

CURRICULUM VITAE

Emanuela Berrino



ACADEMIC TRAINING AND DEGREES

- Postdoc** **University of Florence, Italy**
NEUROFARBA Department, Section of Pharmaceutical Chemistry,
01/07/2020-present
Research Scholarship
- Postdoc** **University of Florence, Italy**
NEUROFARBA Department, Section of Pharmaceutical Chemistry,
01/01/2020-30/06/2020
Research Scholarship
- Ph.D.** **University of Florence, Italy**
NEUROFARBA Department, Section of Pharmaceutical Chemistry,
01/11/2016 – 01/11/2019; awarded on **27/02/2020**
“*Doctor Europaeus*”; Thesis entitled “Carbonic Anhydrase Inhibitors: Versatile Agents for the treatment of Human Diseases”
- Pharmacist licence** **University of Naples “Federico II”, Italy**
Department of Pharmacy,
II session, starting date **18/11/2015**
- M.Sc.** **University of Naples “Federico II”, Italy**
Department of Pharmacy,
14/10/2015
Master Degree in “Chemistry and Pharmaceutical Technology” (summa cum laude).
Experimental Thesis in Medicinal Chemistry, entitled: “Design, Synthesis and Biological Evaluation of peptide analogues of urotensin-II”

RELEVANT EXPERIENCES

Postdoctoral researcher, 01/01/2020 to date

University of Florence (IT)- NEUROFARBA Department, Section of Pharmaceutical Chemistry

Six + Six Months Research Scholarship (01/01/2020-31/12/2020)

Supervisor: Prof. Claudiu T. Supuran

Project entitled “Synthesis and structural characterization by means of NMR spectroscopy of Carbonic Anhydrase (CA) enzyme modulators with Carbon Monoxide (CO) releasing properties, for biomedical applications”

Doctoral researcher, 01/11/2016-27/02/2020

University of Florence (IT)- NEUROFARBA Department, Section of Pharmaceutical Chemistry

“Dottorato in Area del Farmaco e Trattamenti Innovativi”- Thesis entitled “Carbonic Anhydrase Inhibitors: Versatile Agents for the treatment of Human Diseases”

Supervisor: Prof. Claudiu T. Supuran

My PhD program was a multidisciplinary research project primarily aimed to synthesize new small molecules as inhibitors of the Carbonic Anhydrase (CA) enzymes also able to release CO. As part of the project activities I kinetically profiled the obtained compounds on various CA isoforms and I spectrophotometrically determined their CO releasing properties under various conditions. I also carried out a project aimed to the synthesis of a series of CAI-AZT hybrids as CA and Telomerase Inhibitors, with possible antitumoral applications.

Visiting PhD Student, 07/01/2019- 07/07/2019

University of Poitiers (FR) - Institut de Chimie des Milieux et des Matériaux de Poitiers

Supervisor: Prof. Sébastien Thibaudeau

During my experience as visiting student at the University of Poitiers, carried out within my PhD, I've been involved in a research project related to the manipulation of superacids and/or fluoro-based reagents. The aim was to obtain new and biologically tolerated molecular entities containing one or more fluorine atoms to be introduced in Medicinal Chemistry also acting as Carbonic Anhydrase modulators.

Graduate student researcher, 02/01/2016-02/07/2016

University of Naples "Federico II" (IT) - Department of Pharmacy

Supervisor: Prof. Paolo Grieco,

I carried out a research project aimed to design, synthesize and characterize peptides, peptidomimetics and small molecules by means of solid-phase and/or standard solution methodologies which may be further developed as drug candidates. In particular, I developed novel analogues of Temporin L as antimicrobial agents.

RESEARCH SKILLS AND COMPETENCES

TECHNICAL SKILLS:

- Good expertise on the organic and multistep synthesis carried out on solid and/or solution state by means of state-of-the art procedures and equipment, especially applied to the obtainment of modulators of enzymes of biomedical interest (i.e. the Carbonic Anhydrases, Telomerase); ability to perform organic synthetic procedures in superacidic media (HF/SbF₅), skills acquired during my experience as visiting student at the University of Poitiers, FR (2019 – 6 months).
- Good theoretical and practical skills on HPLC (analytical and preparative), Fluorescence spectroscopy, UV-Vis (also applied to the development of quali-quantitative procedures for the determination of CO released from organic molecules), mass spectrometry, multinuclear and temperature variant NMR.
- Small molecules antibody labelling by means of state-of-the art procedures for theragnostic purposes.
- Good knowledge on the use of the Stopped Flow instrumentation applied to the kinetic enzymatic evaluation of modulators of the Carbonic Anhydrase enzymes.
- Good knowledge of Office suite (word processor, spread sheet, presentation software), Chem-draw software, Origin, LabCalc, Bruker Topspin NMR software, MestreNova and other programs of scientific interest within the field.

COMMUNICATION SKILLS:

I communicate scientific results and work progresses timely and appropriately. I am used to present scientific results obtained from my research during group meetings, seminars as well as to external collaborators in the occasion of national and international conferences/events.

LANGUAGES:

Italian (Mother tongue); English (Independent User, B2)

MENTORSHIP EXPERIENCES

2020-ongoing – “Progettazione e sintesi di modulatori dell'enzima Tmprss2” - **MSc project** by Elisa Chiofalo, University of Florence, NEUROFARBA Department, Italy; Primary supervisors: Prof. Silvia Selleri; Dr. Fabrizio Carta

2018-2019 - “Inibitori Delle Anidraasi Carboniche Rilascianti Monossido Di Carbonio: Sviluppo e Valutazione Biologica di Nuovi Ibridi Molecolari” - **MSc project** by Alessandro De Luca, University of Chieti-Pescara, Department of Pharmacy, Italy; Primary supervisors: Prof. Simone Carradori, Prof. Susi Zara

2017-2018 - "Sintesi di 2- γ piridil pirazolo[1,5a]pyrimidine per la realizzazione di ibridi molecolari inibitori delle anidrasi carboniche e antagonisti β 2/ β 3 adrenergici" – **MSc project** by Elena Molinaro, University of Florence, NEUROFARBA Department, Italy; Primary supervisors: Prof. Silvia Selleri; Dr. Emanuela Berrino

CONFERENCES AND WORKSHOPS

13-14/10/2020: Autumn Meeting for Young Chemists in Biomedical Sciences (AMYC-Biomed 2020), Virtual conference, **Oral Presentation**

14-17/11/2019: 4th Satellite meeting on Carbonic Anhydrase, Parma (PA, Italy) **Oral Presentation**

12/09/2018: Workshop on "evFOUNDRY" European project: "Extracellular Vesicles, a breakthrough in precision medicine and nanotechnology". Plesso Santa Teresa, Florence (FI, Italy), **attendee**

26-31/08/2018: XXII International Mass Spectrometry Conference, Florence (FI, Italy), **attendee**

27-30/06/2018: 11th International Conference on Carbonic Anhydrases, University of Bucharest, Romania, **Oral Presentation**

12/12/2017: Workshop on "50 anni in MS-tandem: dove siamo arrivati e dove andiamo?", University of Florence, Florence (FI, Italy), **attendee**

10-14/09/2017: XXVI Congresso Nazionale della Società Chimica Italiana "SCI2017", Paestum (SA, Italy), **Poster contribution**

24-27/05/2017: 3th Satellite meeting on Carbonic Anhydrase "New trends in Carbonic Anhydrases Research", Montecatini Terme (PT, Italy), **Poster contribution**

16/12/2016: Workshop on "New psychoactive substances-I-SEE European Project final conference". Church of San Jacopo in Campo Corbolini, Florence (FI, Italy), **attendee**

23-25/06/2016: 15th Naples Workshop on Bioactive Peptides, Naples (Na, Italy), **Poster contribution**

12/05/2016: Involved in the program "Intercultural Exploration of Pharmacy and Health" at the University of Naples "Federico II", in collaboration with the University of Alberta, Canada

ORGANIZATION OF INTERNATIONAL CONFERENCES

24-27/05/2017: 3th Satellite meeting on Carbonic Anhydrase "New trends in Carbonic Anhydrases Research", Montecatini Terme (PT, Italy), **Member of the Organization Committee**

COURSES

14/09/2018: "Soft and complementary skills: Scientific writing", Centro didattico Morgagni, University of Florence (Italy)

7/09/2018: "Soft and complementary skills: CV redaction and presentation skills", Centro didattico Morgagni, University of Florence (Italy)

18/04/2018: "Soft and complementary skills: Entrepreneurship", University of Florence (Italy)

12/04/2018: "Soft and complementary skills: Teamworking", University of Florence (Italy)

4/04/2018: "Soft and complementary skills: Leadership", University of Florence (Italy)

19/03/2018: "Soft and complementary skills: Creativity and Innovation", University of Florence (Italy)

13;20;27/06/2017; 7/07/2017: "Elements of Intellectual Property and Intellectual Property at the University of Florence", Centro didattico Morgagni, University of Florence (Italy)

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Società Chimica Italiana (**SCI**)

Italian Peptide Society (**ItPS**)

Referee for "Journal of Enzyme Inhibition and Medicinal Chemistry", **IF 2019: 4.673**

PARTICIPATION TO FINANCED RESEARCH PROJECTS

Research Scientist in PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE (PRIN) – call 2017; MIUR PRIN grant N° 2017XZMBYX. Project Title: Unraveling hidden culprits for the cardiac arRHYTHMia burden: Modulation of immunoinflammation and inter-cellular SIGNaling as targets for novel therapeutic approaches (Acronym: RHYTHM-INSIGHT)- P.I.: Prof. Elisabetta Cerbai (University of Florence, NEUROFARBA Department, Italy)

PEER-REVIEWED PUBLICATIONS

1. Mancuso F, De Luca L, Angeli A, **Berrino E**, Del Prete S, Capasso C, Supuran CT, Gitto R. ACS Med Chem Lett Article ASAP; DOI: 10.1021/acsmchemlett.0c00417. **IF 3.975**
2. Aspatwar A, **Berrino E**, Bua S, Carta F, Capasso C, Parkkila S, Supuran CT. Toxicity evaluation of sulfamides and coumarins that efficiently inhibit human carbonic anhydrases. J Enzyme Inhib Med Chem. **2020**, 35(1):1765-1772. **IF 4.673**
3. Costa G, Maruca A, Rocca R, Ambrosio FA, **Berrino E**, Carta F, Mesiti F, Salatino A, Lanzillotta D, Trapasso F, Artese A, Alcaro S, Supuran CT. In Silico Identification and Biological Evaluation of Antioxidant Food Components Endowed with IX and XII hCA Inhibition. Antioxidants (Basel). **2020**, 9(9):E775. **IF 5.014**
4. **Berrino E**, Angeli A, Zhdanov DD, Kiryukhina AP, Milaneschi A, De Luca A, Bozdog M, Carradori S, Selleri S, Bartolucci G, Peat TS, Ferraroni M, Supuran CT, Carta F. Azidothymidine "Clicked" into 1,2,3-Triazoles: First Report on Carbonic Anhydrase-Telomerase Dual-Hybrid Inhibitors J. Med. Chem. **2020**, 63(13):7392–7409. **IF 6.205, #1 in the Medicinal Chemistry journals ranking**
5. Poli G, Bozdog M, **Berrino E**, Angeli A, Tuccinardi T, Carta F, Supuran CT. N-aryl-N'-ureido-O-sulfamates as potent and selective inhibitors of hCA VB over hCA VA: Deciphering the binding mode of new potential agents in mitochondrial dysfunctions. Bioorg Chem. **2020**; 100:103896. **IF 4.831**
6. Bricchet J, Arancibia R, **Berrino E**, Supuran CT. Bioorganometallic derivatives of 4-hydrazino-benzenesulfonamide as carbonic anhydrase inhibitors: Synthesis, characterization and biological evaluation. J. Enzyme Inhib. Med. Chem. **2020**, 35 (1): 622-628. **IF 4.673**
7. Abdel-Mohsen HT, El Kerdawy AM, Omar MA, **Berrino E**, Abdelsamie AS, El Diwani HI, Supuran CT. New thiopyrimidine-benzenesulfonamide conjugates as selective carbonic anhydrase II inhibitors: synthesis, in vitro biological evaluation, and molecular docking studies. Bioorg. Med. Chem. **2020**, 28: 115329. **IF 3.073**
8. Alhameed RA, **Berrino E**, Almarhoon Z, El-Faham A, Supuran CT. A Class of Carbonic Anhydrase IX/XII - Selective Carboxylate Inhibitors. J. Enzyme Inhib. Med. Chem. **2020**; 35: 549-554. **IF 4.673**
9. **Berrino E**, Supuran CT. Rho-kinase inhibitors in the management of glaucoma. Expert Opin. Ther. Pat. **2019**, 29(10): 817-827. **IF 5.611**
10. **Berrino E**, Milazzo L, Micheli L, Vullo D, Angeli A, Bozdog M, Nocentini A, Menicatti M, Bartolucci G, di Cesare Mannelli L, Ghelardini C, Supuran CT, Carta F. Synthesis and Evaluation of Carbonic Anhydrase Inhibitors with Carbon Monoxide Releasing Properties for the Management of Rheumatoid Arthritis. J. Med. Chem. **2019**, 62(15):7233-7249. **IF 6.205, #1 in the Medicinal Chemistry journals ranking**
11. **Berrino E**, Supuran CT. Novel approaches for designing drugs that interfere with pH regulation. Expert Opin. Drug Discov. **2019**, 14(3):231-248. **IF 4.887**
12. Eysteinnsson T, Gudmundsdottir H, Hardarson AO, **Berrino E**, Selleri S, Supuran CT, Carta F. Carbonic Anhydrase Inhibitors of Different Structures Dilate Pre-Contracted Porcine Retinal Arteries. Int. J. Mol. Sci. **2019**, 20(3):467. **IF 4.556**
13. Huentupil Y, Peña L, Novoa N, **Berrino E**, Arancibia R, Supuran CT. New sulfonamides containing organometallicacylhydrazones: synthesis, characterisation and biological evaluation as inhibitors of human carbonic anhydrases. J. Enzyme Inhib. Med. Chem. **2019**, 34(1):451-458. **IF 4.673**
14. Eldehna WM, Abo-Ashour MF, **Berrino E**, Vullo D, Ghabbour HA, Al-Rashood ST, Hassan GS, Alkahtani HM, Almehezia AA, Alharbi A, Abdel-Aziz HA, Supuran CT. SLC-0111 enamionone analogs, 3/4-(3-aryl-3-oxopropenyl) aminobenzenesulfonamides, as novel selective subnanomolar inhibitors of the tumor-associated carbonic anhydrase isoform IX. Bioorg Chem. **2018**, 83:549-558. **IF 4.831**

15. Küçükbay H, Buğday N, Küçükbay FZ, **Berrino E**, Bartolucci G, Del Prete S, Capasso C, Supuran CT. Synthesis and carbonic anhydrase inhibitory properties of novel 4-(2-aminoethyl)benzenesulfonamide-dipeptide conjugates. *Bioorg. Chem.* **2018**, 83: 414-423. **IF 4.831**
16. Georgey HH, Manhi FM, Mahmoud WR, Mohamed NA, **Berrino E**, Supuran CT. 1,2,4-Trisubstituted imidazolinones with dual carbonic anhydrase and p38 mitogen-activated protein kinase inhibitory activity. *Bioorg. Chem.* **2018**, 82:109-116. **IF 4.831**
17. **Berrino E**, Bozdog M, Del Prete S, Alasmay FAS, Alqahtani LS, AlOthman Z, Capasso C, Supuran CT. Inhibition of α -, β -, γ -, and δ -carbonic anhydrases from bacteria and diatoms with N'-aryl-N-hydroxy-ureas. *J. Enzyme Inhib. Med. Chem.* **2018**, 33(1):1194-1198. **IF 4.673**
18. **Berrino E**, Supuran CT. Advances in microwave-assisted synthesis and the impact of novel drug discovery. *Expert Opin. Drug Discov.* **2018**, 13(9):861-873. **IF 4.887**
19. Bua S, **Berrino E**, Del Prete S, Murthy VS, Vijayakumar V, Tamboli Y, Capasso C, Cerbai E, Mugelli A, Carta F, Supuran CT. Synthesis of novel benzenesulfamide derivatives with inhibitory activity against human cytosolic carbonic anhydrase I and II and *Vibrio cholerae* α - and β -class enzymes. *J. Enzyme Inhib. Med. Chem.* **2018**, 33(1):1125-1136. **IF 4.673**
20. Salerno S, Barresi E, Amendola G, **Berrino E**, Milite C, Marini AM, Da Settimo F, Novellino E, Supuran CT, Cosconati S, Taliani S. 4-Substituted Benzenesulfonamides Incorporating Bi/Tricyclic Moieties Act as Potent and Isoform-Selective Carbonic Anhydrase II/IX Inhibitors. *J. Med. Chem.* **2018**, 61(13):5765-5770. **IF 6.205, #1 in the Medicinal Chemistry journals ranking**
21. **Berrino E**, Bua S, Mori M, Botta M, Murthy VS, Vijayakumar V, Tamboli Y, Bartolucci G, Mugelli A, Cerbai E, Supuran CT, Carta F. Novel Sulfamide-Containing Compounds as Selective Carbonic Anhydrase I Inhibitors. *Molecules.* **2017**, 22(7): 1049. **IF 3.267**

BOOK CHAPTERS

Berrino E, Carta F. "Carbonic anhydrase inhibitors for the treatment of epilepsy and obesity". January **2019**, in book: "Carbonic Anhydrases: Biochemistry and Pharmacology of an Evergreen Pharmaceutical Target" by C. T. Supuran and A. Nocentini, Elsevier Science Publishing Co Inc.

REFERENCES

Prof. Claudiu T. Supuran

Full Professor of Medicinal Chemistry at the University of Florence, NEUROFARBA Department, Via Ugo Schiff 6, 50019 - Sesto Fiorentino (FI), Italy
phone: +39-055-4573729 / e-mail: claudiu.supuran@unifi.it

Prof. Sébastien Thibaudeau

Full Professor at Institut de Chimie des Milieux et des Matériaux de Poitiers, 4 rue Michel Brunet, TSA 51106, 86073 Poitiers cedex 9
Phone: +33-549454588 / e-mail: sebastien.thibaudeau@univ-poitiers.fr

Prof. Paolo Grieco

Full Professor of Medicinal Chemistry at the University of Naples Federico II, Pharmacy Department, Via D. Montesano, 49 - 80131 Napoli (NA), Italy
phone: (+39)081-678620, (+39)081-678625 / e-mail: paolo.grieco@unina.it

Dr. Fabrizio Carta

Assistant Professor of Medicinal Chemistry at the University of Florence, NEUROFARBA Department, Via Ugo Schiff 6, 50019 - Sesto Fiorentino (FI), Italy
phone: +39-055-4573666 / e-mail: fabrizio.cart@unifi

The undersigned is aware that, under Article 26 of Law 15/68, the misleading statements, falsified acts and use of false acts are punishable under the Penal Code and special laws. Furthermore, I authorize the processing of personal data contained in my curriculum vitae according to Legislative Decree 196/2003 and to the article 13 GDPR 679/16

14/12/20, Sincerely,

Emanuela Berrino

