

SCIENTIFIC PROGRAMME

Friday, 2 June 2023

- 15:00-17:00** Participant Registration and Poster Positioning
- 17:00-17:30** Opening Meeting
- 17:30-18:30** Plenary Lecture Karen Bush
- 19:00** Cocktail Party and Dinner

Saturday, 3 June 2023

- 9:30-11:00** Structure, Function, Mechanism and Evolution of Serine-Beta-Lactamases and Metallo-Beta-Lactamases
- 11:00-11:30** Coffee Break
- 11:30-13:00** Structure, Function, Mechanism and Evolution of Serine-Beta-Lactamases and Metallo-Beta-Lactamases
- 13:00** Lunch
- 14:30-16:30** New Beta-Lactams and Beta-Lactamase inhibitors, and new combinations
- 16:30-17:00** Coffee Break
- 17:00-18:30** Poster Session
- 20:30** Social Dinner

Sunday, 4 June 2023

- 9:30-11:00** Structure, Function, Mechanism and Evolution of Serine-Beta-Lactamases and Metallo-Beta-Lactamases
- 11:00-11:30** Coffee Break
- 11:30-13:30** New Beta-lactams and Beta-lactamase inhibitors, and new combinations
- 13:30** Lunch
- 15:00-16:00** Structure, Function, Mechanism and Evolution of Serine-Beta-Lactamases and Metallo-Beta-Lactamases
- 16:00-16:30** Coffee Break
- 16:30-17:30** Structure, Function, Mechanism and Evolution of Serine-Beta-Lactamases and Metallo-Beta-Lactamases
- 17:30-18:00** Concluding Remarks

14th BETA LACTAM and BETA LACTAMASE meeting

23-4 JUNE 2023 L'AQUILA



UNIVERSITÀ
DEGLI STUDI
DELL'AQUILA



DISCAB
Dipartimento di Scienze
Cliniche Applicate
e Biotecnologiche



MSD



SHIONOGI

Scientific Committee

- Mariagrazia Perilli University of L'Aquila, Italy
- Gianfranco Amicosante University of L'Aquila, Italy
- Gian Maria Rossolini University of Florence, Italy
- Karen Bush Indiana University Bloomington, IN, USA
- Robert Bonomo Case Western Reserve University, Cleveland, OH, USA
- Moreno Galleni University of Liège, Belgium

Organizing Committee

- Alessandra Piccirilli University of L'Aquila, Italy
- Giuseppe Celenza University of L'Aquila, Italy
- Fabrizia Bristelli University of L'Aquila, Italy
- Bernardetta Segatore University of L'Aquila, Italy
- Mariagrazia Perilli University of L'Aquila, Italy

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FORAZIONE EVENTI SEGRETERIA ORGANIZZATIVA

ideative
s t u d i o

14th BETA LACTAM and BETA LACTAMASE meeting

23-4
JUNE
2023

CONFERENCE ROOM
PALAZZO CAMPONESCHI
L'AQUILA
ITALY



FRIDAY, 2 JUNE 2023

OPENING MEETING

15:00-17:00 Participant Registration and Poster Positioning

17:00 Mariagrazia PERILLI, University of L'Aquila, Italy

17:05 Edoardo ALESSE, Rector of the University of L'Aquila, Italy

17:10 Francesca ZAZZERONI, Head of Biotechnological and Applied Clinical Sciences Department, University of L'Aquila, Italy

17:15 Gianfranco AMICOSANTE, Emeritus Professor, University of L'Aquila, Italy

17:30- 18:30 **Plenary Lecture** Karen BUSH - Indiana, USA

"What in the World Are We Going to Call Our New Beta-Lactamase? How Nomenclature Has Changed Over 50 Years"

SATURDAY, 3 JUNE 2023

MORNING SESSION

STRUCTURE, FUNCTION, MECHANISM AND EVOLUTION OF SERINE-BETA-LACTAMASES AND METALLO-BETA-LACTAMASES

Moderators: Mariagrazia Perilli, Alejandro J. Vila

9:30-10:00 Catherine TOOK - University of Bristol, UK

Investigating the Basis of Carbapenem Hydrolysis by Class A Beta-Lactamases

10:00- 10:30 Laura DABOS - Technical University of Madrid, SPAIN

Exploring the evolutionary potential towards extended spectrum of KPC-2 carbapenemase

10:30- 11:00 Shozeb HAIDER - UCL School of Pharmacy, London, UK

Enhanced Sampling Simulation of Beta-lactamases

11:00-11:30 **Coffee break**

STRUCTURE, FUNCTION, MECHANISM AND EVOLUTION OF SERINE-BETA-LACTAMASES AND METALLO-BETA-LACTAMASES

Moderators: Karen Bush, Gianfranco Amicosante

11:30-12:00 Bogdan IORGA - CNRS, FRANCE

Beta-Lactamase DataBase (BLDB): past, present and future

12:00- 12:30 Robert BONOMO - Case Western Reserve University School of Medicine, Cleveland, OH, USA

The State of Affairs: Clinical Challenges in Beta-Lactamase Research

12:30- 13:00 Fernando Augusto T. P. MEIRELES, Laboratory for Biomolecular Modeling at EPFL, Lausanne, SWITZERLAND

Investigating the mechanisms of Beta-lactamase membrane association

13:00-14:30 **Lunch**

AFTERNOON SESSION

NEW BETA-LACTAMS AND BETA-LACTAMASE INHIBITORS, AND NEW COMBINATIONS

Moderators: Shahriar Mobashery, Gian Maria Rossolini

14:30-15:00 John BUYNAK - Southern Methodist University, Dallas, TX, USA

Atypically Modified Carbapenem Antibiotics: What Have We Learned?

15:00-15:30 Moreno GALLENi - University of Liège, BELGIUM

Development of class A and class B anti-Beta-lactamase nanobodies as theranostic agents

15:30-16:00 Marco COPPI, University of Florence, ITALY

Emergence of cefiderocol resistance mechanisms among clinical isolates of Enterobacterales

16:00-16:30 James SPENCER, University of Bristol, UK

Interactions of Metallo-Beta-Lactamases with Beta-lactams and Inhibitors Studied by X-ray Crystallography and Multiscale Molecular Simulations

16:30-17:00 **Coffee Break**

17:00-18:30 **Poster Session**

20:30 **Social Dinner**

YOICHI - Fine Dining, Palazzo Pica Alfieri

SUNDAY, 4 JUNE 2023

MORNING SESSION

STRUCTURE, FUNCTION, MECHANISM AND EVOLUTION OF SERINE-BETA-LACTAMASES AND METALLO-BETA-LACTAMASES

Moderators: James Spencer, Moreno Galleni

9:30- 10:00 Alejandro J. VILA - IBR, CONICET, Rosario, ARGENTINA

Evolution of NDM variants

10:00-10:30 Lisandro GONZÁLEZ - IBR, CONICET, Rosario, ARGENTINA

In-cell kinetic stability is an essential trait in metallo-Beta-lactamase evolution

10:30-11:00 Matías C. CARNEVALE - IBR, CONICET, Rosario, ARGENTINA

Future threats on the horizon: environmental homologues of NDM-1 are found in diverse environmental niches

11:00-11:30 **Coffee Break**

NEW BETA-LACTAMS AND BETA-LACTAMASE INHIBITORS, AND NEW COMBINATIONS

Moderators: Robert Bonomo, John Buynak

11:30- 12:00 Vincenzo DI PILATO - University of Genoa, ITALY
Mechanisms of resistance and cross-resistance to novel BLICs in KPC-producing *Klebsiella pneumoniae*

12:00-12:30 Shahriar MOBASHERY - University of Notre Dame, IN, USA

Restoring Susceptibility to Beta-Lactam Antibiotics in Methicillin-Sensitive and Methicillin-Resistant *Staphylococcus aureus*

12:30-13:00 Emilia CASELLI - University of Modena and Reggio Emilia, ITALY

MB076: a new Boronic Acid Inhibitor targeting Extended Spectrum B-lactamases (ESBL), *Klebsiella* Carbapenemase KPC, and *Acinetobacter* Derived Cephalosporinases (ADCs)

13:00-13:30 Matteo BERSANI - University of Turin, ITALY

In silico-aided optimization of non-covalent Beta-lactamase inhibitors active against clinically relevant carbapenemases

13:30 - 15:00 **Lunch**

AFTERNOON SESSION

STRUCTURE, FUNCTION, MECHANISM AND EVOLUTION OF SERINE-BETA-LACTAMASES AND METALLO-BETA-LACTAMASES

Moderators: Gian Maria Rossolini, Karen Bush

15:00- 15:30 Lucía CAPODIMONTE - IBR, CONICET, Rosario, ARGENTINA

OxAs class D Beta-lactamases "get greasy" in *Acinetobacter*: selective advantage of OMVs

15:30-16:00 Marcellus UBBINK - Leiden University, NL

Beta-Lactamase of *Mycobacterium tuberculosis* as a model for protein evolution

16:00-16:30 **Coffee Break**

16:30- 17:00 Laura DABOS, Technical University of Madrid, SPAIN

Novel OXA-48 variant hydrolyzing carbapenem, expanded-spectrum cephalosporins and aztreonam. Welcome, OXA-793.

17:00- 17:30 Choon KIM - University of Notre Dame, IN, USA

Posttranslational modifications of *Staphylococcus aureus* Beta-lactamase BlaZ

17:30-18:00 **Concluding Remarks** Karen Bush, Indiana, USA