



Elisa Corazza

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📍 **Work** : Via San Donato 19/2, Drug Delivery Research laboratory, Department of Pharmacy and Biotechnology, University of Bologna, 40127, Bologna, Italy

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ID: CA56097GU **Gender**: Female **Date of birth**: 03/05/1995 **Place of birth**:

Bologna, Italy **Nationality**: Italian

ABOUT ME

I am a young researcher with a Ph.D. in Pharmaceutical Technology. My main distinguishing features are curiosity, ease of learning, dedication and passion for my work, as well as determination and ambition. Additionally, I am characterized by being extremely demanding, particularly with myself, having a critical mindset, and a predisposition for managing situations as orderly and accurately as possible. My goal is to exploit my scientific background, as well as my research expertise in biotechnology and pharmaceutical technology, to address critical challenges in the life sciences and healthcare fields. I am seeking a position that allows me to apply the analytical and problem-solving skills I developed during my academic career, while collaborating with multiple teams to deliver innovative solutions, and continue expanding my expertise. Since I think that the content and the activities involved in the project perfectly align with my goals, I submit my application for the research contract position in the context of the programme HORIZON-EIC-2024-PATHFINDEROPEN-01.

WORK EXPERIENCE

University of Bologna - Department of Pharmacy and Biotechnology - Drug Delivery Research Laboratory

Address: Via San Donato 19/2, 40127, Bologna, Italy

[01/02/2024 – Current] **Research fellow**

The research focuses on the green extraction of natural extracts derived from *Glycyrrhiza glabra* L. roots and Spanish broom flowers, their chemical characterization, and their encapsulation in vesicular systems employing environmentally friendly technologies. The final aim is the impregnation of broom dressings with nano-encapsulated extracts to investigate the dressings' ability to induce cell proliferation and migration for wound healing. In parallel, I am developing a polysaccharide-based film loaded with the cell-free supernatant (CFS) of a *Lactobacillus plantarum* isolated from organic oranges. This project aims to obtain a natural, biodegradable product, easy to manufacture, with the potential to promote tissue regeneration in wounds by ensuring proper hydration and optimal breathability, while also helping to prevent infections and reduce inflammation. Indeed, the *L. plantarum* CFS exerts antimicrobial, anti-inflammatory, and antioxidant activity.

Main activities:

- Ultrasound-assisted extraction of bioactive compounds from vegetable matrices.
- Colorimetric assays for flavonoid, polyphenols, and antioxidant activity quantification.
- Ethanol injection and thin film hydration methods for nanovesicular system development (liposomes, ethosomes, and coated liposomes).
- Characterization of vesicular nanocarriers: average size, polydispersity index, surface charge, stability, encapsulation efficiency and release profile.

- Analytical assays: HPLC, spectrophotometric.
- Solvent casting.
- Water up-take studies.
- Water vapor transmission rate evaluation.
- Evaluation of mechanical properties of films.
- Thermogravimetric analysis (TGA).

Main responsibilities:

- Design, plan and perform experiments.
- Regular report activity.
- Supervision of undergraduate students involved in the project.

University of Bologna - Department of Pharmacy and Biotechnology

Address: Via San Donato 19/2, 40127, Bologna, Italy

[08/01/2021 – Current] **Academic Tutor**

Support to laboratory teaching activities in the context of various study courses: "Phytocosmetic Products" and "Technology and Legislation of Herbal Products" for the Bachelor's Degree in Applied Pharmaceutical Sciences; "Pharmaceutical Technology and Galenic Preparations" for the Single-cycle Degree in Pharmacy; "Modified Release Drug Delivery Systems" for the Single-cycle Degree in Pharmaceutical Chemistry and Technology; "Nanoformulation of Biologicals" for the Master's Degree in Pharmaceutical Biotechnology. (282 hours)

Main activities:

- Contribute to organizing materials, reagents, and instruments required for the practical course.
- Helps students during experimental procedures.

University of Bologna - Department of Pharmacy and Biotechnology

Address: Via San Donato 19/2, 40127, Bologna, Italy

[21/05/2024 – 30/05/2024] **Tutor for the Pharmacy and Biotechnology Department**

Support the members of the Third Mission committee to plan and realize the seminar series titled "Science Explained to Youth."

Main activities:

- Organize practical sessions with experimental activities.
- Support the students in the laboratory.

Main responsibilities:

- Write a report on possible improvements for a future edition of the seminars.

University of Bologna - Department of Pharmacy and Biotechnology - Drug Delivery Research Laboratory

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[01/11/2020 – 31/01/2024] **Ph.D. Candidate**

The research activity focused on the development of innovative strategies to enhance the penetration and permeation through the nasal mucosa of local and/or systemically-acting drugs. Part of the study also investigated the potential involvement of probiotics (*Lactobacillus* spp.) and their metabolites in the absorption of therapeutic molecules. I also participated in experimental activities related to other research topics, such as the development of nanocarriers, including polymeric nanoparticles and liposomes, for the administration of antimicrobial drugs. Alongside, I contributed to the accomplishment of a mucoadhesive nasal spray delivering freeze-dried probiotic cells bearing antimicrobial activity.

Main activities:

- Production and isolation of postbiotics (biosurfactants and cell-free supernatants) from *Lactobacillus* spp.
- Permeation studies across synthetic, biomimetic, in vitro, and ex vivo membranes.
- Solubility studies.
- Viscosity measures.
- Determination of critical micell concentration.
- Mucoadhesive studies.
- Development of in-situ thermosensitive formulations.
- Development of nanocarriers: polymeric nanoparticles via ionic gelation and liposomes via thin film hydration.
- Development of freeze-dried matrices and spray-dried powders for probiotic delivery.
- Analytical assays: HPLC, spectrophotometric.

Main responsibilities:

- Design, plan and perform experiments.
- Regular report activity.
- Writing scientific articles and abstracts for participation in congresses.
- Supervision of undergraduate students involved in the project.

University of Applied Science Biberach - Institute of Applied Biotechnology

Address: Hubertus-Liebrecht Straße 35, 88400, Biberach an der riß, Germany

[01/10/2022 – 31/03/2023] **Ph.D. Visiting Student**

The aim was to practice with the use of a primary cell model of the upper respiratory developed by the laboratory of Prof. Katharina Zimmerman, to perform permeation studies across a cell-based model relevant for testing intranasal and nose-to-brain drug delivery.

Main activities:

- Isolate, maintain, and differentiate primary cell lines derived from the upper respiratory tract (porcine nasal and tracheal epithelial cells).
- Cell viability test.
- In vitro permeation studies.

Main responsibilities:

- Design, plan and perform experiments.
- Regular report activity.

Centro Interdipartimentale per la Ricerca sul Cancro (CIRC) - S. Orsola Hospital pavillon n° 13

Address: Via Massarenti 11, 40138, Bologna, Italy

[01/03/2019 – 29/02/2020] **Internship Student**

Internship carried out at the laboratories of CIRC on behalf of BIOGENERA S.p.a. (Via dell'Artigianato 2, Ozzano, Bologna), a company specialized in the research and development of new personalized biological drugs based on oligonucleotides for the treatment of severe diseases, especially pediatric tumors. I was involved in *in vitro* and *in vivo* studies aimed at evaluating the efficacy and safety of an anti-MYCIN peptide nucleic acid used in combination with retinoic acid for neuroblastoma treatment.

Main activities:

- Cell culture of neuronal immortalized cell lines.
- Cell viability and apoptosis assay.
- Scratch assay.
- Differentiation assay.
- Optical microscope imaging.
- Flow cytometry.

- Gene expression analysis: RNA extraction, retrotranscription and quantification.
- Mice handling: routine animal breeding, intraperitoneal injection, post-mortem isolation of relevant organs for pharmacokinetic studies.

Main responsibilities:

- Perform experiments.
- Collection of data and data analysis.
- Regular report activity.

University of Bologna - Academic Services Sector of the University of Bologna (AFORM)

Address: Viale Berti Pichat 10, 40127, Bologna, Italy

[01/07/2019 – 20/12/2019]

Guidance and orientation tutor

Supporting students who approached the university for the first time; providing information regarding requirements and deadlines for enrolling in a university course. (200 hours)

Main activities:

- Answer to students' email and phone calls.
- Participate in the open days events.

Main responsibilities:

- Keep updated with the latest call for application to the different university courses of the department.
- Keep updated with changes to the study plans.
- Regular report activity.

AcZon S.r.l.

Address: Via Lavino, 256/D, Monte San Pietro, 40050, Bologna, Italy

[01/03/2017 – 30/06/2017]

Internship Student

Internship carried out at the company's laboratory, which is involved in the development, production, and commercialization of silica nanoparticles and fluorescent antibodies for diagnostic, clinical, and research purposes. I was involved in evaluating the washout phenomenon of fluorescent silica nanoparticles, thus analyzing the influence of cell proliferation on fluorescence.

Main activities:

- Cell culture of immortalized cell lines.
- Cell staining with fluorescent nanoparticles.
- Evaluation of cell growth.
- Optical and fluorescence microscopy.
- Spectrofluorimetric analysis.

Main responsibilities:

- Perform experiments.
- Collection of data and data analysis.
- Regular report activity.

EDUCATION AND TRAINING

[31/01/2024]

Ph.D. in Pharmaceutical Technologies

University of Bologna | <https://phd.unibo.it/biotechnology-biocomputational-pharmaceutics-pharmacology/en/phd-programme>

Address: Via San Donato 19/2, 40127, Bologna, Italy | **Field(s) of study:** Pharmaceutical technology | **Final grade:** Excellent | **Thesis:** Alternative strategies to improve intranasal and nose-to-brain drug delivery

Ph.D. in Pharmaceutical Technologies (Area CHIM/09) as part of the Ph.D. program in Biotechnological, Biocomputational, Pharmaceutical, and Pharmacological Sciences. During my Ph.D I joined

- The Summer School in Chemical and genomic-based strategies in the discovery of novel drug targets.
- Two editions of the Winter School in Bioinformatics:
 - Bioinformatics for the discovery of structural and functional biology
 - Structural bioinformatics in the era of alphaFold2.
- A basic course in laboratory animal science.

[20/03/2020] **Master's degree Pharmaceutical Biotechnology**

University of Bologna | <https://www.unibo.it/it/studiare/lauree-magistrali/corso/2024/9068>

City: Bologna | **Country:** Italy | | **Final grade:** Cum Laude | **Thesis:** Analisi dei meccanismi molecolari e fenotipici indotti dall'inibizione del gene MYCN come agente singolo o in combinazione con l'Acido Retinoico nel Neuroblastoma

[10/10/2017] **Bachelor's Degree in Biotechnology**

University of Bologna | <https://www.unibo.it/it/studiare/lauree-e-lauree-magistrali-a-ciclo-unico/corso/2024/5976>

| **Final grade:** Cum Laude | **Thesis:** Valutazione degli effetti di replicazione e washout cellulare sulla fluorescenza determinata dall'uptake di nanoparticelle fluorescenti

[07/2014] **Secondary school leaving certificate**

Liceo Scientifico Augusto Righi

City: Bologna | **Country:** Italy | | **Final grade:** 100/100

PUBLICATIONS

- [2024] [**Orange Peel Lactiplantibacillus plantarum: Development of A Mucoadhesive Nasal Spray with Antimicrobial and Anti-inflammatory Activity**](#)
- Reference:** Corazza, E. et al., 2024. Pharmaceutics, 16, 1470
- [2024] [**Association of mucoadhesive polymeric matrices and liposomes for local delivery of miconazole: A new approach for the treatment of oral candidiasis**](#)
- Reference:** Abruzzo A. and Corazza E. et al., 2024, International Journal of Pharmaceutics, Volume 661, 124461
- [2024] [**Lactobacilli cell-free supernatants: Potential green and natural enhancers for nose-to-brain delivery of small hydrophilic molecules**](#)
- Reference:** Corazza E. et al., 2024, Journal of Drug Delivery Science and Technology, Volume 99, 105929
- [2022] [**Drug-in-cyclodextrin-in-polymeric nanoparticles: A promising strategy for rifampicin administration**](#)
- Reference:** Abruzzo A et al., 2022, European Journal of Pharmaceutics and Biopharmaceutics, 180:190-200.
- [2022] [**Drug delivery to the brain: In situ gelling formulation enhances carbamazepine diffusion through nasal mucosa models with mucin**](#)
- Reference:** Corazza E et al., 2022, European Journal of Pharmaceutical Sciences, 1, 179:106294.
- [2022] [**Human Lactobacillus Biosurfactants as Natural Excipients for Nasal Drug Delivery of Hydrocortisone**](#)
- Reference:** Corazza E et al., 2022, Pharmaceutics, 14(3):524.

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[2021] [Influence of Lactobacillus Biosurfactants on Skin Permeation of Hydrocortisone](#)

Reference: Abruzzo A. et al., 2021, Pharmaceutics, 13(6):820.

CONFERENCES AND SEMINARS

- [11/06/2025 – 13/06/2025] **64° SIMPOSIO AFI Dalla conoscenza alla digitalizzazione per la competitività dell'industria della salute** Rimini, Italy
Poster title "BIA-heal: orange peel derived postbiotics for wound healing".
- [10/06/2025 – 10/06/2025] **Novel approaches for skin health** Ferrara, Italy
Oral contribution title "Fostering wound healing by nano encapsulated extract of Spanish Broom flowers".
- [24/03/2025 – 25/03/2025] **5th European Conference On Pharmaceutics** Porto, Portugal
Poster title "Spanish Broom flower extracts: a promising natural product for skin wounds treatment".
- [08/07/2024 – 12/07/2024] **CRS 2024 Annual Meeting and Expo** Bologna, Italy
- [27/06/2024 – 29/06/2024] **Cortona procarioti 2024** Cortona, Italy
Poster title "Beneficial activity of Lactiplantibacillus plantarum isolated from orange".
- [12/2023] **Permeability Series Webinar** Online event
Title of the oral contribution "PermeaPad® barrier for drug discovery and development".
- [09/2023] **XXII Advanced Course in Pharmaceutical Technology** Trieste, Italy
Title of the oral contribution "Lactobacilli cell-free supernatants: potential green and natural enhancers for nose-to-brain delivery of small hydrophilic molecules".
- [03/2023] **4th European Conference on Pharmaceutics** Marseille, France
Poster title "Lactobacilli cell-free supernatants can improve cromolyn nasal absorption".
- [06/2022] **Novel frontiers in nanocarriers preparation and characterization** Rome, Italy
Poster title "Chitosan nanoparticles combined with sulphobutylether- β -cyclodextrin for rifampicin administration".
- [09/2022] **XXI Advanced Course in Pharmaceutical Technology** Rome, Italy
Poster Title "In situ gelling formulations for the intranasal and nose-to-brain delivery of drugs with different physicochemical properties".
- [09/2021] **XX Advanced Course in Pharmaceutical Technology** Online event
Poster title "Lactobacillus biosurfactants as natural excipient for nasal drug delivery".

HONOURS AND AWARDS

[06/02/2025]

Premio intitolato al Prof. Alessandro Rigamonti Awarding institution: Associazione Farmaceutici Industria (AFI)

An annual AFI initiative honoring the legacy of Professor Alessandro Rigamonti, aimed at fostering the growth of promising young talent in pharmaceutical research. Every year, 10 awards of €5,000 are conferred to researchers under 30 years old, affiliated with universities or public research bodies, who present original research proposals in the field of Pharmaceutical Sciences. I was awarded for the project titled "BIA-heal: orange peel-derived postbiotics for wound healing", which aims to develop a sustainable and eco-friendly solution for wound healing.

[10/06/2025]

Best flash talk award Awarding institution: University of Ferrara together with SITELF

2021/22 Best paper award in European Journal of Pharmaceutical Sciences Awarding institution: European Federation of Pharmaceutical Sciences

Merit scholarship for outstanding academic achievements during the year 2018/19 Awarding institution: University of Bologna

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Spanish

LISTENING B1 READING B1 WRITING A1

SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

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

TECHNICAL SKILLS

Immortalized and primary cell cultures

Maintenance, differentiation, viability, apoptosis, and scratch assays.

Molecular biology

RNA extraction, PCR, Real-Time PCR, flow cytometry.

Microbiology

Bacterial cultures of lactobacilli.

Encapsulation technologies

Ionic gelation , thin hydration film and ethanol injection , spray-drying, and freeze-drying.

Characterization of pharmaceutical dosage forms

Release and permeation studies, encapsulation efficiency, mucoadhesion tests, size distribution, zeta potential analysis, water up-take study, and characterization of mechanical properties.

Analytical techniques

HPLC, spectrophotometric, spectrofluorimetric, DSC, TGA

Mice handling

Routine animal breeding, intraperitoneal injection, and post-mortem isolation of relevant organs for pharmacokinetic studies.

COMMUNICATION AND INTERPERSONAL SKILLS

Teamwork disposition; Excellent communication skills, both written and oral.

ORGANISATIONAL SKILLS

Excellent organizational and planning skills; Strong problem-solving disposition; Attention to detail.

DIGITAL SKILLS

Microsoft Office (Outlook, Excel, Word, PowerPoint, Microsoft Teams); GraphPad Prism; ImageJ; Microsoft Teams; Skype; Zoom

HOBBIES AND INTERESTS

Scuba diving

Snorkeling

Pottery

Dance

I hereby authorize the processing of the personal data contained in this CV in compliance with the European Regulation (UE) 2016/679.

Bologna, 24/07/2025



Elisa Corazza