

Dr. Anna Imbriano

Curriculum Vitae

Index

1. General Information and Personal Data
2. Previous and Current Positions
3. Education
4. Research Periods at International Institutions
5. Awards, Scholarships, and Recognitions
6. Research Activities
7. Description of Major Scientific Collaborations and Participation in National and International Research Groups
8. Participation and Scientific Responsibility in National and International Research Projects funded by competitive peer-reviewed grants
9. Supervision of Students (Laboratory Supervision, NOT appointed as academic supervisor)
10. Academic Activities
11. Conference Responsibilities and Organization
12. Outreach Activities
13. Membership in Scientific Societies
14. List of Conference Contributions
15. LIST OF PUBLICATIONS [*authors who equally contributed]

1. GENERAL INFORMATION AND PERSONAL DATA

- **Personal Information:**

Born in Ariano Irpino (AVELLINO) on 05/12/1990, married.

- **Residential Address:**

Via Roma, 80 – 83032, Bonito (AVELLINO), Italy.

- **Contact for Communications:**

Via Roma, 80 – 83032, Bonito (AVELLINO), Italy.

- **Phone:**

+39 389 0943214 (mobile)

- **Email:**

anna.imbriano@unipg.it; annaimbriano.90@gmail.com (personal)

- **Skype:**

Anna Imbriano

- **LinkedIn:**

[LinkedIn Profile](#)



2. PREVIOUS AND CURRENT POSITIONS

- **January 2024 – Present**

Researcher (RTD-A) at the Department of Pharmaceutical Sciences, University of Perugia, Perugia, Italy.

- **October 2021 – December 2022**

Post-Doctoral Researcher at the Department of Chemistry, University of Bari Aldo Moro, Bari, Italy.

3. EDUCATION

- **December 2020**

Ph.D. (summa cum laude) in Pharmaceutical Sciences (Doctor Europaeus) specializing in Pharmaceutical Technology, University of Rome 'La Sapienza' (Supervisor: Prof. Maria Carafa).

- **October 2017**

Master's Degree (LM 13) in Chemistry and Pharmaceutical Technology (106/110) at the University of Rome 'La Sapienza' (Supervisor: Prof. Maria Carafa).

4. RESEARCH PERIODS AT INTERNATIONAL INSTITUTIONS

- **October 2019 – February 2020**

Research activity at the Department of Pharmacy and Pharmaceutical Technology, Faculty of Pharmacy, University of Granada (Supervisor: Prof. César Antonio Viseras Iborra).

5. AWARDS, SCHOLARSHIPS, AND RECOGNITIONS

- **September 2022**
Scholarship for participation in the XXIX National Congress of the Analytical Chemistry Division of the Italian Chemical Society (SCI).
 - **March 2019**
Scholarship for participation in the 3rd European Conference on Pharmaceutics.
-

6. RESEARCH ACTIVITIES

The research activities conducted during my training years can be divided into two main phases:

1. **First Phase:** Focused on the study and characterization of vesicular systems made from phospholipids and surfactants, for carrying active pharmaceutical molecules. These structures were designed and functionalized using different coating techniques with mucoadhesive or pH-sensitive polymers to create highly specific formulations, usable through various administration routes (dermal, transdermal, ocular, pulmonary, and intranasal). The obtained vehicles were characterized using various instrumental techniques, including Dynamic Light Scattering, Small-angle X-ray scattering, fluorescence, spectroscopy, and rheology. Drug release tests, stability over time, and interactions with biological fluids were also performed.
 2. **Second Phase:** Focused on developing ultra-sensitive amperometric enzymatic biosensors for detecting markers of clinical/biomedical interest, food products, and environmental contaminants. Enzyme immobilization methods were implemented to improve electron transfer processes and to use enzymes integrated with allosteric modulators (chimeric enzymes). The electrochemical systems were further integrated into 'sense-act-treat' systems based on pH variation at the electrode/solution interface.
-

7. SCIENTIFIC COLLABORATIONS AND PARTICIPATION IN NATIONAL AND INTERNATIONAL RESEARCH GROUPS

Active collaborations with various national and international research groups, including:

- **Prof. Luisa Torsi** (University of Bari Aldo Moro) on organic electrochemical transistors for ultrasensitive detection of metabolites. Eight articles published since 2021.
- **Prof. Nicoletta Ditaranto** (University of Bari Aldo Moro) on synthesis and morphological and spectroscopic characterization of nanostructured materials. Two articles published since 2022.
- **Prof. Eleonora Macchia** (University of Bari Aldo Moro) on organic electrochemical transistors for ultrasensitive detection of metabolites. Eight articles published since 2022.
- **Prof. Paolo Bollella** (University of Bari Aldo Moro) on developing ultra-sensitive amperometric enzymatic biosensors. Eight articles published since 2022.
- **Prof. Dónal Leech** (University of Galway, Ireland) on creating biosensors with electrochemical mediators. One article under review since 2022.

- **Prof. Ruchi Gupta** (University of Birmingham, UK) on developing bio-nanoreactors activated by local pH variations. One project coordinated by #IES\R1\221206 funded by the Royal Society.
 - **Prof. Cesar Viseras** (University of Granada) on developing innovative drug delivery systems to promote wound healing.
-

8. PARTICIPATION AND SCIENTIFIC RESPONSIBILITY IN NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

- Member of a research unit at the Department of Chemistry, University of Bari Aldo Moro, focusing on developing bio-electronic transistor systems capable of detecting a single protein marker or virus in an untreated blood or saliva sample (equivalent to a concentration of 10 zeptomolar)
 - Member of a research unit at the Department of Pharmaceutical Sciences, University of Perugia focusing on developing biomaterials from sustainable sources for the development of health products and their regulatory aspects
-

9. SUPERVISION OF STUDENTS (Laboratory Supervision, NOT appointed as academic supervisor)

Doctoral Students

- **Angelo Tricase**, Department of Chemistry, University of Bari Aldo Moro
- **Cecilia Scandurra**, Department of Chemistry, University of Bari Aldo Moro

Master's Students

- **Silvia Cimarelli**, Department of Chemistry and Pharmaceutical Technology, University of Rome 'La Sapienza'
- **Giada Cannone**, Department of Chemistry and Pharmaceutical Technology, University of Rome 'La Sapienza'
- **Nicholas Chan Lik King**, Institute of Pharmaceutical Science, King's College London (visiting student)

Bachelor's Students

- **Stefano Speranza**, Department of Chemistry, University of Bari Aldo Moro
-

10. ACADEMIC ACTIVITIES

- **Peer-reviewing:** Reviewer for seven journals including Biosensors and Bioelectronics, Analytica Chimica Acta, Food Chemistry, Bioelectrochemistry.
- **Guest Editor:** Guest editor of a Special Issue (Y. 2023) entitled "Wearable Electrochemical Biosensors" in Applied Research aligned with UN SDG #3.

11. CONFERENCE RESPONSIBILITIES AND ORGANIZATION

- Organized the final meeting for the SiMBiT project, December 2022, Bari, Italy.
- **Student Helper:** NanoInnovation 2019, Rome, Italy; 3rd European Conference on Pharmaceutics, March 2019, Bologna, Italy.

12. OUTREACH ACTIVITIES

- **Sharper- La notte dei ricercatoyori**, University of Perugia, September 2024
- **Open Day** for university orientation, University of Bari Aldo Moro, October 2022.
- **Open Campus 2022**, orientation day for scientific departments, University of Bari Aldo Moro, April 2022.

13. MEMBERSHIP IN SCIENTIFIC SOCIETIES

- International Society of Electrochemistry (ISE)
- Italian Chemical Society (SCI)
- ADRITELF (to be renewed)
- Controlled Release Society (CRS) (to be renewed)

14. LIST OF CONFERENCE CONTRIBUTIONS

1. **Imbriano**, F. García-Villén, F. Rinaldi, L. Perioli, C. Pagano, G. Sandri, C. Marianecchi, C. Viseras, M. Carafa. ‘Design and Characterization of Clay-Carvacrol Nanoemulsions for Wound Healing’, SCIAMI International Workshop - Eco-friendly antimicrobial Strategies to fight Chronic-wound Infections Associated with Multidrug-resistant pathogens for the development of Innovative medical systems, June **2024**, Chieti, Italy.
2. **A. Imbriano**, A. Tricase, E. Macchia, L. Torsi, P. Bollella. ‘ON/OFF Ultrasensitive Detection of Hepatitis B Virus (HBV) by Enzymatic/DNA Logic Network’, Chimica sotto l’albero- I giovani, la transizione verde e la sfida dell’economia circolare, December **2022**, Bari, Italy.
3. **A. Imbriano**, A. Tricase, E. Macchia, L. Torsi, P. Bollella. ‘A Novel Sensing Platform for ON/OFF Ultrasensitive Detection of Hepatitis B Virus (HBV)’, 73rd Annual Meeting of the International Society of Electrochemistry, September **2022**, On-line.
4. **A. Imbriano**, A. Tricase, E. Macchia, L. Torsi, P. Bollella. ‘Self-powered enzymatic AND gate machinery for Ultrasensitive Detection of Hepatitis B Virus (HBV)’, XXIX Congresso della Divisione di Chimica Analitica, La Chimica Analitica per un futuro verde e sostenibile, September **2022**, Milazzo, Italy.

5. **A. Imbriano**, K. Sowa, E. Macchia, L. Torsi, P. Bollella. ‘Boolean Logic Network based Biosensor to Detect Wine Adulteration’, International Workshop & Orbitaly 2020, July **2022**, Erice, Italy.
6. **A. Imbriano**, K. Sowa, E. Macchia, L. Torsi, P. Bollella ‘A Self-Powered Logically Operated Sucrose Biosensor to Detect Wine Adulteration’, AISEM 2022, XXI Conferenza Nazionale Sensori e Microsistemi, February **2022**, Rome, Italy. (Virtual Event)
7. **A. Imbriano**, F. García-Villén, P.N. Hanieh, F. Rinaldi, C. Marianecchi, C. Viseras, M. Carafa. ‘Design and Characterization of Hybrid-Multistratified Micro/Nanoemulsions for Wound Healing’, NanoInnovation 2020, September **2020**, Rome, Italy.
8. **A. Imbriano**, P.N. Hanieh, F. Rinaldi, C. Longhi, M.G. Ammendolia, E. Del Favero, D. Passeri, M. Rossi, A. Oliva, M. De Angelis, M.C. Miele, R. Ragno, C. Marianecchi, M. Carafa. ‘Nanoemulsion Characterization: a fundamental issue’, 19th Advanced School in Pharmaceutical Technology, September **2019**, Soverato, Italy.
9. **A. Imbriano**, P.N. Hanieh, F. Rinaldi, D. Passeri, M. Rossi, E. Del Favero, M.G. Ammendolia, C. Marianecchi, M. Carafa. ‘Nanoemulsions: versatile formulations for active substances, delivery and targeting’, NanoInnovation 2018, September **2018**, Rome, Italy.
10. **A. Imbriano**, P.N. Hanieh, F. Rinaldi, C. Marianecchi, M. Carafa. ‘Nanoemulsion: a versatile formulation’, Chimica Supramolecolare: Giornata dei dottorandi, May **2018**, CNR, Rome, Italy.

Oral presentations as co-author

1. P. Bollella, **A. Imbriano**, A. Tricase, M. Valentino, N. Ditaranto, E. Macchia, C. Di Franco, L. Gentile, D. Leech, G. Scamarcio, L. Torsi. ‘Multipurpose Ink Formulation for Low-Cost Stencil-Printing Electrodes: Flexible and Wearable Enzyme-based Bioelectronics’, 8th International Winterschool on Bioelectronics, BioEl 2023, March **2023**, Kirchberg in Tirol, Austria.

Poster

1. **Imbriano**, A. Maccelli, L. Vitanza, L. Maurizi, C Longhi, S. Fornarini, M.E. Crestoni, M.G. Amendolia, P.N. Hanieh, F. Rinaldi, C. Marianecchi, M. Carafa. ‘Satureja montana L. essential oils and nanoemulsions: evaluation of physical-chemical and antimicrobial properties’, Therapeutic Nanoproducs: from biology to innovative technology, Istituto Superiore di Sanità, June **2019**, Rome, Italy.
2. **A. Imbriano**, P.N. Hanieh, F. Rinaldi, E. Del Favero, Y. K. Reshetnyak, O. A. Andreev, C. Marianecchi, M. Carafa. ‘pHLIP-coated niosomes as novel delivery systems for cancer therapy’, Biophysics@Rome2019, May **2019**, Rome, Italy
3. F. Rinaldi, L. Seguella, S. Gigli, P. N. Hanieh, **A. Imbriano**, E. Del Favero, L. Cantù, M. Pesce, G. Sarnelli, C. Marianecchi, G. Esposito, M. Carafa. ‘Pentamidine in Parkinson’s disease: a N2B approach via chitosan-coated niosomes’, 3rd European Conference on Pharmaceutics, March **2019**, Bologna, Italy.
4. **A. Imbriano**, P. N. Hanieh, L. Angeloni, D. Passeri, M. Rossi, E. Del Favero, F. Rinaldi, C. Marianecchi, M. Carafa. ‘Brij® niosomes and vegetal oil nanoemulsions for topical delivery:

a comparative study', 18th School for Doctorate in Pharmaceutical Technology, Innovation in Local Drug Delivery, September **2018**, Como, Italy.

5. **A. Imbriano**, P.N. Hanieh, F. Rinaldi, D. Passeri, L. Angeloni, M. Rossi, E. Del Favero, L. Cantù, C. Marianecchi, M. Carafa. 'Brij® niosomes and vegetal oil nanoemulsions for topical delivery: a comparative study', Nanomedicine Rome **2018**, June 2018, ISS, Rome, Italy.

-
1. P.N. Hanieh, A. Maccelli, L. Vitanza, **A. Imbriano**, C. Frascchetti, L. Maurizi, M.G. Ammendolia, C. Marianecchi, C. Longhi, F. Rinaldi. 'Satureja montana L. essential oils: chemical profiles/phytochemical screening and O/W NanoEmulsion antimicrobial activity', 12th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, May **2021**, Virtual meeting.
 2. P.N. Hanieh, **A. Imbriano**, I. Venditti, I. Fratoddi, E. Del Favero, F. Rinaldi, C. Marianecchi, M. Carafa. 'Silver nanoparticles-loaded niosomes: Preparation and characterization of conjugates for potential biological application', Controlled Release Society annual meeting & exposition, July **2019**, Valencia, Spagna.
 3. P.N. Hanieh, **A. Imbriano**, F. Rinaldi, L. Angeloni, D. Passeri, M. Rossi, E. Del Favero, L. Cantù, C. Marianecchi, M. Carafa. 'Chitosan Glutamate-Coated Niosomes: A Proposal for Nose to Brain Delivery of Pentamidine', Nanomedicine Rome 2018, Istituto Superiore di Sanità, June **2018**, Rome, Italy.
 4. P.N. Hanieh, F. Rinaldi, **A. Imbriano**, M.C. Pereira, M. Pianella, D. Wei, A. Moshnikova, O.A. Andreev, Y.K. Reshetnyak, C. Marianecchi, M. Carafa. 'pH-sensitive pHLIP coated niosomes', 11th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, March **2018**, Granada, Spagna.

15. LIST OF PUBLICATIONS [*authors who equally contributed]

[14] Pagano C., Ceccarini M. R., Marinelli A., **Imbriano A.**, Beccari T., Primavilla S., Valiani A., Ricci M., Perioli L., Development and Characterization of an Emulgel based on a Snail Slime useful for Dermatological Applications, Int. J. Pharm., (2024), 660, 20, 124337. DOI: 10.1016/j.ijpharm.2024.124337

[13] **Imbriano A.**, García-Villén F., Forte J., Ruggeri M., Rinaldi F., Perioli L., Sandri G., Marianecchi C., Viseras C., Carafa M. (2024), Clay-Carvacrol Nanoemulsions for Wound Healing: Design and Characterization studies, J. Drug Deliv. Sci. Technol., (2024), 99, 105984. DOI: 10.1016/j.jddst.2024.105984

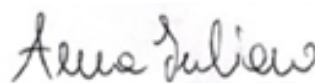
[12] Tricase, A.*, **Imbriano, A.***, Valentino, M., Ditaranto, N., Macchia, E., Franco, C.D., Kidayaveetil, R., Leech, D., Piscitelli, M., Scamarcio, G., Perchiazzi, G., Torsi, L. and Bollella, P., Water-Based Conductive Ink Formulations for Enzyme-Based Wearable Biosensors, Adv. Sensor Res. (2023), 2300036. DOI: 10.1002/adsr.202300036

- [11] Scandurra, C., Björkström, K., Sarcina, L., **Imbriano, A.**, Di Franco, C., Österbacka, R., Bollella, P., Scamarcio, G., Torsi, L., Macchia, E., Single Molecule with a Large Transistor - SiMoT cytokine IL-6 detection benchmarked against a chemiluminescent ultrasensitive immunoassay array, *Adv. Mater. Tech.* (2023), 8, 2201910. DOI: 10.1002/admt.202201910
- [10] Valentino, M.* , **Imbriano, A.***, Tricase, A., Della Pelle, F., Compagnone, D., Macchia, E., Torsi, L., Bollella, P., Ditaranto, N., Electropolymerized molecularly imprinted polypyrrole film for dimethoate sensing: investigation on template removal after the imprinting process, *Anal. Methods* (2023) 15, pp. 1250-1253. DOI: 10.1039/D2AY02024F
- [9] **Imbriano, A.**, Tricase, A., Macchia, E., Torsi, L., Bollella, P., Self-powered logically operated fluorescent detection of hepatitis B virus (HBV), *Anal. Chim. Acta* (2023) 1252, art. No. 341037. DOI: 10.1016/j.aca.2023.341037
- [8] Tricase, A.* , **Imbriano, A.***, Ditaranto, N., Macchia, E., Picca, R. A., Blasi, D., Torsi, L., Bollella, P., Electrochemical and X-ray Photoelectron Spectroscopy Surface Characterization of Interchain-Driven Self-Assembled Monolayer (SAM) Reorganization, *Nanomaterials* (2022) 12, art. No. 867. DOI: 10.3390/nano12050867
- [7] Sarcina, L., Macchia, E., Tricase, A., Scandurra, C., **Imbriano, A.**, Torricelli, F., Cioffi, N., Torsi, L., Bollella, P., Enzyme based field effect transistor: State-of-the-art and future perspectives, *Electrochem. Sci. Adv.*, (2022), art. No. e2100216. DOI: 10.1002/elsa.202100216
- [6] Tricase, A., **Imbriano, A.**, Macchia, E., Sarcina, L., Scandurra, C., Torricelli, F., Cioffi, N., Torsi, L., Bollella, P., Enzyme based amperometric wide field biosensors: Is single-molecule detection possible?, *Electrochem. Sci. Adv.*, (2022), art. No. e2100215. DOI: 10.1002/elsa.202100215
- [5] Rinaldi, F., Oliva, A., Sabatino, M., **Imbriano, A.**, Hanieh, P.N., Garzoli, S., Mastroianni, C.M., De Angelis, M., Miele, M.C., Arnaut, M., Di Timoteo, F., Marianecchi, C., Ragno, R., Carafa, M., Antimicrobial Essential Oil Formulation: Chitosan Coated Nanoemulsions for Nose to Brain Delivery, *Pharmaceutics* (2020) Jul 17;12(7):678. DOI: 10.3390/pharmaceutics12070678
- [4] Rinaldi, F., Hanieh, P. N., **Imbriano, A.**, Passeri, D., Del Favero, E., Rossi, M., Marianecchi, C., De Panfilis, S., Carafa, M., Different instrumental approaches to understand the chitosan coated niosomes/mucin interaction, *J. Drug Deliv. Sci. Technol.*, (2020), ISSN 1773-2247, 55:(2020), pp. 1-9. DOI: 10.1016/j.jddst.2019.101339
- [3] Maccelli, A. *, Vitanza, L. *, **Imbriano, A. ***, Frascchetti, C., Filippi, A., Goldoni, P., Maurizi, L., Ammendolia, M.G., Crestoni, M.E., Fornarini, S., Menghini, L., Carafa, M., Marianecchi, C., Longhi, C., Rinaldi, F., *Satureja montana* L. Essential Oils: Chemical Profiles/Phytochemical Screening, Antimicrobial Activity and O/W NanoEmulsion Formulations, *Pharmaceutics*, (2019), 12(1):7. DOI: 10.3390/pharmaceutics12010007
- [2] Rinaldi, F., Hanieh, P.N., Chan, L.K.N., Angeloni, L., Passeri, D., Rossi, M., Wang, J.T., **Imbriano, A.**, Carafa, M., Marianecchi, C., Chitosan Glutamate-Coated Niosomes: A Proposal for Nose-to-Brain Delivery. *Pharmaceutics*. 2018 Mar 22;10(2):38. doi: 10.3390/pharmaceutics10020038

[1] **Imbriano, A.** Nanoemulsions: Formulation, Characterization, and Promising Applications. PhD Thesis in Pharmaceutical Sciences (2020).

Authorization for the processing of personal data to GDPR (EU Regulation 2016/679) and Italian law.

Perugia, 5 novembre 2024

A handwritten signature in cursive script, enclosed in a thin black rectangular border. The signature appears to read "Anna Zuliani".