CURRICULUM VITAE

Education and Training

2002

Master's degree in chemistry (five years degree) at the University of Naples Federico II, discussing a research thesis on "Isolation, characterization and expression of the gene coding for DsbA in the cold-adapted bacterium *Pseudoalteromonas haloplanktis* TAC125".

2002

Research collaboration contract at Department of Organic Chemistry and Biochemistry at Federico II University of Naples about the "Characterization of an expression system in Antarctic bacteria for the optimization of psychrophilic β-galactosidase production"

2002-2006

Ph.D. fellowship in Biotechnological Sciences at the Federico II University of Naples financed by a three-years grant. During this period, the main scientific occupation was the study of the regulation of gene expression in psychrophilic microorganisms focusing both on molecular aspects and biotechnological applications.

2004

Fellowship at the ERNST MORITZ ARNDT UNIVERSITY Institute of Marine Biotechnology of Greifswald (Germany) in the Prof. Thomas Schweder' laboratory where she focused her attention on the functional genome analysis of the marine psychrophilic bacterium *Pseudoaltermonas haloplanktis* by using a proteomic approach

2006-2007

Post- doctoral fellowship at Department of Organic Chemistry and Biochemistry at Federico II University of Naples on the development of recombinant Antarctic bacteria able to express oxidative capabilities

2007-2019

Research assistant at Department of Public Health and Infectious Diseases at Sapienza University of Rome. During this period, the main scientific occupation was the study of bacterial biofilm for the identification of new molecules with anti-biofilm activity and the microbiological strategies for the identification of new anti-infective compounds that influence the virulence of bacteria of clinical interest.

Employment and Research Experience

2022 Associate Professor of Microbiology at Department of Public Health and Infectious Diseases at Sapienza University of Rome

2019

Researcher in Microbiology (rtd-B Legge 240/10, SSD MED/07) at Department of Public Health and Infectious Diseases at Sapienza University of Rome confirmed in permanent position as Associate Professor of Microbiology (CdA of Sapienza University 27th January 2022)

2019 -

Chair of Microbiology at Faculty of Pharmacy and Medicine at Sapienza University of Rome

She was interested in characterization of the Dsb enzymes in Antarctic marine bacterium *Pseudoalteromonas haloplanktis* TAC125 that are responsible for disulphide bond formation during oxidative protein folding process. During the PhD she investigated the regulation of gene expression of Antarctic *P. haloplanktis* TAC125 in response to different carbon and energy sources. She performed the functional genome analysis at the Ernst Moritz Arndt University of Greifswald under the supervision of Prof. Thomas Schweder. By using two-dimensional protein gel electrophoresis, the cytoplasmic proteome pattern of *P. haloplanktis* cells in response to different nutrients was compared. By this approach proteins differently expressed were identified. Data acquired with this methodology made possible the identification of the members involved in the transcriptional regulation of L-malate uptake. This latter were functional for the construction of an inducible expression vector for protein production at low temperatures.

Since 2007 she worked in the field of clinical microbiology, particularly on genetic aspect of bioflm forming Gram-positive and Gram-negative bacteria and on their role in the pathogenesis of infections and in host-parasite relationship. Biofilm lifestyle is associated with a high tolerance to exogenous stress: as a consequence, the

treatment of biofilms with antibiotics or other biocides is usually ineffective at eradicating them. She focused on the genetic mechanisms of the antibiotic resistance in bacteria and on the development of new approaches for the prevention and treatment of biofilm formation. She focused the research on the identification on new non-biocidal agents able to inhibit specific virulence factors in pathogenic bacteria, in order to counteract virulence rather than bacterial growth and avoid the selection of escape mutants.
She collaborated in the set-up of new experimental models to compare the characteristics of planktonic and sessile forms on different biomaterials and in different growth conditions. Furthermore, she analysed new physico-chemical methods to detach sessile bacteria, genetic approaches, use of experimental molecules of synthetic or natural origins, and innovative materials inhibiting microbial adhesion to abiotic surfaces and to eukaryotic cells and interfering with bacterial virulence.

Personal bibliography

1. D'Angelo C, Trecca M, Carpentieri A, Artini M, Selan L, Tutino ML, Papa R, Parrilli E. Cold-Azurin, a New Antibiofilm Protein Produced by the Antarctic Marine Bacterium Pseudomonas sp. TAE6080. Marine Drugs. 2024; 22(2):61.
2. Papa R*, Imperlini E*, Trecca M, Paris I, Vrenna G, Artini M, Selan, L. (2023). Virulence of Pseudomonas aeruginosa in Cystic Fibrosis: Relationships between Normoxia and Anoxia Lifestyle. Antibiotics (Basel, Switzerland), 13(1), 1. *Authors equally contributed to the work
3. Artini M*, Papa R*#, Vrenna G, Trecca M, Paris I, D'Angelo C, Tutino ML, Parrilli E, Selan, L. (2023). Antarctic Marine Bacteria as a Source of Anti-Biofilm Molecules to Combat ESKAPE Pathogens. Antibiotics (Basel, Switzerland), 12(10), 1556. *Authors equally contributed to the work, #Corresponding author
4. Raffo A, Sapienza FU, Astolfi R, et al. Effect of Different Soil Treatments on Production and Chemical Composition of Essential Oils Extracted from *Foeniculum vulgare Mill., Origanum vulgare L. and Thymus vulgaris L*. Plants (Basel). 2023;12(15):2835.
5. Caglioti C, Iannitti R, Ceccarelli G, et al. Cranberry/Chondroitin Sulfate Co-precipitate as a New Method for Controlling Urinary Tract Infections. Antibiotics (Basel). 2023;12(6):1053.
6. Imperlini E, Papa R#. Clinical Advances in Cystic Fibrosis. J Clin Med. 2022;11(21):6306. #Corresponding author
7. Artini M, Imperlini E, Buonocore F, Relucenti M, Porcelli F, Donfrancesco O, Tuccio Guarna Assanti V, Fiscarelli EV, Papa R#, Selan L. Anti-Virulence Potential of a Chionodracine-Derived Peptide against Multidrug-Resistant *Pseudomonas aeruginosa* Clinical Isolates from Cystic Fibrosis Patients. Int J Mol Sci. 2022;23(21):13494. #Corresponding author
8. Artini M, Vrenna G, Trecca M, Tuccio Guarna Assanti V, Fiscarelli EV, Papa R#, Selan L. Serratiopeptidase Affects the Physiology of Pseudomonas aeruginosa Isolates from Cystic Fibrosis Patients. Int J Mol Sci. 2022;23(20):12645. #Corresponding author
9. Artini M*, Papa R*, Sapienza F, Božović M, Vrenna G, Tuccio Guarna Assanti V, Sabatino M, Garzoli S, Fiscarelli EV, Ragno R, Selan L. Essential Oils Biofilm Modulation Activity and Machine Learning Analysis on Pseudomonas aeruginosa Isolates from Cystic Fibrosis Patients. Microorganisms. 2022;10(5):887. *Authors equally contributed to the work
10. Vrenna G, Artini M, Ragno R, Relucenti M, Fiscarelli EV, Tuccio Guarna Assanti V, Papa R#, Selan L#. Anti-Virulence Properties of Coridothymus capitatus Essential Oil against Pseudomonas aeruginosa Clinical Isolates from Cystic Fibrosis Patients. *Microorganisms*. 2021;9(11):2257. # Corresponding authors
    IF (JCR 2020): 4,128
11. Papa R#, Vrenna G, D'Angelo C, Casillo A, Relucenti M, Donfrancesco O, Corsaro M, Fiscarelli E, Tuccio Guarna Assanti V, Tutino M, Parrilli E, Artini M, Selan L#. Anti-Virulence Activity of the Cell-Free Supernatant of the Antarctic Bacterium *Psychrobacter* sp. TAE2020 against *Pseudomonas aeruginosa* Clinical Isolates from Cystic Fibrosis Patients. *Antibiotics* 2021;10(8), 944. # Corresponding authors
12. Relucenti M, Familiari G, Donfrancesco O, Taurino M, Li X, Chen R, Artini M, Papa R, Selan L. Microscopy Methods for Biofilm Imaging: Focus on SEM and VP-SEM Pros and Cons. *Biology (Basel)*. 2021;10(1):51.

13. Papa R*, Garzoli S*, Vrenna G, Sabatino M, Sapienza F, Relucenti M, Donfrancesco O, Fiscarelli EV, Artini M, Selan L, Ragno R. Essential Oils Biofilm Modulation Activity, Chemical and Machine Learning Analysis. Application on *Staphylococcus aureus* Isolates from Cystic Fibrosis Patients. *Int J Mol Sci.* 2020;21(23):E9258. *Authors equally contributed to the work
14. Bossù M, Selan L, Artini M, Relucenti M, Familiari G, Papa R, Vrenna G, Spigaglia P, Barbanti F, Salucci A, Giorgio GD, Rau JV, Polimeni A. Characterization of *Scardovia wiggsiae* Biofilm by Original Scanning Electron Microscopy Protocol. *Microorganisms.* 2020;8(6):807.
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Scopus, JCR (access: April 2024)
Publications: 51
Hirsch (H) index: 19
Total citations: 1042

Book chapters

- Laura Selan, Marco Artini and Rosanna Papa. Compounds from Natural Sources for New Diagnostics and Drugs against Biofilm Infections. Biofilm 2016. InTech Ed, Chapter 21. doi 10.5772/62908
- Valentina Rippa, Rosanna Papa, Maria Giuliani, Cinzia Pezzella, Ermenegilda Parrilli, Maria Luisa Tutino, Gennaro Marino, and Angela Duilio. Regulated recombinant protein production in the Antarctic bacterium *Pseudoalteromonas haloplanktis* TAC125 Methods in Molecular Biology 2012, Volume 824, Part 2, 203-218. doi 10.1007/978-1-61779-433-9_10

AWARDS

- Poster Presentation Award 45° Congresso Nazionale della Società Italiana di Microbiologia. Titolo: Hydrophobin coated surfaces prevent *S. epidermidis* biofilm formation. 27-29 Settembre 2017 Genova, Italy
- Poster Presentation Award ESCMID-ESGB Meeting "Biofilm-based Healthcare-associated Infections: from Microbiology to Clinics". Titolo: New anti-infective molecules from marine bacteria against *S. aureus* and *P. aeruginosa*. 09-10 Ottobre 2014 Rome, Italy

REVISOR AND EDITORIAL BOARD

- Membro del comitato editoriale della rivista *Journal of Medicinal Chemistry and Toxicology*
- Revisore per le seguenti riviste: *Frontiers in Microbiology, Antibiotics, Molecules, Interdisciplinary Perspectives on Infectious Diseases, Pharmaceuticals, Microorganisms, Gene Reports, International*

Journal of Molecular Sciences, Foods, Microbial Pathogenesis, Biology, Scientific Reports

SCIENTIFIC SOCIETIES

- Dal 2007 Socio della Società Italiana di Microbiologia (SIM)
- Dal 2007 Socio della American Society of Microbiology (ASM)

ORAL COMMUNICATIONS ON INVITATION

- Proteomic identification of transcription factor responsible for L-malate-dependent transcription regulation in the marine Antarctic bacterium *Pseudoalteromonas haloplanktis* TAC 125, Mini Workshop di Proteomica Microbica, 7 Febbraio 2008, Torino.
- Recombinant protein expression system in cold loving microorganisms, 4th Recombinant Protein Production Meeting, 21-23 September 2006, Barcelona, Spain.

ORAL COMMUNICATIONS

- Pentadecanal inspired synthetic molecules as new anti-biofilm agents against *S. epidermidis*. 46° Congresso Nazionale Società Italiana di Microbiologia, 26-29 settembre 2018, Palermo.
- Antibiofilm activity of the Antarctic *Pseudoalteromonas haloplanktis*. 41° Congresso Nazionale Società Italiana di Microbiologia, 13-16 ottobre 2013, Riccione.
- Recombinant expression of Toluene *o*-Xylene Monooxygenase (ToMO) from *Pseudomonas stutzeri* OX1 in the marine Antarctic bacterium *Pseudoalteromonas haloplanktis* TAC 125. Third European Conference of Bioremediation (2005) 4-7 July 2005, Chania - Greece.
- Un approccio proteomico allo studio della fisiologia cellulare del batterio antartico Gram negativo *Pseudoalteromonas haloplanktis* TAC125 Congresso Prokaryotes 2005, Cortona.
- Cold-adapted bacteria as novel hosts for recombinant protein production at low temperature. Congresso Prokaryotes, Cortona 2003.
- Factor involved in protein folding from psychrophilic bacterium *Ph*TAC125: a novel *dsb* locus. 47° Congresso Nazionale SIB 2002, Foggia, 2002.