Europass Curriculum Vitae

Personal information

First name(s) / Surname(s) | **Maria rosa Loffredo**

Address(es) | "Sapienza University of Rome, Department pf Biochemistry – A. Rossi Fanelli "Piazzale Aldo Moro, 5 – 00185 Rome, Italy

Education and training

Dates | 01/11/2016

Title of qualification awarded | **Awarded PhD scholarship in Biochemistry (XXXII cycle) "Sapienza". University of Rome (Italy)**

Principal subjects/occupational skills covered | Biochemistry/Microbiology

Name and type of organisation providing education and training | "Sapienza" – University of Rome (Italy), Department of Biochemistry A. Rossi Fanelli "Piazzale Aldo Moro 5 – 00185 Rome (Italy). Supervisor: Full Professor, Maria Luisa Mangoni

Dates | 21/07/2016

Title of qualification awarded | **Master's degree in Pharmaceutical Biotechnology (110/110 cum laude)**

Principal subjects/occupational skills covered | Experimental Thesis title: "Study of the effect of D-amino acid incorporation in the antimicrobial peptide Esculentin (1-21)

"Sapienza" – University of Rome (Italy), Department of Biochemistry A. Rossi Fanelli "Piazzale Aldo Moro 5 – 00185 Rome (Italy) Tutor: Prof. Maria Luisa Mangoni

Dates | 19/12/2013

Title of qualification awarded | **Bachelor's Degree in Biological Science (95/110)**

Principal subjects/occupational skills covered | Thesis Title: "Exposure to Paraquat and risk of Parkinson's disease"

Name and type of organization providing education and training | "Sapienza" – University of Rome (Italy), Department of Physiology and Pharmacology, Vittorio Ersparmer, Sapienza University of Rome, "Piazzale Aldo Moro 5 – 00185 Rome (Italy). Tutor: Prof. Giuseppina Togna

Work experience

Dates | 01/01/2021 – 31/08/2021

Occupation or position held | **Scholarship Research** – Project funded by "Fondazione Italiana Fibrosi Cistica" Title: Frog skin -derived antimicrobial peptide as new potentiators to restore CFTR function. P.I: Prof. Maria Luisa Mangoni.

Main activities and responsibilities | Teer assays on cells lines expressing mutated CFTR. Synergistic studies currently used CFTR potentiators/correctors.

Dates | 01/02/2020 – 30/11/2020

Occupation or position held | **Scholarship Research** – Project funded by "Istituto Pasteur Fondazione Cenci Bolognetti". Title: Development of novel peptide-based formulations and nano/biomaterials against pulmonary and ocular surface microbial infections. P.I: Prof. Maria Luisa Mangoni

Main activities and responsibilities | Mechanism(s) of action and therapeutic applications of Esculentin-1a derived antimicrobial peptide

Dates	01/11/2016 – 31/10/2019
Occupation or position held	**PhD Student in Biochemistry**
Main activities and responsibilities	Mechanism(s) of action and therapeutic applications of Esculentin-1a derived antimicrobial peptide

Personal skills and competences

Mother tongue(s) **Italian**

Other language(s)

Self-assessment	Understanding		Speaking		Writing
European level (*)	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

(*) Common European Framework of Reference for Languages

Technical skills and competences

Biological and biochemical characterization of bioactive compounds

- Evaluation of the biophysical properties of bioactive compounds by fluorometric assays.
- Preparation of culture media for microbial growth, antimicrobial assays to determine the minimal bactericidal concentration (MBC) and the minimal inhibitory concentration (MIC) of natural or synthetic peptides. Antibiofilm assays. Enzymatic assays.
- Preparation of Polymeric-nano-formulations fort the synthesis of nano-embedded microparticles for the delivery and release of antimicrobial peptides.
- Preparation of liposomes with different lipid composition loaded with fluorescent probes.
- Studies of kinetic release of preincapsulated probes from liposomes.

- Preparation of culture media for cellular growth, cytotoxicity assays synthetic peptides by colorimetric techniques.
- Cytotoxicity with peptide-loaded nanoparticles on bronchial epithelial cells.
- Transepithelial electrical resistance (TEER) assays on bronchial epithelial thyroid (FRT) cells expressing mutated CFTR.

- Ability to work under sterile conditions with the use of biological safety hood (II level).

Computer skills and competences

Excellent knowledge of Microsoft Office (Word, Excel, PowerPoint), Graph Pad, Cell B, KaleidaGraph.

Other skills and competences

Excellent communication and planning skills. Strong propensity to work in a team and to achieve the objectives.

Experience abroad

10/2018 – 11/2018
Institute of Molecular Biosciences, University of Graz, Austria

Participation in research projects

2019 – Project funded by "Fondazione Italiana per la Fibrosi Cistica"
Title: Frog skin-derived antimicrobial peptides as new potentiators to restore CFTR function. P.I: Prof. Maria Luisa Mangoni.

University Research Project 2018 ("Avvio alla Ricerca") Title: "Antimicrobial pepties and their covalent immobilization to soft contact lenses for prevention and treatment of microbial keratitis".

2018-2020 – Project funded by "Istituto Pasteur Italia Fondazione Cenci Bolognetti". Title: Development of novel peptide-based formulations and nano/bio-materials against pulmonary and ocular surface microbial infections. P.I: Prof. Maria Luisa Mangoni.

2018 – Project funded by "Fondazione Italiana per la Ricerca sulla Fibrosi Cistica". Title: Antimicrobial peptides from amphibian skin for tratment of lung pathology in cystic fibrosis: advanced in vitro and in vivo functional characterization. P.I: Prof. Maria Luisa Mangoni.

2017 – Project funded by "Fondazione Italiana per la Ricerca sulla Fibrosi Cistica". Title: Frog skin-derived peptides fro treatment of Pseudomonas aeruginosa lung infection and bronchial epithelial repair: advanced in vitro and in vivo characterization and development of polymeric nanoparticles for lung delivery. P.I: Prof. maria Luisa Mangoni.

University Research Project 2016. Title: "Derivatives of a naturally-occurring peptide for the development of a novel "antibiotic therapy" against bacterial lung infections". P.I: Prof. Maria Luisa Mangoni.

Research Product List

1) **Loffredo MR**; Savini F; Bobone S; Casciaro B; Franzyk H; Mangoni ML; Stella L. "Inoculum effect of antimicrobial peptides". PNAS (2021).
2) Casciaro B; **Loffredo MR**; Cappiello F; Fabiano G; Torrini L; Mangoni ML. "The antimicrobial peptide Temporin G: anti-biofilm, anti-persister activities and potentiator effect of tobramycin efficacy against Staphylococcus aureus" Int J Mol Sci. (2020) 21(24): E9410**.**
3) Quaglio D; Corradi S; Erazo S; Vergine V; Berardozzi S; Sciubba F; Cappiello F; Crestoni ME; Ascenzioni F; Imperi F; Delle Monache F; Mori M; **Loffredo MR**; Ghirga F; Casciaro B; Botta B; Mangoni ML. "Structural Elucidation and antimicrobial characterization of novel diterpenoids from fabiana densa var. ramulosa." ACS Med Chem Lett. (2020) 11(5): 760-765.
4) Savini F; **Loffredo MR**; Troiano C; Bobone S; Malanovic N; Eichmann TO; Caprio L; Canale VC; Park Y; Mangoni ML; Stella L. "Binding of an antimicrobial peptide to bacterial cells: Interaction with different species, strains and cellular components." Biochim Biophys Acta Biomembran. (2020) 1862(8): 183291.
5) Cappiello F; **Loffredo MR**; Del Plato C; Cammarone S; Casciaro B; Quaglio D; Mangoni ML; Botta B; Ghirga F. "The revaluation of plant-derived terpenes to fight antibiotic-resistant infections". Antibiotics (basel) (2020) 9(6): 325.
6) Casciaro B; Mangiardi L; Cappiello F; Romeo I; **Loffredo MR**; Iazzetti A; Calcaterra A; Goggiamani A; Ghirga F; Mangoni ML; Botta B; Quaglio D. "Naturally-occurring alkaloids of plant origina s potential antimicrobial against antibiotic-resistant infections." Molecules (2020) 25(16): 3619.
7) Ghirga F; Stefanelli R; Cavinato L; Lo Sciuto A; Corradi S; Quaglio D; Calcaterra A; Casciaro B; **Loffredo MR**; Cappiello F; Morelli P; Antonelli A; Rossolini GM; Mangoni ML; Mancone C; Botta B; Mori M; Ascenzioni F; Imperi F. "A novel colistin adjuvant identified by virtual screening for ArnTinhibitors" J Antimicrobial Chemother. (2020) 75(9): 2564-2572.
8) Quaglio D; Mangoni ML; Stefanelli R; Corradi S; Casciaro B; Vergine V; Lucantoni F; Cavinato L; Cammarone S; **Loffredo MR**; Cappiello F; Calcaterra A; Erazo S; Ghirga F; Mori M; Imperi F; Ascenzioni F; Botta B. "ent-beverane diterpenes as a key platform for the development of ArnT-mediated colistin resistance inhibitors". J Org Chem. (2020) 85(16): 10891-10901.
9) Casciaro B; Cappiello F; **Loffredo MR**; Ghirga F; Mangoni ML. "The potential of frog skin peptides for anti-infective therapies: the case of Esculentin-1a(1-21)NH_2". Curr Med Chem. (2020) 27(9): 1405-1419.
10) Casciaro B; d'Angelo I; Zhang X; **Loffredo MR**; Conte G; Cappiello F; Quaglia F; Di YP; Ungaro F; Mangoni ML. "Poly(lactide-co-glycolide) nanoparticles for prolonged therapeutic efficacy of Esculentin-1a-derived antimicrobial peptides against *Pseudomonas aeruginosa* lung infection: in vitro and in vivo studies." Biomacromolecules. (2019) 20(5): 1876-1888.
11) Casciaro B; Lin Q; Afonin S; **Loffredo MR**; de Turris V; Middel V; Ulrich AS; Di YP; Mangoni ML. "Inhibition of *Pseudomonas aeruginosa* biofilm formation expression of virulence genes by selective epimerization in the peptide Esculentin-1a(1-21)NH_2". FEBS J. (2019).
12) Buommino E; Carotenuto A; Antignano I; Bellavita R; Casciaro B; **Loffredo MR**; Merlino F; Novellino E; Mangoni ML; Nocera FP; Brancaccio D; Punzi P; Roversi D; Ingenito R; Bianchi E; Grieco P. "The outcomes of decorated prolines in the discovery of antimicrobial peptides from Temporin-L." Chem Med Chem. (2019) 14(13):1283-1290.
13) Casciaro B; Calcaterra A; Cappiello F; Mori M; **Loffredo MR**; Ghirga F; Mangoni ML; Botta B; Quaglio D. "Nigritanine as a new potential antimicrobial alkaloid for the treatment of Staphylococcus aureus-induced infections." Toxins (Basel). (2019) 11(9).
14) Casciaro B; **Loffredo MR**; Luca V; Verrusio W; Cacciafesta M; Mangoni ML. "Esculentin-1a derived antipseudomonal peptides: Limited induction of resistance and synergy with aztreonam". Protein Pept Lett (2018) 25(12): 1155-1162.

15) Casciaro B, **Loffredo MR**, Cappiello F, Verrusio W, Corleto VD, Mangoni ML. “Frog skin-derived peptides against Corynebacterium jeikeium: Correlation between antibacterial and cytotoxic activities.” Antibiotics (Basel) (2020) 9:448.
16) Casciaro B; Dutta D; **Loffredo MR**; Marcheggiani S; McDermott AM; Willcox MD; Mangoni ML. “Esculentin-1a derived peptides kill Pseudomonas aeruginosa biofilm on soft contact lenses and retain antibacterial activity upon immobilization to the lens surface.” Peptide Science (2018) 110: e23074.
17) **Loffredo MR**; Ghosh A; Harmouche N; Casciaro B; Luca V; Bortolotti A; Cappiello F; Stella L; Bhunia A; Bechinger B; Mangoni ML. “Membrane perturbing activities and structural propeerties of the frog-skin derived peptide Esculentin-1a(1-21)NH2 and its diastereomer Esc(1-21)-1c: Correlation with their antipseudomonal and cytotoxic activity”. Biochim Biophys Acta. (2017) 1859(12): 2327-2339.
18) Merlino F; Carotenuto A; Casciaro B; Martora F; **Loffredo MR**; Di Grazia A; Yousif AM; Brancaccio D; Palomba L; Novellino E; Galdiero M; Iovene MR; Mangoni ML, Grieco P: “Glycine-replaced derivatives of [Pro2, DLeu9]TL, a temporin -L analogue: Evaluation of antimicrobial, cytoxic and hemolytic activities.” Eur J Med Chem (2017) 139: 750-761.