

# ILARIA PETRIZZI

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ilaria.petrizzi01@universitadipavia.it

## PhD INFORMATION

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**Title project:** Phenotypic and Genomic Characterization of Emerging Multi-Drug-Resistant (MDR) Microorganisms

**Supervisor:** Prof.ssa Roberta Migliavacca

**Reviewer:** Dott.ssa Aurora Piazza

## EDUCATION

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- **MASTER'S DEGREE IN EXPERIMENTAL AND APPLIED BIOLOGY**  
MOLECULAR BIOMEDICAL CURRICULUM  
University of Pavia (2020 - 2023)  
Degree mark: 110/110 L  
Experimental thesis: "Molecular characterisation of multidrug-resistant clinical isolates in the Piacenza area"
- **BACHELOR'S DEGREE IN BIOLOGICAL SCIENCES**  
University of Piemonte Orientale (2016 - 2019)  
Degree mark: 109/110  
Experimental thesis: "Chemical methods for characterising arsenates and arsenites in arsenic-resistant *Pseudomonas* PG-12 biomasses"

## PROFESSIONAL EXPERIENCE

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- **RESEARCH FELLOWSHIP (2024)**  
At the Department of Clinical Surgical Diagnostic and Pediatric Sciences Microbiology and Clinical Microbiology Unit, University of Pavia.  
Research topic: "Evaluation of the bactericidal activity of disinfectants for ophthalmic use".
- Co-supervisor of an experimental Master's thesis in Medical and Pharmaceutical Biotechnology entitled: "Prevalence and characterisation of *Klebsiella pneumoniae* NDM-producing colonisation screening in the ASST of Pavia"
- **RESEARCH FELLOWSHIP (2023 - 2024)**  
Department of Clinical Surgical Diagnostic and Pediatric Sciences Microbiology and Clinical Microbiology Unit, University of Pavia.  
Research topic: "Evaluation of the *in vitro* bacteriostatic and bactericidal activity of tobramycin and commercial disinfectants against clinical isolates responsible of ocular infections".
- **THESIS INTERNSHIP (2021 - 2023)**  
Department of Clinical Surgical Diagnostic and Pediatric Sciences Microbiology and Clinical Microbiology Unit, University of Pavia.  
Experimental activity: Phenotypic-molecular study of Multidrug-resistant (MDR) bacteria of clinical interest. Aims: species identification, evaluation of antibiotic susceptibility, determination of mechanisms resistance and molecular characterisation of MDR genes, plasmids and clones.
- **THESIS INTERNSHIP (2019)**  
University of Piemonte Orientale, Vercelli.  
The laboratory activity concerned the study of arsenic-tolerant behaviour of bacterial biomass through qualitative and quantitative chemical measurements of arsenic incorporation in biomass.

## JOB SKILLS

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- Species identification (bacterial and fungal): Gram staining, determination of the biochemical-metabolic profile by manual (API, bioMeréux) or semi-automated method (Microscan Autoscan-4, Beckman Coulter), mass spectrometry (MALDI-TOF-MS), targeted PCR.
- Evaluation of antibiotic susceptibility: qualitative methods (antibiogram with Kirby-Bauer), quantitative methods (MIC by E-Test, microdilution in broth, Microscan Autoscan-4). Interpretation of results using EUCAST guidelines.
- Phenotypic methods for confirmation of ES $\beta$ L production (Double Disc Synergy Test, disc-combination) and carbapenemase (ROSCO kit).
- Evaluation of MBC (Minimum Bactericidal Concentration).
- Evaluation of the bactericidal activity of disinfectants.
- Techniques for determining biofilm production: Congo Red, Crystal Violet Assay, MBEC (Minimum Biofilm Eradicating Concentration) using the Calgary biofilm device.
- Bacterial conjugation and transformation experiments.
- Genomic DNA extraction with both manual and automated system.
- Identification of resistance determinants: targeted PCR and multiplexing systems (HybriSpot 12 PCR AUTO, Microarray Check-MDR CT103XL).
- Plasmid characterisation: PBRT Kit.
- Molecular typing: Random Amplified Polymorphic DNA (RAPD), Multilocus sequence typing (MLST), Pulsed-field gel electrophoresis (PFGE).
- Library preparation for nanopore and Sanger sequencing including purification and quantification of DNA.
- Chromatogram analysis (Sanger sequencing) and use of BLAST.
- Graphic processing of the results obtained and statistical evaluations.

## SCIENTIFIC PRODUCTION

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### CONGRESS COMMUNICATIONS

- Abstract 52nd SIM National Congress 2024 accepted as oral communication:  
“*Klebsiella pneumoniae* ST22: a novel menace?”  
Mattioni Marchetti V., Piazza A., Piscopiello F., **Petrizzi I.**, Migliavacca R.
- Abstract 52nd SIM National Congress 2024 accepted as poster:  
“*Citrobacter freundii* ST396: a global reservoir of *fosA7.9* determinant”  
Piscopiello F., Mattioni Marchetti V., **Petrizzi I.**, Cassetti T., Venturelli I., Sarti M., Migliavacca R.
- Abstract 34th ECCMID Congress 2024 accepted as flash communication:  
“Nosocomial outbreak by NDM producing Cefiderocol resistant *Acinetobacter baumannii*, Milan, Italy”  
Matarazzo E., Lo Re N., Tartaglione L., Casalicchio G., Piscopiello F., **Petrizzi I.**, Migliavacca R., Vismara CS.
- Abstract 51st National Congress AMCLI 2024 accepted as poster:  
“Diffusione di *Klebsiella pneumoniae* NDM-produttore nel territorio pavese”  
Piscopiello F., Piazza A., Fotia F., Mattioni Marchetti V., Baratto R., **Petrizzi I.**, Rosa G., Maiocchi MA., Migliavacca R.
- Abstract 51st SIM National Congress 2023 accepted as poster:  
“Multiclinal presence of convergent ceftazidime/avibactam resistant and hypervirulent *Klebsiella pneumoniae* clinical isolates: when resistance meets virulence”  
Piazza A., Carcione D., **Petrizzi I.**, Batisti Biffignandi G., Mattioni Marchetti V., Brigante G., Migliavacca R.

## MEMBERSHIP OF SCIENTIFIC SOCIETIES

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- Aggregate Member AMCLI ETS (Associazione Microbiologi Clinici Italiani ETS)
- SIM (Società Italiana di Microbiologia)

## PARTICIPATION IN CONGRESSES

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- 52nd SIM CONGRESS 2024
- 34th ECCMID CONGRESS 2024