MATTEO MARI

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EDUCATION

PhD 2021-2024	**Models and Methods for Material and Environmental Sciences** Project: "*Development of new pet radiotracers based on MCTs (Mono Carboxylate Transporters) inhibitors for cancer theranostics*" University of Modena and Reggio Emilia Tutor: Prof. Erika Ferrari
Master of 2nd level 2021-2021	**Forensic Analytical Methodologies** University of Rome "Sapienza" Date of achievement: 29.10.2021 Thesis: "Fentanil e derivati: metodologie di analisi e *case reports*" Supervisor: Prof. Stefano Materazzi Grade: 110/110
Master's Degree 2018-2020	**Chemical Sciences (LM-54)** University of Modena and Reggio Emilia Date of achievement: 11.12.2020 Thesis: "Pyrimidine derivatives of curcumin as potential targeting vector for theranostic purposes" Supervisor: Prof. Erika Ferrari Grade: 110/110 *summa cum laude*
Bachelor's degree 2015-2018	**Chemistry (L-27)** University of Modena and Reggio Emilia Achievement date: 20.07.2018 Thesis: "Mesoporous bioactive glasses doped with zinc for tissue and bone regeneration" Supervisors: Prof. Gianluca Malavasi, Prof. Sandra Sánchez Salcedo (Universitad Complutense de Madrid) Grade: 110/110
Diploma 2010-2015	**Scientific Bilingual Highschool** (Italian/German) Liceo Rinaldo Corso, Correggio (RE) Grade: 96/100

RESEARCH EXPERIENCE

01.11.2021-31.10.2024 **Università degli studi di Modena e Reggio Emilia**
Department of Chemical and Geological Sciences (DSCG)
Research group of prof. Erika Ferrari

PhD project in the field of Nuclear Medicine. Three main topics were assessed:

1. Synthesis and characterization of small, fluorinated molecules with high affinity for Mono-Carboxylate Transporter 1 (MCT1) aimed to perform early cancer diagnosis through fluorine-18 PET.
2. Synthesis and characterization of a bioconjugate containing a coumarin *targeting vector* portion with high affinity for MCT1 and no3py as a chelating system for copper (II). This bioconjugate is intended to perform theranostic applications for cancers exploiting copper isotopes $^{61/64/67}$Cu.
3. Synthesis and characterization of new sulfonated chelating systems for copper (II). The focus was to assess the effect of the sulfonic groups and the net charge of similar ligands on their ability to coordinate copper (II) and the lipophilicity of the corresponding copper (II) complexes.

01.05.2023-11.10.2023 Université de Bretagne Occidentale (UBO), Brest, France
Prof. Raphael Tripier Laboratory (UMR CNRS-UBO 6521)

Visting PhD Student period carried out within the *Erasmus + project in* Brest (France).
The focus of the stay was the specialization in the synthesis, purification and characterization of polyazamacrocycles for metal coordination. In particular, the synthesis verted on new TACN derivatives for copper (II) coordination and the synthesis of a bioconjugated compound with a coumarin targeting vector portion and no3py chelator for copper (II) for application in nuclear medicine.

01.2021-06.2021 **University Clinic of Ulm**
Department of Nuclear Medicine
Radiopharmacy and research laboratories

Postgraduate internship experience carried out within the *Erasmus Traineeship project in* Ulm (Germany).
Experience in radio-pharmacy in quality control of radio-drugs such as:
[Ga–68]PSMA-11, [Ga–68]HA-DOTATATE, [Ga–68]Pentixafor, [C-11]PIB, [C-11]Metionine, [F-18]FDG, [F-18]PSMA, [Tc-99m]PSMA-I+S, [Lu-177]PSMA-I+T, [Lu-177]HA-DOTATATE.

Research experience at the preclinical research laboratory of the department of nuclear medicine of the university clinic of Ulm.
Pharmacokinetic studies on liposomes used as vectors for therapeutic peptides by radiolabeling with ^{89}Zr for positron emission tomography (PET) and by incorporating "*perfluoro-15-crown-5-ether*" for magnetic resonance imaging (MRI) on ^{19}F.

06.2020 - 12.2020 **University of Modena and Reggio Emilia**

Department of Chemical and Geological Sciences
Organic and inorganic synthesis laboratory
Internship in the research laboratory

Experience of curricular internship during the Master's degree course at the research group of Prof. Erika Ferrari.
Research project in the field of organic synthesis and coordination chemistry for pharmaceutical purposes, with the production of the thesis entitled:
"*Pyrimidine derivatives of curcumin as potential targeting vector for theranostic purposes*"

01.2018 - 06.2018 **Universitad Complutense de Madrid**
Department of Pharmacy
Biochemistry and bio-inorganic chemistry laboratory
Internship in the research laboratory

Experience of curricular internship during the Bachelor's degree course carried out as part of *the Erasmus + project* in Madrid (Spain) at the research group of Prof. Antonio J. Salinas.
Research project in the biomedical field with the production of the thesis entitled:
"*Mesoporous bioactive glasses doped with zinc for tissue and bone regeneration*"

CHEMICAL EXPERTISE

Organic Synthesis

- 1D and 2D $^{1}H/^{13}C/^{19}F$ NMR.
- Flash Liquid Chromatography and MPLC.
- High Performance Liquid Chromatography coupled with Mass Spectrometry (HPLC-MS).
- Infrared Spectroscopy (FT-IR).

Complexation studies and thermodynamics

- UV-Vis spectroscopy.
- 1D and 2D $^{1}H/^{13}C/^{195}Pt$ NMR.

In vitro pre-clinical assays

- *In Vitro* stability studies through Simulated Plasma.
- Cellular Cultures with biomaterials.
- Aseptic preparation under Laminar-Flow.

PARTICIPATION TO SCHOOLS

2024 PhD Winter School on Inorganic Materials Synthesis, Characterization and Sustainability, Brixen. (**INOMAT2024**)

European School of Medicinal Chemistry ESMEC, 41st Advanced Course of Medicinal Chemistry and Seminar for PhD students (**ESMEC2024**)

2022 The XLVI edition of the "Attilio Corbella" International Summer School on Organic Synthesis (**ISOS 2022**)

European School of Medicinal Chemistry ESMEC, 41st Advanced Course of Medicinal Chemistry and Seminar for PhD students (**ESMEC2022**)

The Fourth International Symposium on Technetium and Other Radiometals in Chemistry and Medicine (**TERACHEM**)

PARTICIPATION TO CONGRESSES

2024 French - Italian Coordination Chemistry days, Strasbourg. (**JCC2024**)

X NAZIONAL CONGRESS GICR (Brescia).

XXVIII Congresso Nazionale della Società Chimica Italiana.

2023 XXII Giornata della chimica dell'ER (Parma). (**XXII GcC-ER 2023**)

Merck Young Chemists' Symposium 2023, Rimini. (**MYCS2023**)

Radiochemistry network for young researchers. (Arcispedale S. Maria Nuova RE)

"Optimizing Imaging and Dose-Response in RadiotherapieS" workshop. (**OIDRRS 2023**)

2022 The Fourth International Symposium on Technetium and Other Radiometals in Chemistry and Medicine. (**TERACHEM**)

44th International Conference on Coordination Chemistry. (**ICCC 2022**)

Autumn Meeting for Young Chemists in Biomedical Sciences. (**AMYC Biomed 2022**)

XXI Giornata della Chimica Emilia Romagna, Bologna. (**XXI GcC-ER 2022**)

2021 XX Giornata della Chimica dell'Emilia Romagna, Ferrara. (**XX GcC-ER 2021**)

POSTER PRESENTATIONS

2024 Matteo Mari, Jennifer Storchi, Mattia Asti, Veronique Patinec, Raphael Tripier, Erika Ferrari. " Development of coumarin-no3py derivatives for theranostic applications in nuclear medicine" (**JCC2024**)

Matteo Mari "Small fluorinated molecules for MCT1 targeting in nuclear medicine" (**ESMEC2024**)

2022

M. Mari*, F. Mariani, M. Asti, E. Ferrari. "Design and synthesis of MCT1 targeting molecules for diagnostic application" (**ISOS 2022)**

Matteo Mari* "Synthesis and radiolabeling evaluations on pyrimidinic curcumin derivatives for colorectal cancer imaging" (**ESMEC2022)**

Matteo Mari, Maria Letizia Piacentini, Mattia Asti, Erika Ferrari. "Pyrimidinic curcumin derivatives for colorectal cancer diagnosis: synthesis, characterization and cold labelling" (**AMYC Biomed 2022**)

Matteo Mari, Sara Bertani, Alice Sgarbi, Jennifer Storchi, Mattia Asti, Erika Ferrari. "Coumarin derivatives for MCT1 targeting: road to a radio-theranostic approach in oncology" (**XXI GcC-ER 2022**)

2021

Matteo Mari, Debora Carrozza, Michele Iori, Pier Cesare Capponi, Sara Rubagotti, Mattia Asti, Erika Ferrari. "Development of a new ligand based on Amino-pyrimidine Curcumin for theranostic applications" (**GdC-ER 2021**)

ORAL PRESENTATIONS

2024

Matteo Mari, Mattia Asti, Veronique Patinec, Raphael Tripier, and Erika Ferrari "Sulfonated no3py derivative for Cu(II) chelation in nuclear medicine" (**INOMAT2024**)

M. Mari, J. Storchi, E. Frignani, M. Asti, V. Patinec, R. Tripier, A. Zambon, and E. Ferrari "Targeting MCT1: from fluorine to copper in nuclear medicine" (**XXVIII Congresso Nazionale della Società Chimica Italiana**)

2023

Matteo Mari, Alice Sgarbi, Jennifer Storchi, Mattia Asti, Veronique Patinec, Raphael Tripier, Erika Ferrari. "Coumarin derivatives for MCT1 targeting in nuclear medicine: from fluorine to copper" (**OIDRRS 2023**)

Matteo Mari. "Labelled small molecules targeting Mono Carboxylate Transporters: preliminary results" (**Radiochemistry Network**)

Matteo Mari, Jennifer Storchi, Mattia Asti, Veronique Patinec, Raphael Tripier, Alfonso Zambon, and Erika Ferrari "Small molecules to target MCT1: from fluorine to copper in nuclear medicine" (**GdC-ER 2023**)

Matteo Mari, Jennifer Storchi, Mattia Asti, Veronique Patinec, Raphael Tripier, and Erika Ferrari "Coumarin derivatives for nuclear medicine: targeting MCT1 with fluorine and copper" (**MYCS2023**)

TEACHING

2024-today **Formation for high school teachers**

Expert for the formation of high school teacher for the use of UV-Vis spectrophotometer with students. Theoretical and practical lessons. (12 hours)

TUTOR ACTIVITIES

2022 **Classroom Tutor**
Tutoring in General and Inorganic Chemistry for the Degree Course in Chemistry and Pharmaceutical Technologies (30 hours)

Laboratory Tutor
Tutoring in Organic Chemistry for the Degree Course in Chemistry (30 hours)

2021 **Classroom Tutor**
Tutoring in General and Inorganic Chemistry for the Degree Course in Chemistry and Pharmaceutical Technologies (30 hours)

2020 **Classroom Tutor**
Tutoring in General and Inorganic Chemistry for the Degree Course in Chemistry and Pharmaceutical Technologies (20 hours)

2021-Today Co-Supervisor of 6 bachelor theses and 3 master theses.

PUBLICATIONS

2024 "***Bridging pyrimidine hemicurcumin and Cisplatin: Synthesis, coordination chemistry, and in vitro activity assessment of a novel Pt(II) complex***" ; Matteo Mari, Matteo Boniburini, Marianna Tosato, Francesca Zanni, Filippo Bonini, Francesco Faglioni, Laura Cuoghi, Silvia Belluti, Carol Imbriano, Mattia Asti, Erika Ferrari ; Journal of Inorganic Biochemistry (2024) doi.org/10.1016/j.jinorgbio.2024.112702

2023 *"**Radiolabeled Chalcone Derivatives as Potential Radiotracers for ß-Amyloid Plaques Imaging**" ;* Pier Cesare Capponi; Matteo Mari; Erika Ferrari; Mattia Asti ; Molecules (2023) 10.3390/molecules28073233

*"**Development of Stable Amino-Pyrimidine–Curcumin Analogs: Synthesis, Equilibria in Solution, and Potential Anti-Proliferative Activity**" ;* Matteo Mari,Matteo Boniburini,Marianna Tosato,Luca Rigamonti,Laura Cuoghi, Silvia Belluti,Carol Imbriano,Giulia Avino,Mattia Asti and Erika Ferrari ; IJMS (2023) 10.3390/ijms241813963

2022 *"**Curcumin-Based ß-Diketo Ligands for Ga3+: Thermodynamic Investigation of Potential Metal-Based Drugs**" ;* Matteo Mari, Debora Carrozza, Gianluca Malavasi, Ettore Venturi, Giulia Avino, Pier Cesare Capponi, Michele Iori,Sara Rubagotti,Silvia Belluti,Mattia Asti and Erika Ferrari ; Pharmaceuticals (2022) 10.3390/ph15070854

2021 "***Applications of Radiolabelled Curcumin and Its Derivatives in Medicinal Chemistry***" ; Matteo Mari, Debora Carrozza, Erika Ferrari and Mattia Asti ; IJMS (2021) 10.3390/ijms22147410

AWARDS AND HONOURS

2024 **Awarded with Conference Grant by the Division on Inorganic Chemistry of the Società Chimica Italiana** for the attendance to the PhD Winter School on Inorganic Materials Synthesis, Characterization and sustainability, Brixen. (INOMAT2024)

Awarded with Conference Grant by the Division on Inorganic Chemistry of the Società Chimica Italiana for the attendance to the French - Italian Coordination Chemistry days, Strasbourg. (**JCC2024**)

2023 **Awarded with Conference Grant** for the attendance to "Optimizing Imaging and Dose-Response in RadiotherapieS" workshop. (OIDRRS, Erquy, 2023)

2022 **Awarded with Travel Grant by the SRS (Society of Radiopharmaceutical Sciences)** for the attendance to TERACHEM 2022: The Fourth International Symposium on Technetium and Other Radiometals in Chemistry and Medicine (11-18 September 2022).

2021 **Awarded with Conference Grant by the Division on Inorganic Chemistry of the Società Chimica Italiana** for the attendance to the XXVII National Congress of the Italian Chemical Society (14-23 September 2021).

HABILITATION

2021 Professional Habilitation in Chemistry obtained at University of Modena and Reggio Emilia with exam on 16.06.2021.

LANGUAGES

Italian: native speaker
English: C1, TOEFL obtained in 2015, score: 96/120
Spanish: B2 DELE certified in 2019
German: B1
French: A2/B1

SOFTWARE

Microsoft Office: Good knowledge of Word, Excel, PowerPoint, and Outlook packages
Topspin/Mestrenova: software for the visualization and analysis of NMR spectra
Matlab: basic knowledge of "PLS Toolbox" for chemometric analysis
PyES: Good knowledge of PyES software to calculate and plot speciation distribution diagrams of ligands and metal complexes.

TRANSVERSAL SKILLS

- Able to work in a team and share expertise.
- Great ability to plan and schedule work.
- Gladly available for written or oral communications.
- Good skills in leading bachelor or master students during their traineeships.

MEMBERSHIPS

2021- Today GICR (Gruppo Interdisciplinare di Chimica dei Radiofarmaci)
2021- Today SCI (Italian Chemical Society), Inorganic and Organic Chemistry Divisions
2022- 2023 SRS (Society of Radiopharmaceutical Sciences)
2024- Today ESMI (European Society for Molecular Imaging)

EXPERIENCES ABROAD

05.2023 – 11.10.2023	**ERASMUS+** PhD internship at Université de Bretagne Occidentale (UBO) At Prof. Raphael Tripier Laboratory (UMR CNRS-UBO 6521 "CEMCA") Brest, France
01.2021 – 06.2021	**ERASMUS TRAINEESHIP** Postgraduate internship at "Universitätsklinikum Ulm" Department of Nuclear Medicine Ulm, Germania
01.2018 – 06.2018	**ERASMUS +** Curricular internship at the Universitad Complutense de Madrid Department of Pharmacy Biochemistry and bio-inorganic chemistry laboratory Madrid, Spain
06.2014 – 07.2014	**LEONARDO MOBILITY PROJECT** Training internship at "Vsmpo Tirus GmbH" Sales Frankfurt am Main, Germany
06.2013	**SUMMER SCHOOL** Period of summer school abroad at “The Bournemouth School of English” Bournemouth, United Kingdom

CONTACTS FOR REFERENCES

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Modena, 26.12.2024

Il sottoscritto dichiara che quanto indicato nella presente domanda corrisponde al vero ai sensi dell'art.46 e 47 D.P.R. 445/2000 ed esprime il proprio consenso affinché i dati personali forniti possano essere trattati nel rispetto del D.lgs n.196/03, e del Regolamento UE n. 2016/679, per gli adempimenti connessi alla presente procedura.