



CURRICULUM VITAE MARIAGRAZIA PERILLI

PERSONAL INFORMATION	Mariagrazia Perilli Department of Biotechnological and Applied Clinical Sciences Via Vetoio, Località Coppito L'Aquila, I-67100, Italy mariagrazia.perilli@univaq.it
CURRENT POSITION	Full Professor of Clinical Biochemistry and Clinical Molecular Biology, University of L'Aquila, Italy
EDUCATION OTHER QUALIFICATIONS	1988: University of L'Aquila, Degree in Biological Sciences 1990: University of L'Aquila, Professional Qualification as Biologist 1992: PhD in Clinical Enzymology, University of L'Aquila, Italy
ACADEMIC APPOINTMENTS	01/1991- 08/1991 - EMBO fellowship on " <i>Cloning and gene expression of Mycobacterium fortuitum e Citrobacter diversus class A β-lactamases</i> ", Center for Protein Engineering (CIP)", University of Liège, Belgium. June-July 1991, Fellowship on " <i>Class A β-lactamases overexpression systems in E. coli</i> ", Center for Protein Engineering (CIP)", University of Liège, Belgium. January-February 1994, Laboratory of Molecular Biology, University of Siena 1994-1996: Post-Doctoral Fellow on " <i>Site-directed mutagenesis of class A and B β-lactamases</i> ", University of L'Aquila, Italy. 1996-2002: Technician in Biochemistry, Department of Biomedical Sciences and Technologies, University of L'Aquila, Italy 2002-2015: Permanent Researcher and Assistant Professor of Clinical Biochemistry and Clinical Molecular Biology at the Biotechnological and Applied Clinical Sciences, University of L'Aquila, Italy January-February 2010 – Center for Protein Engineering (CIP)", University of Liège, Belgium. Project on " <i>Biochemical and kinetic characterization of metallo-β-lactamase laboratory mutants</i> ". June 2015 - Erasmus Placement, project on " <i>Design of metallo-β-lactamases mutants</i> ", Center for Protein Engineering (CIP)", University of Liège, Belgium. 2015-2017: Associate Professor of Clinical Biochemistry and Clinical Molecular Biology at the Biotechnological and Applied Clinical Sciences, University of L'Aquila, Italy



TEACHING EXPERIENCE	<p>1998: External examiner in PhD School in Medicine Microbiology at the University of Las Palmas de Gran Canaria, Spain</p> <p>1999: External examiner in PhD School in Medicine Microbiology at the University of Las Palmas de Gran Canaria, Spain</p> <p>2003: Course on "Molecular characterization of β-lactamases produced in Enterobacterial strains" in PhD School in AVANCES EN MICROBIOLOGÍA E INFECCIÓN", University of Las Palmas de Gran Canaria, Spain</p> <p>2003-2010: Courses of Molecular Diagnostic Methodologies (degree in Biomedical Laboratory Techniques).</p> <p>2003-2010: Courses of Clinical Biochemistry and Clinical Molecular Biology (degree in Biotechnology).</p> <p>2006: Teacher on "Detection and characterization of metallo-β-lactamases", 36th European Society of Clinical Microbiology and Infectious diseases (ESCMID) Postgraduate Course, Verona, Italy</p> <p>2007-2009 and 2013-2014: Courses of Clinical Biochemistry and Clinical Molecular Biology (degree in Medicine).</p> <p>2010-2018: Courses of Clinical Biochemistry and Clinical Molecular Biology, degree in Biomedical Laboratory Techniques.</p> <p>2009-2018: Courses of Molecular Diagnostic Technologies, degree in Medical Biotechnology)</p> <p>2018-2020: Courses of Clinical Biochemistry and Clinical Molecular Biology, School of Medicine, University of L'Aquila</p> <p>Supervisor of students of the School of Biotechnology and Biological Sciences for the preparation of experimental dissertations in Clinical Biochemistry.</p>
RESEARCH ACTIVITIES	<p>The major research interests are the studies of the bacterial resistance mechanisms towards antibacterial agents, in particular beta-lactam antibiotics. The studies of Prof. Perilli are focalized on the genetic epidemiology of Gram-negative bacteria and biochemical characterization of new beta-lactamases and laboratory mutants. Isolation, cloning, over-expression systems and sequencing of the gene coding for these enzymes. Production and purification process of the protein target. Studies of the kinetic and thermodynamic parameters. Interaction between the β-lactamase and their substrates or inhibitors/inactivators. Studies of structure-activity relationship of the β-lactamases.</p> <p>The main areas of research are:</p> <ol style="list-style-type: none">1. Characterization of mobile genetic elements in Gram-negative bacteria resistant to antimicrobial agents.2. Biochemical and structural characterization of extended spectrum beta-lactamases and carbapenemases (class A, D and B)3. Interaction of beta-lactamases with novel inhibitors or inactivators4. Molecular analysis of microbioma/microbiota by next generation sequencing.
RESPONSIBILITY IN ACADEMIC ACTIVITIES	<p>2014-2021: Coordinator of Master (first level) on "Molecular Diagnostics of Genetic, Cancer and Infectious Diseases", Department of Clinical Sciences and Biotechnologies", University of L'Aquila, L'Aquila, Italy.</p> <p>Since 2017. Deputy Director of Molecular Diagnostics and Advanced</p>



	<p>Therapy Research Centre (DMTA), University of L'Aquila. 2010-2012. Faculty member and tutor in the PhD Course in Biotechnology, University of L'Aquila Since 2013. Faculty member and tutor in the PhD Course in Experimental Medicine, University of L'Aquila. Since 2018. President of Degree Course in Biomedical Laboratory Techniques Since 2019, Coordinator of the PhD Course in Experimental Medicine, University of L'Aquila. Since 2019. Director of Specialization School In Clinical Pathology and Clinical Biochemistry, University of L'Aquila. Since December 2019. Rector's Delegate for University of L'Aquila Web-Site. Since October 2020. Deputy Director of Biotechnological and Applied Clinical Sciences Department.</p>
EDITORIAL BOARD, EDITORIAL ACTIVITIES, SOCIETY MEMBERSHIP	<ul style="list-style-type: none">- International Journal of Bacteriology, Hindawi- Diagnostic, Journal from MDPI- Italian Society of Clinical Biochemistry (SIBIOC)
SCIENTIFIC ACHIEVEMENTS BIBLIOMETRIC INDICATORS	<p>ORCID ID: 0000-0001-7370-1455 Scopus Author ID: 7004624865</p>
SELECTED PUBLICATIONS	<ol style="list-style-type: none">1. Piccirilli, A., Brisdelli, F., Docquier, J.D., Aschi, M., Cherubini, S., De Luca, F., Matagne, A., Amicosante, G., Perilli, M. Amino acid replacement at position 228 induces fluctuation in the Ω-loop of KPC-3 and reduces the affinity against oxymino cephalosporins: Kinetic and molecular dynamics studies. <i>Catalysts</i> 10 (12): 1-14, 20202. Pompilio A, Ranalli M, Piccirilli A, Perilli M, Vukovic D, Savic B, Krutova M, Drevinek P, Jonas D, Fiscarelli EV, Tuccio Guarna Assanti V, Tavio MM, Artiles F, Di Bonaventura G. Biofilm Formation among <i>Stenotrophomonas maltophilia</i> Isolates Has Clinical Relevance: The ANSELM Prospective Multicenter Study. <i>Microorganisms</i> 27;9(1):E4920203. Ben Abderrazek R, Chammam S, Ksouri A, Perilli M, Dhaouadi S, Mdini I, Benlasfar Z, Amicosante G, Bouhaouala-Zahar B, Piccirilli A. Inhibitory Potential of Polyclonal Camel Antibodies against New Delhi Metallo-β-lactamase-1 (NDM-1). <i>Molecules</i>. 28;25(19):4453, 20204. Mercuri PS, Esposito R, Blétard S, Di Costanzo S, Perilli M, Kerff F, Galleni M. Mutational Effects on Carbapenem Hydrolysis of YEM-1, a New Subclass B2 Metallo-β-Lactamase from <i>Yersinia mollaretii</i>. <i>Antimicrob Agents Chemother</i>. 64(9):e00105-20, 2020.5. Segatore B, Piccirilli A, Setacci D, Cicolani B, Di Sabatino A, Miccoli FP, Perilli M, Amicosante G. First Identification of β-Lactamases in Antibiotic-Resistant <i>Escherichia coli</i>, <i>Citrobacter freundii</i>, and <i>Aeromonas</i> spp. Isolated in Stream Macroinvertebrates in a Central Italian Region. <i>Microb Drug Resist</i> 26(8):976-981, 2020.



6. Piccirilli A, **Perilli M**, Piccirilli V, Segatore B, Amicosante G, Maccacaro L, Bazaj A, Naso L, Lo Cascio G, Cornaglia G. Molecular characterization of carbapenem-resistant *Klebsiella pneumoniae* ST14 and ST512 causing bloodstream infections in ICU and surgery wards of a tertiary University hospital of Verona (Northern Italy): co-production of KPC-3, OXA-48, and CTX-M-15 β -lactamases. *Diagn Microbiol Infect Dis*, 96(3):114968, 2020.
7. Cafaro, T., Carnicelli, V., Caprioli, G., Maggi, F., Celenza, G., **Perilli M**, Bozzi, A., Amicosante, G., Brisdelli, F. Anti-apoptotic and anti-inflammatory activity of *Gentiana lutea* root extract. *Advances in Traditional Medicine* 20 (4): 619-630, 2020
8. Bellio P, Mancini A, Di Pietro L, Cracchiolo S, Franceschini N, Reale S, de Angelis F, **Perilli M**, Amicosante G, Spyraakis F, Tondi D, Cendron L, Celenza G. Inhibition of the transcriptional repressor LexA: withstanding drug resistance by inhibiting the bacterial mechanisms of adaptation to antimicrobials. *Life Sciences* 241, 117116, 2020
9. Piccirilli A, Pompilio A, Rossi L, Segatore B, Amicosante G, Rosatelli G, **Perilli M**, Di Bonaventura G. Identification of CTX-M-15 and CTX-M-27 in Antibiotic-Resistant Gram-Negative Bacteria Isolated from Three Rivers Running in Central Italy. *Microb Drug Resist.* 25(7):1041-1049, 2019
10. Piccirilli A, Brisdelli F, Aschi M, Celenza G, Amicosante G, **Perilli M**. Kinetic Profile and Molecular Dynamic Studies Show that Y229W Substitution in an NDM-1/L209F Variant Restores the Hydrolytic Activity of the Enzyme toward Penicillins, Cephalosporins, and Carbapenems. *Antimicrob Agents Chemother.* 63(4), 2019
11. Piccirilli A, **Perilli M**, Amicosante G, Conte V, Tascini C, Rossolini GM, Giani T. TEM-184, a Novel TEM-Derived Extended-Spectrum β -Lactamase with Enhanced Activity against Aztreonam. *Antimicrob Agents Chemother.* 62(9), 2018
12. Bellio P, Luzi C, Mancini A, Cracchiolo S, Passacantando M, Di Pietro L, **Perilli M**, Amicosante G, Santucci S, Celenza G. Cerium oxide nanoparticles as potential antibiotic adjuvant. Effects of CeO₂ nanoparticles on bacterial outer membrane permeability. *Biochim Biophys Acta.* 1860(11):2428-2435, 2018.
13. Marcocchia F, Mercuri PS, Galleni M, Celenza G, Amicosante G, **Perilli M**. A Kinetic Study of the Replacement by Site Saturation Mutagenesis of Residue 119 in NDM-1 Metallo- β -Lactamase. *Antimicrob Agents Chemother.* 62(8), 2018.
14. Piccirilli A, Mercuri PS, Galleni M, Aschi M, Matagne A, Amicosante G, **Perilli M**. P174E substitution in GES-1 and GES-5 β -lactamases improves catalytic efficiency towards carbapenems. *Antimicrob Agents Chemother.* 62(5), 2018
15. Marcocchia F, Leiros HS, Aschi M, Amicosante G, **Perilli M**. Exploring the role of L209 residue in the active site of NDM-1 a metallo- β -lactamase. *PLoS One.* 13(1):e0189686, 2018
16. Celenza G, Vicario M, Bellio P, Pasquale L, **Perilli M**, Oliver A, Blazquez J, Cendron L, Tondi D. Phenyl boronic acids development led to validated leads active in clinical strains overexpressing KPC-2: a step



	<p>against bacterial resistance. ChemMedChem. 13(7):713-724, 2018</p> <p>17. Spyarakis F, Celenza G, Marcocchia F, Santucci M, Cross S, Bellio P, Cendron L, Perilli M, Tondi D. Structure-Based Virtual Screening for the Discovery of Novel Inhibitors of New Delhi Metallo-β-lactamase-1. ACS Med Chem Lett.9(1):45-50, 2017.</p> <p>18. Sabatini A, Brisdelli F, Celenza G, Marcocchia F, Colapietro M, Tavío MM, Piccirilli A, Amicosante G, Perilli M. Interaction of carbapenems and β-lactamase inhibitors towards CTX-M-15 and CTX-M-15G238C mutant. J Glob Antimicrob Resist. 10:95-100, 2017</p> <p>19. Bellio P., Di Pietro L., Mancini A., Piovano M., Nicoletti M., Brisdelli F., Tondi D., Cendron L., Franceschini N., Amicosante G., Perilli M., Celenza G. SOS response in bacteria: Inhibitory activity of lichen secondary metabolites against Escherichia coli RecA protein. Phytomedicine, 29:11-18, 2017</p> <p>20. Brisdelli F, Perilli M, Sellitri D, Bellio P, Bozzi A, Amicosante G, Nicoletti M, Piovani M, Celenza G. Protolichesterinic acid enhances doxorubicin-induced apoptosis in HeLa cells in vitro. Life Sci 158: 89-97, 2016</p> <p>21. Colapietro M, Endimiani A, Sabatini A, Marcocchia F, Celenza G, Segatore B, Amicosante G, Perilli M. BlaB-15, a new BlaB metallo-β-lactamase variant found in an Elizabethkingia miricola clinical isolate. Diagn. Microbiol. Infect. Dis. 85: 195-197, 2016.</p> <p>22. Bottoni C, Perilli M, Marcocchia F, Piccirilli A, Pellegrini C, Colapietro M, Sabatini A, Celenza G, Kerff F, Amicosante G, Galleni M, Mercuri PS. Kinetic studies on CphA mutants: the role of the loop P158-P170 on the activity versus carbapenems. Antimicrob Agents Chemother. 60(5):3123-3126, 2016.</p> <p>23. Marcocchia F, Bottoni C, Sabatini A, Colapietro M, Mercuri PS, Galleni M, Kerff F, Matagne A, Celenza G, Amicosante G, Perilli M. Kinetic study of laboratory mutants of NDM-1 metallo-β-lactamase: the importance of an isoleucine at position 35. Antimicrob Agents Chemother. 60:2366-2372, 2016.</p>
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FEBRUARY, 28, 2021