the Department of Medical Biotechnologies

Andrea Garulli
Delegate for PhD Programs, University of Siena

Gianluca Polifrone
Director General of the Fondazione Biotecnopolo di Siena

Marco Montorsi
President of the Fondazione Biotecnopolo di Siena

Annalisa Santucci
Board of Directors of the Fondazione Biotecnopolo di Siena

Giovanni Delogu 
President of the Italian Society of Microbiology

SESSION 1 - VACCINES

Chairs: Donata Medaglini, Emanuele Montomoli
Co-chairs: Samuele Montano, Marco Fersini

14:00 *Vaccines and monoclonal antibodies in the era of artificial intelligence* **Rino Rappuoli**
Fondazione Biotecnopolo di Siena

14:45 *The immune synapse: an immune response biomarker to evaluate the efficacy of vaccination strategies* **Samuele Montano**
Università di Siena

15:00 *Profiling the spike-specific antibody responses induced by SARS-CoV-2 vaccination in Immunocompromised vs immunocompetent subjects* **Costanza Corbini**
Università di Siena

15:10 *Oral microbiota in unvaccinated individuals stratified by vaccine-induced immune response and prior COVID-19 experience* **Martin Mihula**
Humanitas University



Monday March 9th, 2026

SESSION 1 - VACCINES (cont'd)

Chairs: Donata Medaglini, Emanuele Montomoli
Co-chairs: Samuele Montano, Marco Fersini

15:25 *Investigation of the immune response induced by carbohydrates-based vaccines* **Chiara Andretta**
Università di Siena

15:35 *Development of a broad-spectrum glycan-masked RBD based SARS-COV2 vaccine* **Gemma Temellini**
Università di Urbino Carlo Bo

15:45 **Coffee break**

16:15 *Neuraminidase the forgotten influenza antigen* **Emanuele Montomoli**
Università di Siena

16:55 *Follow up of antigen-specific memory B cell response upon vaccination against epidemic- and pandemic-risk pathogens* **Chiara Coppola**
Università di Siena

17:10 *Comprehensive immune profiling following vaccination in individuals living with HIV* **Milad Sarwari**
Università di Siena

17:20 *Transcriptomic profiling of immune response to the invasive non-typhoidal Salmonella-GMMA vaccine in an African cohort* **Hadiqa Hadiqa**
Università di Siena

17:30 *The Marie Skłodowska-Curie Actions* **Eleni Karakitsou**
European Research
Executive Agency
European Commission

17:50 **Poster session**

19:30 **Dinner**



SESSION 2 - VACCINES DELIVERY SYSTEMS

Chairs: Loredana Baccigalupi, Agnese Magnani
Co-chairs: Evelina Fassina, Filippo Soldati

9:00	<i>Fighting Infection Disease with Spores: New Frontiers in Vaccine Delivery</i>	Rachele Isticato Università di Napoli "Federico II"
09:40	<i>Mucin-Based Systems as New Multifunctional Platforms for Candida albicans and beyond</i>	Evelina Fassina Università di Torino
09:50	<i>Optimization and characterization of LNP platform for mRNA delivery</i>	Filippo Soldati Università di Siena
10:00	<i>Formulation and Characterization of mRNA-Loaded Lipid Nanoparticles</i>	Chiara Agnello Università di Siena
10:10	<i>Display of an influenza virus multi-epitope on B. subtilis spores</i>	Chiara Belaeff Università di Napoli "Federico II"
10:20	<i>Labelling strategies for extracellular vesicles for MRI: gadolinium vs. iron oxide nanoparticles</i>	Chiara Romiti  Università di Torino

10:35 **Coffee break**

SESSION 3 - IN VIVO, EX VIVO AND IN VITRO INFECTION MODELS

Chairs: Annalisa Ciabattini, Giuseppe Stefanetti
Co-chairs: Giulia Cattabriga, Giulia Gorgoni

11:05	<i>Host-Species-specific invasive disease potential</i>	Marco Rinaldo Oggioni Università di Bologna
11:45	<i>Involvement of Dura mater tissue in rodent models of pneumococcal meningitis</i>	Giulia Cattabriga Università di Bologna
12:00	<i>Murine model of invasive enteric infection with Salmonella Typhimurium to study host responses, microbiome dynamics, and vaccine induced immunity and protection</i>	Valentina Mocci Università di Siena
12:15	<i>Air-Liquid Interface respiratory model for infection studies with Streptococcus pneumoniae</i>	Giulia Gorgoni Università di Siena

SESSION 3 - IN VIVO, EX VIVO AND IN VITRO INFECTION MODELS (cont'd)

Chairs: Annalisa Ciabattini, Giuseppe Stefanetti

Co-chairs: Giulia Cattabriga, Giulia Gorgoni

12:25	<i>Extracellular traps and fibrosis: untangling EETosis in interstitial lung disease</i>	Bruna Sabbatino Università di Siena
12:35	<i>An advanced in vitro model composed of PBMC and muscle cells to evaluate the response to adjuvants and vaccines for human use</i>	Monica Fabiani Istituto Superiore di Sanità
12:45	<i>Profiling the immune response and protection induced by Salmonella Typhimurium O-antigen based vaccines in a mouse model</i>	Marco Fersini Università di Siena

13:00 **Lunch**

SESSION 4 - ANTIVIRAL DRUGS DEVELOPMENT

Chairs: Mauro Pistello, Maurizio Zazzi

Co-chairs: Maria Rita Leccese, Domenico Favaro

14:00	<i>Emerging Antiviral Strategies and Mechanisms of Arbovirus Persistence in Humans</i>	Mauro Pistello Università di Pisa
14:40	<i>N-acylethanolamines metabolism and Flaviviruses: definition of novel antiviral targets for pan-flavivirus therapy</i>	Giulia Sciandrone Università di Pisa
14:55	<i>Biochemical and Antiviral Investigation of Echovirus 11 Helicase 2C as a Potential Drug Target</i>	Maria Rita Leccese Università di Roma "La Sapienza"
15:10	<i>Medicinal Chemistry Approaches to SARS-CoV-2 Proteases: Structural Studies and Inhibitor Synthesis</i>	Maria Chiara Pieroni Università di Siena
15:25	<i>Development of novel antiviral compounds against influenza virus and SARS-CoV-2</i>	Alessia Zago  Università di Padova
15:40	<i>Development of Novel Antiviral Therapeutics Utilizing CRISPR-Cas13d for Epidemic and Pandemic Infections</i>	Domenico Favaro Università di Pisa
15:50	<i>SupraMolecular Attack Particles (SMAPs): a new weapon against virus-infected cells</i>	Maria Carmela Cavallo Università di Siena

16:00 **Coffee break**

16:30 **Roundtable discussion and presentation of collaborative PhD projects**
Chairs: Mauro Pistello, Donata Medaglini, Valentina Mocci, Giulia Cattabriga

17:15 **General assembly of the PhD students**

18:30 **Poster session**

19:30 **Dinner**

SESSION 5 - MACHINE LEARNING APPROACHES

Chairs: Emanuele Andreano, Marco Maggini
Co-chairs: Federico Magnani, Gabriel Dos Santos Mouta

09:00 *Artificial Intelligence in drug design* **Monica Bianchini**
Università di Siena

09:40 *Reverse vaccinology 3.0* **Emanuele Andreano**
Fondazione Biocentro di Siena

10:20 *Single-Cell Multi-omics and Computational Frameworks for Immunological Profiling* **Federico Magnani**
Università di Bologna

10:35 **Coffee break**

11:05 **Poster session**

12:05 *Artificial Intelligence and machine learning approaches for Antimicrobial Resistance prediction* **Claudia Sala**
Università di Bologna

12:45 *Statistical and Bioinformatic Methods for Epidemic Risk Diseases* **Gabriel Dos Santos Mouta**
Università di Siena

13:00 **Lunch**

SESSION 6 - BACTERIAL PHYSIOLOGY AND NEW DRUG TARGETS

Chair: Riccardo Manganelli, Susanna Ricci
Co-Chairs: Andrea Giuliano, Leonardo Milioni

14:00 *Genome and Mobilome* **Riccardo Manganelli**
Università di Padova

14:40 *Integration of an In Vitro Mycobacterium tuberculosis H37Ra Granuloma-Like Structures Model within the Hollow Fiber System* **Enrica Campagnaro**
Università di Padova

14:55 *Exploring the function of new Rid family members to find new targets for antibacterial therapy* **Andrea Giuliano**
Università del Salento

15:10 *A Multi-Phase Study on a Natural Extract as Adjuncts in Combined Therapy* **Bashar Al Mousawi**
Università di Siena

15:20 *Quorum Sensing Modulation to Combat Pseudomonas aeruginosa: design of novel anti-biofilm compounds* **Leonardo Milioni**
Università di Siena

15:30 *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



Wednesday March 11th, 2026

SESSION 6 - BACTERIAL PHYSIOLOGY AND NEW DRUG TARGETS (cont'd)

Chair: Riccardo Manganelli, Susanna Ricci
Co-Chairs: Andrea Giuliano, Leonardo Milioni

15:40	<i>The Impact of the Microbiome on Pharmacology: A Pharmacomicrobiomics Perspective</i>	Sonja Visentin Università di Torino
16:20	<i>Enhancing the efficacy of bacteriophages for the treatment of infections caused by Multidrug Resistant bacteria</i>	Sara Bolognini Università di Pisa
16:35	<i>Antimicrobial activity from natural sources</i>	Roberta Barletta Università di Siena
16.50	<i>Heparan Sulfate Proteoglycans involvement in human infections</i>	Giulio Bonucci Università di Siena

17:05 **Coffee break**

SESSION 7 - ADVANCED ASSAYS AND ANALYSIS IN INFECTIOUS DISEASES

Chairs: Federica Dal Bello, Alessandro Manenti
Co-chairs: Sabrina Lashchuk

17.35	<i>Mass spectrometry in biological analysis</i>	Federica Dal Bello Università di Torino
18.15	<i>Magnetic resonance techniques for the diagnosis and monitoring of infectious disease</i>	Chiara Papi Università di Torino
18.30	<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
18.40	<i>Serological assays: a tool for vaccines evaluation and pandemic preparedness</i>	Alessandro Manenti Vismederi
19.20	<i>Development and validation of high-throughput functional assays to assess vaccine-induced bactericidal activity against emerging bacterial pathogens</i>	Sabrina Lashchuk Università di Siena

20.00 **Dinner**





Thursday March 12th, 2026

SESSION 8 - MONOCLONAL ANTIBODIES

Chairs: Laura Bergantini, Samuele Stazzoni

Co-Chairs: Ludovica Soldateschi, Miranda Echague Mabel Rocio

09:00	Characterization and delivery of monoclonal antibodies against emerging viruses and AMR bacteria	Samuele Stazzoni Fondazione Biotecnopolo di Siena
09:40	Beyond neutralization: the Fc-mediated effector functions of engineered monoclonal antibodies against SARS-CoV-2	Ludovica Soldateschi Università di Siena
09:55	Identification of neutralizing human monoclonal antibodies against the prototype Toscana virus	Miranda Echague Mabel Rocio Università di Siena
10:05	NK cells cytotoxicity rebalancing with OCS and Benralizumab in severe asthma	Laura Bergantini Università di Siena

10:45 **Coffee break**

SESSION 9 - VIRUS-HOST INTERACTION

Chair: Mirko Cortese, Eliana Coccia

Co-Chairs: Serena Scacchi, Margherita Silani

11:15	Seeing Infection at the Nanoscale: Structural Microscopy Approaches to Virus-Host Interactions	Mirko Cortese Università della Campania "Luigi Vanvitelli"
11:55	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"
12:10	HIV-1, a Persistent Pandemic Pathogen: Investigation of entry steps in the presence of LEN Capsid Mutations	Chiara Paletti Università di Siena
12:25	Torque Teno Virus (TTV) as a Biomarker in Immune Monitoring: New Insights	Lilia Cinti Università di Roma "La Sapienza"

12:40 **Lunch**



SESSION 9 - VIRUS-HOST INTERACTION (cont'd)

Chair: Mirko Cortese, Eliana Coccia

Co-Chairs: Serena Scacchi, Margherita Silani

13:40	Novel antiviral strategies to target the "undruggable"	Arianna Loregian Università di Padova
14:20	Tick-Borne diseases in central Italy: Epidemiological Surveillance, clinical and microbiological investigation (the Tick- BITES project)	Serena Scacchi Università di Firenze
14:30	Pathobiological features and treatment of Toscana virus, a neglected foe: An updated overview with a focus on Human Brain Glioblastoma cell line	Letizia Rizzo Università di Siena
14:40	Mortality outcomes of immunocompromised patients hospitalized with community-acquired pneumonia	Margherita Silani Università Humanitas

SESSION 10 - ANTIMICROBIAL RESISTANCE

Chair: Jean Denis Docquier

Co-Chairs: Marco Catania, Maurizio Guastalegname

14:50	Breaking the Mold: New Approaches for Antibiotic Discovery in the AMR Era	Jean-Denis Docquier Università di Siena
15:30	Antimicrobial use and consumption in a low-income setting of high resistance endemicity: a mixed-methods study	Maurizio Guastalegname Università di Firenze
15:45	Bacterial-derived extracellular vesicles: molecular and omics approaches	Marco Catania Università di Catania
16:00	Characterization of the Binding and Inhibition Mechanism of an Innovative β -Lactamase Inhibitor Addressing Resistance in WHO Critical Priority Pathogens	Sacha Michele Idriss Cancade  Università di Siena
16:15	Evaluation of beta-lactam resistance in Gram-positive bacteria: analysing key components of bacterial cell wall synthesis and remodelling	Paola Conti  Università di Catania
16:30	Characterization of novel antimicrobial strategies and relevant resistance mechanisms on clinical and environmental isolates of carbapenem-resistant <i>Acinetobacter baumannii</i>	Matteo Angeletti  Università di Firenze
16:40	Structural and functional studies of bacterial molecular machineries as tools against antimicrobial resistance	Ornella Ghilardi Università della Campania "Luigi Vanvitelli"

16:50 **Visit to the Siena Vaccine Science Center** (PhD fellows of the 41st cycle)20:30 **Dinner in Siena**

SESSION 11 - HOST RESPONSE AND INFECTIONS

Chairs: Antonella Naldini, Cosima Baldari, Lucia Morbidelli
Co-chairs: Francesca Vaino, Filippo Mediola

08:30	<i>Humoral Innate Immunity and Acute Phase Proteins in COVID-19</i>	Cecilia Garlanda Humanitas University
09:10	<i>Profiling early immunological signature during acute COVID-19 associated with clinical outcomes and post-acute sequelae of Sars-Cov-2 infection</i>	Laura Capoccia Università di Siena
09:25	<i>Development of Long Pentraxin PTX3 as an Infection Biomarker: Bloodstream infection and Infectious myocarditis</i>	Francesca Vaino Humanitas University
09:40	<i>Immunological features of post-COVID-19 lung sequelae: study and validation of novel non-invasive biomarkers</i>	Irene Paggi  Università di Siena
09:55	<i>Humoral Immune Responses to Endogenous Retroviral, Microbial, and Host Antigens in Crohn's Disease, COVID-19, and Long COVID</i>	Alishba Fayyaz  Università di Sassari
10:10	<i>The Viral-Fungal Nexus: Viral Infections and reactivations as drivers of invasive fungal diseases in haematological patients</i>	Filippo Mediola Humanitas University
10:20	Coffee break	
10:50	<i>Candida Species: the rise of a re-emerging opportunistic pathogen</i>	Arianna Tavanti Università di Pisa
11:30	<i>Rapid molecular and phenotypic strategies for detecting and characterizing clinically relevant bacteria</i>	Chiara Chilleri Università di Firenze

SESSION 12 - PATHOLOGICAL CONSEQUENCES OF INFECTIOUS DISEASES

Chair: Mario Milco D'Elis
Co-Chair: Evangelia Asvestopolou

11:45	<i>Infections, Immunity and Atherosclerosis</i>	Mario Milco D'Elis Università di Siena
12:25	<i>Characterization of clinical isolates of Helicobacter pylori from symptomatic patients</i>	Evangelia Asvestopolou Università di Siena
12:40	Best poster award	
12:55	Conclusions	
13:00	Farewell Lunch	




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DIPARTIMENTO DI
BIOTECNOLOGIE
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**PhD of National Interest
Innovation in the diagnosis,
prevention and treatment of infections
at epidemic-pandemic risk**

PARTICIPATING UNIVERSITIES



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