



Chiara Scribani Rossi

EDUCATION AND TRAINING

PhD student in Biochemistry with fellowship, XXXV cycle

Università degli studi di Roma "La Sapienza" [01/11/2019 – Current]

Address: Dept. of Biochemical Sciences "A. Rossi-Fanelli", Rome (Italy)

Final grade: Defence on March

Thesis: L-Arginine in *Pseudomonas* species controls c-di-GMP levels and biofilm formation

Research activity: My research is focusing on the biochemical functional characterization of RmcA protein, involved in biofilm formation in *P. aeruginosa* and *P. putida*. Supervisor Professor Serena Rinaldo.

Degree in Medicinal Chemistry and Pharmaceutical Technology

Università degli studi di Roma "La Sapienza" [01/10/2011 – 18/07/2018]

Address: Dept. of Pharmacy, Rome (Italy)

Final grade: 110 cum Laude/ 110

Thesis: Design and Synthesis of New Glucose Derivatives as PfGluPho Inhibitors

POST-LAUREAM RESEARCH ACTIVITY

Internship in Pharmaceutical Chemistry

[01/01/2019 – 31/07/2019]

Università degli studi di Roma "La Sapienza", Dept. of Pharmacy, Rome, Italy

Activities: Synthesis and purification of organic compound. Supervisor Professor Luigi Scipione

RESEARCH EXPERIENCE ABROAD

MOSBRI Trans-national access

[14/02/2022 – 25/02/2022]

Institut Pasteur-PFBMI

City: Paris

Country: France

MOSBRI financial support for the project "How oxygen cross-talks with Arginine and c-di-GMP turnover in *P. aeruginosa*: the redox switch of the RmcA transducer" (PI Serena Rinaldo)

Thesis project in Pharmaceutical Chemistry

[01/01/2017 – 31/07/2017]

Universitat de Barcelona. Dept. of Pharmaceutical Chemistry

City: Barcelona

Country: Spain

Research activity: Design, Synthesis and Evaluation of glucose-6-phosphate dehydrogenase-6-phosphoglucosyltransferase inhibitors of *P. falciparum* as new antimalarial compounds. Supervisor Professor Luigi Scipione and Professor Diego Munoz-Torrero

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING B1 READING B2 WRITING B2

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

Spanish

LISTENING C1 READING C1 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

RESEARCH PROJECT MANAGER

Signal transduction in the RmcA membrane protein from *P. aeruginosa*: mechanism of Arginine sensing and c-di-GMP degradation

Funding for the project "Progetti per Avvio alla Ricerca - Tipo 2" - Sapienza Università di Roma (2022)

L-Arginine in *P. aeruginosa* and *P. putida* controls c-di-GMP levels and biofilm formation

Funding for the project "Progetti per Avvio alla Ricerca - Tipo 1" - Sapienza Università di Roma (2021)

COMPONENT OF RESEARCH PROJECTS

Structural and functional study of the genetic variants of SHMT2 causing a novel neurodevelopmental clinical syndrome

Founding for the project "Progetti di Ricerca (Piccoli, Medi) - Progetti Medi" - Sapienza Università di Roma (2021) - Research project manager Professor Giorgio Giardina

Tuning c-di-GMP in *Pseudomonas aeruginosa* to control biofilm dispersion: molecular mechanism of signal transduction in response to environmental cues

Founding for the project "Progetti di Ricerca (Piccoli, Medi) - Progetti Medi" - Sapienza Università di Roma (2020) - Research project manager Professor Serena Rinaldo

ACADEMIC TUTORING EXPERIENCE

Tutoring activities

Support to students of the degree course in pharmaceutical biotechnology - 80h (aa 2021/2022)

Stoichiometry exercises for general chemistry with students - 40 h (aa 2021/2022)

Stoichiometry exercises for general chemistry with students - 40 h (aa 2019/2020)

Stoichiometry exercises for general chemistry with students - 80 h (aa 2020/2021)

TECHNICAL SKILLS

Acquired competences

Biochemical methodologies: Expression of recombinant proteins in prokaryotic cells. Purification of water soluble and membrane proteins with chromatographic techniques (affinity, size exclusion), solubilization of membrane proteins using nanodiscs technologies. Enzymatic kinetic analysis by using HPLC and CD spectroscopy under normoxic and hypoxic condition. Study of molecular interactions by fluorescence techniques. AUC techniques.

General molecular biology methodologies: Recombinant DNA techniques (PCR, cloning, deletion, direct site mutagenesis).

Cellular biology methodologies: Measurement of Bacterial respiration using Seahorse technique under normoxic and hypoxic condition.

Organic synthesis methodologies: Synthesis of organic molecules, microwave assisted organic synthesis, purification of organic compounds with chromatographic techniques (HPLC, flash chromatography), crystallization, extraction, IR spectroscopy, NMR, Mass spectrometer.

Data analysis: graphical representation of data (Excel, Prism, IgorPro)

WORKSHOP

3rd UK workshop on membrane proteins

[04/04/2022 – 06/04/2022]

(Birmingham, UK)

GRANTS AND PRIZE

Grants for meeting participation

Bursary FEMS to participate 25th European Nitrogen Cycle Meeting (Rome, Italy 28-30 September 2022)

Bursary FEBS to participate FEBS congress (Lisbon, Portugal 9 – 14 July 2022)

Bursary MOSBRI -H2020 No 101004806 to participate 1st MOSBRI scientific conference (Paris, France 20 – 22 June 2022)

Bursary SIB to participate Proteine 2022 conference (Pisa, Italy 18-20/05/22)

Grant for research activity abroad

Erasmus+ scholarship (January 2017- July 2017).

Grants for tutoring activity

Grant for tutoring activities Faculty of Pharmacy and Medicine at La Sapienza University, Rome (C.L.M. BIOTECNOLOGIE – Biotecnologie farmaceutiche) (aa 2021/2022)

Grant for tutoring activities Faculty of Civil and Industrial Engineering at La Sapienza University, Rome (area Chim/07) (aa 2021/2022)

Grant for tutoring activities Faculty of Civil and Industrial Engineering at La Sapienza University, Rome (area Chim/07) (aa 2020/2021)

Grant for tutoring activities Faculty of Civil and Industrial Engineering at La Sapienza University, Rome (area Chim/07) (aa 2019/2020)

Prize

“Piero Luigi Ipata Prize” for the best poster presented at Proteine 2022 conference (Pisa, Italy 18-20/05/22)

COMMUNICATION AT CONGRESS AS PARTICIPANT

1 - Effect of L-Arginine on cP. putida energy metabolism: role of arginine sensors in the metabolic reprogramming

C. Scribani Rossi, F. Romana Liberati, M.A. Molina-Henares, F. Cutruzzolà, S. Rinaldo and M. Espinosa-Urgel - 25th European Nitrogen Cycle Meeting (Rome, Italy 28-30 September 2022) - Oral presentation

2 - L-Arginine in Pseudomonas aeruginosa controls c-di-GMP levels and biofilm formation

C. Scribani Rossi, E. Scarchilli, F. Cutruzzolà, A. Paiardini, S. Rinaldo - 46th FEBS congress (Lisbon, Portugal 9 – 14 July 2022) - Poster presentation

3 - Linking L-Arginine and redox sensing in Pseudomonas aeruginosa to control c-di-GMP levels and biofilm formation

C. Scribani Rossi, E. Scarchilli, S. Angeli, F. Cutruzzolà, A. Paiardini, S. Rinaldo - 1st MOSBRI scientific conference (Paris, France 20 – 22 June 2022) - Poster presentation

4 - L-Arginine in Pseudomonas aeruginosa controls c-di-GMP levels and biofilm formation

C. Scribani Rossi, E. Scarchilli, S. Angeli, G. Parisi, A. Paiardini, M. Espinosa-Urgel, S. Rinaldo - SPP1879 International Symposium 2022 Nucleotide Second Messenger Signaling in Bacteria (Berlin, Germany 22-25/05/22) – Poster presentation

5 - Linking L-Arginine and redox sensing in Pseudomonas aeruginosa to control c-di-GMP levels and biofilm formation

C. Scribani Rossi, E. Scarchilli, S. Angeli, F. Cutruzzolà, A. Paiardini, S. Rinaldo - Proteine 2022: Interaction of proteins with small ligands and macromolecules (Pisa, Italy 18-20/05/22) – Poster presentation

6 - Signal transduction and c-di-GMP second messenger: novel tools to investigate the mechanism of nutrient sensing

C. Scribani Rossi, G. Parisi, E. Scarchilli, G. Giardina, F. Cutruzzolà, A. di Matteo, A. Paiardini, S. Rinaldo - European SMALPs meeting (Birmingham, UK 6-8 April 2022) - Poster presentation

7 - L-Arginine in Pseudomonas aeruginosa controls c-di-GMP levels and biofilm formation

C. Scribani Rossi, F. Mantoni, G. Giardina, F. Cutruzzolà, A. di Matteo, A. Paiardini, S. Rinaldo - EFB 2021 (Online 10-14/05/21) – Poster presentation

8 - L-Arginine in Pseudomonas aeruginosa controls c-di-GMP levels and biofilm formation

C. Scribani Rossi, E. Scarchilli, G. Giardina, F. Cutruzzolà, A. di Matteo, A. Paiardini, S. Rinaldo - 61° Congress SIB (Online 23-24/2021) – Poster presentation

9 - Signal transduction and c-di-GMP second messenger: novel tools to investigate the mechanism of nutrient sensing

C. Scribani Rossi, G. Giardina, F. Cutruzzolà, A. Paiardini, S. Rinaldo - WEBPRO - Proteins on the Web (Online 20-21/05/2021) – Poster presentation

COMMUNICATION AT CONGRESS AS CO-AUTHOR

1 - Linking L-Arginine and redox sensing in Pseudomonas aeruginosa to control c-di-GMP levels and biofilm formation

C. Scribani Rossi, K. Eckart, E. Scarchilli, S. Angeli, A. Di Matteo, F. Cutruzzolà, A. Paiardini, L. Dietrich, **S. Rinaldo** - 25th European Nitrogen Cycle Meeting (Rome, Italy 28-30 September 2022) - Oral presentation

2 - Linking L-Arginine and redox sensing in Pseudomonas aeruginosa to control c-di-GMP levels and biofilm formation

C. Scribani Rossi, K. Eckart, E. Scarchilli, S. Angeli, A. Di Matteo, F. Cutruzzolà, A. Paiardini, L. Dietrich, **S. Rinaldo** - SPP1879 International Symposium 2022 Nucleotide Second Messenger Signaling in Bacteria (Berlin, Germany 22-25/05/22) - Oral presentation

3 - Nutrient mediated control of c-di-GMP levels in P. putida: preliminary characterization of Rmca, a multidomain transducer

C. Scribani Rossi, E. Scarchilli, S. Angeli, A. Paiardini, M. A. Molina-Henares, M. Espinosa-Urgel, **S. Rinaldo** - Proteine 2022: Interaction of proteins with small ligands and macromolecules (Pisa, Italy 18-20/05/22) - Poster presentation

PUBLICATIONS

[Nutrient sensing and biofilm modulation: the example of L-arginine in Pseudomonas](#)

[2022]

Int J Mol Sci . 2022 Apr 15;23(8):4386

C. Scribani Rossi, L. Barrientos-Moreno, A. Paone, F. Cutruzzolà, A. Paiardini, M. Espinosa-Urgel, S. Rinaldo

[A conserved scaffold with heterogeneous metal ion binding site: the multifaceted example of HD-GYP proteins](#)

[2021]

Coord. Chem. Rev. 450 (2021)

F. Cutruzzolà, A. Paiardini, **C. Scribani Rossi**, S. Spizzichino, A. Paone, G. Giardina, S. Rinaldo

Studying ggdef domain in the act: Minimize conformational frustration to prevent artefacts

[2021]

LIFE. - ISSN 2075-1729. - 11:1(2021), pp. 1-13.

Mantoni, F.; **Scribani Rossi, C.**; Paiardini, A.; Di Matteo, A.; Cappellacci, L.; Petrelli, R.; Ricciutelli, M.; Paone, A.; Cutruzzola, F.; Giardina, G.; Rinaldo, S.

SUBMITTED MANUSCRIPTS

Exploring the metabolic response of *Pseudomonas putida* to L-arginine

Scribani Rossi, C.; Molina-Henares, M.A.; Espinosa Urgel, M.; Rinaldo, S. - The FEBS Journal: revised version under submission

Nutrient sensing and c-di-GMP second messenger: probing different tools to isolate signal transducer

Scribani Rossi, C.; Parisi, G.; Paiardini, A.; Rinaldo, S. - submitted to International Journal of Molecular Sciences

MANUSCRIPT UNDER SUBMISSION

RmcA from *Pseudomonas putida* tunes metabolism in response to arginine

Scribani Rossi, C.; Molina-Henares, M.A.; Scarchilli, E.; Angeli, S.; Cutruzzolà, F.; Paiardini, A.; Espinosa Urgel, M.; Rinaldo, S - Under submission to FEMS Microbiology Letters

Molecular insights into RmcA-mediated c-di-GMP consumption: linking redox sensing to biofilm morphogenesis in *Pseudomonas aeruginosa*

Scribani Rossi, C.; Eckartt, K.; Scarchilli, E.; Angeli, S.; Price-Whelan, A.; Di Matteo, A.; Chevreuril, M.; Raynal, B.; Cutruzzolà, F.; Dietrich, L.E.P.; Paone, A.; Paiardini, A.; Rinaldo, S. - under submission