



Chiara Scribani Rossi

EDUCATION AND TRAINING

PhD in Biochemistry with fellowship, XXXV cycle

Università degli studi di Roma "La Sapienza" [01/11/2019 – 16/03/2023]

Address: Dept. of Biochemical Sciences "A. Rossi-Fanelli", Rome (Italy) | Thesis: L-Arginine in *Pseudomonas* species controls c-di-GMP levels and biofilm formation

Research activity: My research is focused 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

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

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

[2024]

Merging multi-OMICs with proteome integral solubility alteration unveils antibiotic mode of action

Maity, Ritwik; Zhang, Xuepei; Liberati, Francesca Romana; Rossi, Chiara Scribani; Cutruzzola', Francesca; Rinaldo, Serena; Gaetani, Massimiliano; Aínsa, José Antonio; Sancho, Javier

eLife

[2024]

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

Scribani Rossi, C. et al; Advances in Experimental Medicine and Biology. Springer, Cham. (2024)

[2023]

[Molecular insights into RmcA-mediated c-di-GMP consumption: Linking redox potential to biofilm morphogenesis in *Pseudomonas aeruginosa*](#)

Scribani Rossi, C.; Eckartt, K.; Scarchilli, E.; Angeli, S.; Prince-Whelan, A.; Di Matteo, A.; Chevreuil, M.; Bertrand, R.; Arcovito, A.; Giacom, N.; Fiorentino, F.; Rotili, D.; Mai, A.; Espinosa-Urgel, M.; Cutruzzolà, F.; Dietrich, L.E.P.; Paone, A.; Paiardini, A.; Rinaldo, S.

Microbiological Research 277 (2023) 127498.

[2023]

[The phosphodiesterase RmCA contributes to the adaptation of Pseudomonas putida to L-Arginine](#)

Scribani Rossi, C.; Molina-Henares, M.A.; Angeli, S. ; Cutruzzolà, F.; Paiardini, A.; Espinosa-Urgel, M.; Rinaldo, S.

FEMS Microbiology Letters, 370

[2023]

Exploring Innovative Approaches to Isolate a One-Component c-di-GMP Transducer: A Pilot Study.

DOI: 10.1007/5584_2023_787

Scribani Rossi, C.; Parisi, G.; Paiardini, A.; S. Rinaldo, S.

Advances in Experimental Medicine and Biology. Springer, Cham.

[2022]

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

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

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

[2021]

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

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

Coord. Chem. Rev. 450 (2021)

[2021]

[Studying ggdef domain in the act: Minimize conformational frustration to prevent artefacts](#)

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

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

1- Nucleotide-based compounds to selectively target a nanoRNase involved in mitochondrial homeostasis.

C. Scribani Rossi, B. Sprovera, M. Arese, A. Paiardini, L. Cappellacci, S. Rinaldo - 3rd MOSBRI scientific conference (Ljubljana, Slovenia 10 – 13 June 2024) - Poster presentation

2 - 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

3 - 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

4 - 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

5 - 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

6 - 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

7 - 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

8 - 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

9 - 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

10 - 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

Isolation of one-component signal transducers involved in c-di-GMP metabolism

S. Angeli, C. Scribani Rossi, A. Paiardini, S. Rinaldo - 2nd MOSBRI scientific meeting (Zaragoza, Spain 5 – 7 June 2023) - Poster presentation

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

C. Scribani Rossi, K. Eckartt, 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. Eckartt, E. Scarchilli, S. Angeli, A. Di Matteo, F. Cutruzzolà, A. Paiardini, L. Dietrich, **S. Rinaldo** - SPP 1879 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

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)

RESEARCH PROJECT MANAGER

Linking nutrient sensing and biofilm morphology mediated by the membrane protein RmcA from *P. aeruginosa*: novel in vitro tools for studying signal transduction

Funding for the project "Progetti per Avvio alla Ricerca - Tipo 2" - Sapienza Università di Roma (2023)

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

TECHNICAL SKILLS

Aquired 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. Isolation of membrane fraction from cells by ultracentrifugation. Enzymatic kinetic analysis by using RF-HPLC and CD spectroscopy under normoxic and hypoxic condition. Enzymatic colorimetric assay. Separation of nucleotide by using RF-HPLC. 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 cellular metabolism using Seahorse technique under normoxic and hypoxic condition. Cell transfection.

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)

POST-LAUREAM RESEARCH ACTIVITY

[01/04/2023 – 31/03/2024]

Post-doctoral fellowship in Biochemistry

Università degli studi di Roma "La Sapienza", Dept. of Biochemical Sciences "A. Rossi-Fanelli"

Research activity: Linking nutrient sensing and biofilm morphology mediated by the membrane protein RmcA from *P. aeruginosa*: novel *in vitro* tools for studying signal transduction

[01/01/2019 – 31/07/2019]

Internship in Pharmaceutical Chemistry

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

[14/02/2022 – 25/02/2022]

MOSBRI Trans-national access

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)

[01/01/2017 – 31/07/2017]

Thesis project in Pharmaceutical Chemistry

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

SUBMITTED MANUSCRIPTS

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

Scribani Rossi, C.; Molina-Henares, M.A.; Espinosa Urgel, M.; Rinaldo, S. - Advances in Experimental Medicine and Biology. Springer, Cham. : revised version under submission

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)

WORKSHOP

[04/04/2022 – 06/04/2022]

3rd UK workshop on membrane proteins

(Birmingham, UK)