

Cristina Casadidio, MSc, PharmD

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Cristina Casadidio is a Postdoctoral Researcher at the School of Pharmacy, Drug Delivery Division, University of Camerino (IT). She currently enjoys a project entitled "Design and development of polymers and hydrogels for the local delivery of nucleic acids". Her research activity is mainly focused on the synthesis of multiple biopolymeric systems intended for local and controlled delivery of biotherapeutics. One of the main objectives of her work is to enhance the *in vitro* and *in vivo* stability of protein, peptides and nucleic acids (pDNA, siRNA and mRNA) exploiting different polymer chemistry and delivery systems. Infections treatment, cancer therapy and tissue regeneration represent the main pharmaceutical and medical applications of interest.

WORK EXPERIENCE

- 08/2022 – present** **Postdoctoral Researcher**
University of Camerino, Camerino (MC), Italy
Project title: "Design and development of polymers and hydrogels for the local delivery of nucleic acids"
Supervisor: Prof. R. Censi
- 11/2017 – 07/2022** **European PhD candidate in Chemical and Pharmaceutical Sciences (with scholarship)**
Joint project between the Department of Pharmaceutics, Utrecht Institute for Pharmaceutical Sciences (UIPS), Utrecht University (NL) and the School of Pharmacy, Drug Delivery Division, University of Camerino.
Project title: "*In situ forming hydrogels for local delivery of peptidic drugs and nucleic acids*"
Supervisors: Prof. T. Vermonden, Prof. R. Censi Prof. P. Di Martino and Prof. W. E. Hennink
- 07/2016 – 10/2017** **Master Thesis Intern**
University of Camerino, Camerino (MC), Italy
The aim of the thesis was to create a multiple delivery system composed of a dually crosslinked thermosensitive hydrogel loaded with daptomycin, staphylococcal bacteriophages and fluconazole-loaded PLGA nanoparticles.
Supervisors: Prof. P. Di Martino and Prof. R. Censi
- 10/2015 – 05/2016** **Professional Internship**
Farmacia Marcelletti s.n.c. Dott. Marcelletti Alberto & C, Tolentino (MC), Italy

TEACHING ACTIVITIES

- 11/2017 – 07/2022** **Lecturer at the Faculty of Pharmacy, University of Camerino**
10 hours course for master students in *Laboratory and research methodologies*.
- Master student's supervisor**
Faculty of Pharmacy, University of Camerino (IT) and Pharmaceutics Department, Utrecht University (NL)

EDUCATION AND TRAINING

- 11/2017 – 07/2022** **European PhD candidate in Chemical and Pharmaceutical Sciences (with scholarship)**
Joint project between the Department of Pharmaceutics, Utrecht Institute for Pharmaceutical Sciences (UIPS), Utrecht University (NL) and the School of Pharmacy, Drug Delivery Division, University of Camerino.
Project title: "*In situ forming hydrogels for local delivery of peptidic drugs and nucleic acids*"
Supervisors: Prof. T. Vermonden, Prof. R. Censi, Prof. P. Di Martino and Prof. W. E. Hennink
- 11/2017 – present** **Assistant professor for the scientific area 03/D2; SSD CHIM/09**
- Applied Pharmaceutical Chemistry (9 CFU; Degree Course in CTF)
 - Cosmetic Products for Fitness (9 CFU; Degree Course in ISF)
 - Industrial Production of Medicinal Products (8 CFU; Degree Course in CTF)
- 11/2017** **Licensed Pharmacist**
Achieved at the University of Camerino, Camerino (MC), Italy
- 2010 – 2017** **Master's degree in Pharmaceutical Chemistry**
University of Camerino, Faculty of Pharmacy, Camerino (MC), Italy
Master thesis defence: Camerino, 6 October 2017 - Academic year 2016/2017
Graduated with 104/110. Experimental master thesis project: "*New strategies for the co-delivery of antimicrobials in the treatment of implant-associated infections*"
Supervisors: Prof. P. Di Martino and Prof. R. Censi

2005 – 2010

High School Diploma

Istituto di Istruzione Superiore Francesco Filelfo, Tolentino (MC), Italy
Graduated with 80/100

DOCTORAL TRAINING COURSES

2017 – present

- **Adobe Illustrator** (Utrecht University)
- **Adobe InDesign** (Utrecht University)
- **Give Effective Presentations** (Utrecht University)
- **Open Science** (University of Camerino)
- **English for scientific writing** (University of Camerino)
- **Microcalorimetry, Thermal and Rheology** (TA Instruments, NL)
- **Supervisor of U-TALENT project** (Utrecht University)
- **Participation at Training Programme of the Graduate School of Life Sciences** (Utrecht University and University Medical Centre Utrecht)

HONOURS AND AWARDS

SCHOLARSHIPS

Postdoctoral fellowship granted by University of Camerino. Research project "Design and development of polymers and hydrogels for the local delivery of nucleic acids"

PhD fellowship XXXIII cycle – University of Camerino (MC), Italy

Participation at the Netherlands Organization for Scientific Research NWO/VIDI granted project (number 13457) – Utrecht University, Pharmaceutics Department, Utrecht, The Netherlands

PRIZES

2nd prize Dutch national PhD student competition - FIGON Dutch Medicines Days 2022
Issued by Federation for Innovative Drug Research Netherlands (FIGON), June 2022

1st prize UIPS PhD student competition 2022 Issued by Utrecht Institute for Pharmaceutical Sciences (UIPS), April 2022

Grant for best abstract at 13th PBP World Meeting 2022 Provided by ADRITELF (Associazione Docenti e Ricercatori Italiani di Tecnologie e Legislazione Farmaceutiche) for the conference: 28-31 March 2022 Rotterdam, the Netherlands

Grant for best abstract at 31st ESB 2021 Provided by SIB (Italian Society for Biomaterials) for the conference: 5-9 September 2021 Porto, Portugal

Grant for best abstract at SCI 2021 Provided by SCI (Italian Society of Chemistry) for the conference: 14-23 September 2021 Online, Italy

Grant for best abstract at 30th ESB 2019 Provided by SIB (Italian Society for Biomaterials) for the conference: 9-13 September 2019 Dresden, Germany

Grant for best abstract 9th BSRT symposium 2018 Provided by Berlin-Brandenburg School for Regenerative Therapies (BSRT) symposium organisation, for the conference: 28-30 November 2018 Berlin, Germany

Best poster presentation at SIB 2018 (Italian Society for Biomaterials) 6-8 June 2018 Rende, CO, Italy

OTHER RESEARCH ACTIVITIES

Short-term research periods as a visiting student at the following institutions:

- **Laboratory of General Biochemistry and Physical Chemistry of Gent University** (BE), Prof. Katrien Remaut e Prof. Stefaan De Smedt;
- **Department of Pharmacy, University of Naples Federico II** (IT), under the supervision of Prof. Giuseppe De Rosa, Dr. Laura Mayol and Dr. Marco Biondi;

International collaboration:

- **Department of Biology, University of Pisa** (IT), Dr. Mariagrazia Di Luca
- **Charité University Medicine Berlin** (GER), Prof. Dr. Andrej Trampuz

PERSONAL SKILLS

LANGUAGES	Italian (native), English (advanced – PET certificate), German (intermediate), French (basic)
COMMUNICATION SKILLS	Communication skills acquired through the exposure of projects carried out in the scientific field. Good communication skills with the public through my experience as a trainee pharmacist and as a helper in a clothing store. Excellent contact skills with teenagers gained through my experience as volunteer water polo coach. Good communication skills acquired during stays abroad within Europe.
ORGANISATIONAL SKILLS	Excellent ability to work in team and leadership. Excellent organizational skills acquired during my student career alternating with numerous hours of daily sports. Good skills in writing manuscripts and oral exposure.
JOB-RELATED SKILLS	<ul style="list-style-type: none">▪ Polymer synthesis: Schotten-Baumann reaction (HPMAm in water), free radical polymerization, DCC coupling reaction, ATRP and RAFT polymerization, Michael addition, Maleimide-thiol coupling, Diels-Alder reaction, Thiol-SPDP reaction.▪ Delivery systems: nano-macroparticles, polyplexes and hydrogels formulations for controlled release of drugs, gene (pDNA, siRNA and mRNA) and viruses.▪ Biology: 2D and 3D (spheroids) cell culturing, cell staining, transfection efficiency and gene silencing (luciferase and eGFP readouts), imaging (confocal microscopy), western blot. Assistance for <i>in vivo</i> studies (mice).▪ Analytical Methods: High Performance Liquid Chromatography (HPLC); Nuclear Magnetic Resonance (NMR); Gel Permeation Chromatography (GPC); UV- Vis Spectrophotometry; Dynamic Light Scattering (DLS); Zeta potential; Rheometer; Differential Scanning Calorimetry (DSC); Confocal Microscopy; SEM, TEM and Cryo-EM microscopy.▪ Galenic preparations: creams, capsules, tablets, syrups, granules.
DIGITAL SKILLS	Good knowledge of: GraphPad Prism, ChemDraw Ultra, MestReNova, Adobe pack, Microsoft Office pack, iWork pack, Microsoft Windows, Mac OS, EndNote, Mendeley, Scopus, PubMed, Scholar, SciFinder, KaleidaGraph, Columbus, CellVoyager.
DRIVING LICENCE	B
PROFESSIONAL MEMBERSHIPS	<ul style="list-style-type: none">▪ Controlled Release Society (CRS) BeNeLux & France (BNLF) Local Chapter▪ ESB (European Society for Biomaterials)▪ ADRI TELF (Associazione Docenti e Ricercatori Italiani di Tecnologie e Legislazione Farmaceutiche)▪ SIB (Società Italiana Biomateriali)▪ SCI (Società Chimica Italiana)▪ A.It.U.N. (American Association of Pharmaceutical Scientists – Italian University Network)
OTHER SKILLS	
SPORT	<ul style="list-style-type: none">• Season 2019-2020 as former international waterpolo player with UZSC Utrecht in the Reserve Eredivisie A of Dutch League.• For 8 years captain of the main waterpolo team Nuoto-Pallanuoto Tolentino in 2nd division and player for 13 years• Gold medal at the 9th International Cup Toulouse (FR); silver medal at the 2008 Italian Championships under 17; bronze medal at the 2010 Italian Championships under 19, with Nuoto-Pallanuoto Tolentino team.
CULTURE	Music (I played piano for 8 years), art, read (novels, articles), classical dance (practiced for 5 years), cinema, play cards.
VOLUNTEERING	Homework help for high school students; swimming teacher for children.

REFERENCES

Prof. T. Vermonden, Department of Pharmaceutics, Utrecht University, David de Wied building, Universiteitsweg 99, 3484 CG, Utrecht (NL), Tel. +31(0)620291631, E-mail: t.vermonden@uu.nl

Prof. P. Di Martino, Faculty of Pharmacy, University of Chieti, Via dei Vestini 1, 66100 Chieti (CH), Italy, Tel: +39 0871 3554901, E-mail: piera.dimartino@unich.it

CITATION METRICS

According to Scopus, 1st December 2022

h-index = 6, Total citations = 344, Documents by author = 8

PUBLICATION LIST

(* corresponding author) (§ contributed equally)

1. Censi R*, **Casadidio C**, Deng S, Gigliobianco MR, Sabbieti MG, Agas D, Laus F, Di Martino P (2020). Interpenetrating Hydrogel Networks Enhance Mechanical Stability, Rheological Properties, Release Behavior and Adhesiveness of Platelet-Rich Plasma. *International Journal of Molecular Sciences*, vol. 21(4), p. 1399, ISSN: 1422-0067, doi: 10.3390/ijms21041399
2. Gigliobianco MR*,[§] Di Martino P[§], Deng S, **Casadidio C**, Censi R (2019). New Advanced Strategies for the Treatment of Lysosomal Storage Disorders Affecting the Central Nervous System. *Current Pharmaceutical Design*, vol. 25 (17), p. 1933-1950, ISSN: 1381-6128, doi: 10.2174/1381612825666190708213159
3. Censi R, **Casadidio C**, Dubbini A, Cortese M, Scuri S, Grappasonni I, Golob S, Vojnovich D, Sabbieti MG, Agas D, Di Martino P* (2019). Thermosensitive hybrid hydrogels for the controlled release of bioactive vancomycin in the treatment of orthopaedic implant infections. *European Journal of Pharmaceutics and Biopharmaceutics*, vol. 142, p.322-333, doi: 10.1016/j.ejpb.2019.07.006
4. **Casadidio C**, Peregrina DV, Gigliobianco MR, Deng S, Censi R, Di Martino P* (2019). Chitin and Chitosans: Characteristics, Eco-Friendly Processes and Applications in Cosmetic Science. *Marine Drugs*, vol. 17, p. 369, ISSN: 1660-3397, doi: 10.3390/md17060369
5. Censi R, Gigliobianco MR, **Casadidio C**, Di Martino P* (2018). Changes in the solid state of nicergoline, a poorly soluble drug, under different grinding and environmental conditions: effect on polymorphism and dissolution. *Journal of Pharmaceutical Sciences*, vol. 108, p. 929-948, ISSN:0022-3549, doi: 10.1016/j.xphs.2018.09.032
6. Gigliobianco MR[§], **Casadidio C**[§], Censi R*, Di Martino P (2018). Nanocrystals of poorly soluble drugs: drug bioavailability and physicochemical stability. *Pharmaceutics*, vol. 3, Issue 10, p.134, ISSN:1999-4923, doi: 10.3390/pharmaceutics10030134
7. Censi R, Gigliobianco MR, **Casadidio C**, Di Martino P* (2018). Hot Melt extrusion: highlighting factors to be investigated while designing and optimizing a hot melt extrusion process. *Pharmaceutics*, vol. 3, Issue 10, p. 89, ISSN:1999-4923, doi: 10.3390/pharmaceutics10030089
8. **Casadidio C**[§], Butini ME[§], Trampuz A, Di Luca M, Censi R*, Di Martino P (2018). Daptomycin-loaded biodegradable thermosensitive hydrogels enhance drug stability and foster bactericidal activity against *Staphylococcus aureus*. *European Journal of Pharmaceutics and Biopharmaceutics*, vol. 130, p. 260-271, ISSN: 0939-6411, doi: 10.1016/j.ejpb.2018.07.001
9. **Casadidio C**, Censi R, Mayol L, Biondi M, Scuri S, Cortese M, Hennink W. E, Vermonden T, De Rosa G and Di Martino P. Polysaccharides for stabilization and sustained release of antimicrobial peptides. Ready for submission.
10. **Casadidio C**, Hartman J. E. M, Mesquita B. S, Haeghebaert R, Remaut K, Censi R, Di Martino P, Hennink W. E and Vermonden T. Small siRNA polyplexes for 3D tumor spheroid penetration. Submitted.

CONFERENCE PAPERS LIST

(** poster presenter, § oral presenter, # invited speaker)

1. **Casadidio C**^{**}, Fens M.H.A.M, Hennink W.E, Di Martino P, Censi R and Vermonden T. Injectable thermosensitive hydrogel releasing small siRNA polyplexes for tumor tissue penetration. In: A.It.U.N. annual meeting, Student Chapter (Ferrara, Italy 1-2/09/2022)
2. **Casadidio C**[§]. Injectable thermosensitive hydrogel for heart regeneration. In: A.It.U.N. annual meeting, Student Chapter (Ferrara, Italy 1-2/09/2022)
3. **Casadidio C**^{**}, Fens M.H.A.M, Censi R, Di Martino P, Hennink W.E and Vermonden T. Hydrogel releasing small siRNA polyplexes for tumor tissue penetration. In: Simposio AFI 2022 (Rimini, Italy, 8-10 June 2022)
4. **Casadidio C**[§], Fang J, Fens M.H.A.M, Censi R, Hennink W.E, Di Martino P, Sluijter J, Schiffelers R, Lei Z, Vermonden T. Pericardial delivery of therapeutics via thermosensitive hydrogel for cardiac regeneration. In: PBP World Meeting 2022 (Rotterdam, The Netherlands, 28-31 March 2022)
5. **Casadidio C**^{**}, Fang J, Fens M.H.A.M, Censi R, Hennink W.E, Di Martino P, Sluijter J, Schiffelers R, Lei Z, Vermonden T. Injectable thermosensitive hydrogel for cardiac regeneration. In: CHAINS 2021 (Online conference, 7-8 December 2021)
6. **Casadidio C**^{**}, Censi R, Di Martino P, Hennink W.E and Vermonden T. SiRNA polyplexes for tumor tissue penetration using 3D spheroids. In: Brightlands Polymer Days 2021 (Veldhoven, The Netherlands, 7-9 November 2021)

7. **Casadidio C⁵**, Censi R, Di Martino P, Hennink W.E and Vermonden T. Small siRNA polyplexes for tumor tissue penetration. In: NanoTME 2021 (Online conference, 23-24 September 2021)
8. **Casadidio C⁵**. Cardiac delivery of therapeutics via injectable thermosensitive hydrogel. In NanoInnovation 2021 (Rome, 22 September 2021)
9. **Casadidio C^{**}**, Fang J, Fens M.H.A.M, Censi R, Hennink W.E, Di Martino P, Sluijter J, Schiffelers R, Lei Z, Vermonden T. Cardiac delivery of therapeutics via injectable thermosensitive hydrogel. In: SCI (Italian Society of Chemistry) Conference 2021 (Online conference, 14-23 September 2021)
10. **Casadidio C⁵**, Censi R, Di Martino P, Hennink W.E and Vermonden T. Small siRNA polyplexes for tumor tissue penetration. In: 31st ESB 2021 conference (European Society for Biomaterials. Online conference, 5-9 September 2021)
11. **Casadidio C⁵**, Fang J, Fens M.H.A.M, Censi R, Hennink W.E, Di Martino P, Sluijter J, Schiffelers R, Lei Z, Vermonden T. Injectable thermosensitive hydrogel for cardiac delivery of biotherapeutics. In: SIB (Italian Society for Biomaterials) Conference 2021 (Lecce, Italy 11-14/11/2021)
12. **Casadidio C⁵**, Censi R, Di Martino P, Hennink W.E and Vermonden T. 3D multicellular tumor spheroids as *in vitro* model for tracking polyplexes penetration in cancer therapy. In: 2021 Early Career Scientist Meeting by the CRS BNLF Chapter (Online conference, 6 April 2021)
13. **Casadidio C⁵**, Censi R, Di Martino P, Hennink W.E and Vermonden T. Penetration of optimized small polyplexes for cancer therapy into 3D multicellular tumor spheroids. In: 2021 Virtual CRS Local Chapter Meeting by the CRS Germany Chapter together with the BNLF Chapter (Online conference, 4 March 2021)
14. **Casadidio C⁵**, Censi R, Hennink W.E, Vermonden T, Di Martino P. Polysaccharides as peptide stabilizers in pharmaceutical formulations. In: International EPNOE Junior Scientist Meeting 2021 (Online conference, 3-4 February 2021)
15. **Casadidio C^{**}**, Censi R, Di Martino P, Hennink W.E, Vermonden T. Polyplexes formulation and penetration into 3D tumor models. In: CHAINS 2020 (Online conference, The Netherlands, 8-9 December 2020)
16. **Casadidio C⁵**. The science of hydrogels: smart biomaterials against staphylococcal infections. Webinar of University of Camerino (Online conference, 15 June 2020)
17. **Casadidio C⁵**, Censi R, Scuri S, Mayol L, Biondi M, De Rosa G and Di Martino P. Development of polysaccharide-drug ionic complexes as antimicrobial hydrogels in the treatment of staphylococcal infections. In: 30th ESB 2019 conference (European Society for Biomaterials. Dresden, Germany 9-13 September 2019)
18. **Casadidio C^{**}**, Censi R, Scuri S, Mayol L, Biondi M, De Rosa G and Di Martino P. Polysaccharide hydrogels for the stabilization and controlled release of ionic cargo. In: Annual Workshop by CRS Italy Chapter (Catania, Italy 7-9/11/2019)
19. **Casadidio C^{**}**, Censi R, Scuri S, Mayol L, Biondi M, De Rosa G and Di Martino P. Development of polysaccharide-drug ionic complexes as antimicrobial hydrogels in the treatment of staphylococcal infections. In: 30th ESB 2019 conference (European Society for Biomaterials. Dresden, Germany 9-13 September 2019)
20. **Casadidio C^{**}**, Censi R, Scuri S, Cortese M and Di Martino P. Development of in situ hydrogels as antimicrobial stabilizers in the treatment of implant-associated infections. In: XIII A.It.U.N. annual meeting (Castelraimondo (MC), Italy 13-14/06/2019)
21. **Casadidio C^{**}**, Censi R, Scuri S, Cortese M and Di Martino P. Development of in situ hydrogels as antimicrobial stabilizers in the treatment of implant-associated infections. In: 3rd European Conference on Pharmaceutics (Bologna, Italy 25-26/03/2019)
22. **Casadidio C^{**}**, Censi R, Scuri S, Cortese M and Di Martino P. Development of in situ hydrogels as antimicrobial stabilizers in the treatment of implant-associated infections. In: 9th BSRT Symposium 2018 (Berlin, Germany 28-30/11/2018)
23. **Casadidio C^{**}**, Censi R, Di Martino P. Development of a locally administered daptomycin-loaded thermosensitive hydrogel to fight implant-associated infections. In: SIB (Italian Society for Biomaterials) Conference 2018 (Rende (CS), Italy 06-08/06/2018)

DISSEMINATION ARTICLES

1. *HOW TO BE AN OPEN SCIENTIST 2018* – A collaborative work by the doctoral candidates of the International School of Advanced Studies of the University of Camerino under the guidance of Dr. Karen Vandeveld (University of Ghent, Belgium) http://isas.unicam.it/sites/isas.unicam.it/files/HowtobeanOpenScientist_UNICAM.pdf