CURRICULUM VITAE

Il sottoscritto DIEGO CAPRIOGLIO, a conoscenza di quanto prescritto dall'art. 76 del D.P.R. 28 dicembre 2000 n. 445, sulla responsabilità penale cui può andare incontro in caso di falsità in atti e di dichiarazioni mendaci, nonché di quanto prescritto dall'art. 75 del D.P.R. 28 dicembre 2000 n. 445, sulla decadenza dai benefici eventualmente conseguenti al provvedimento emanato sulla base di dichiarazioni non veritiere, ai sensi e per gli effetti del citato D.P.R. n. 445/2000 e sotto la propria personale responsabilità:

D I C H I A R A

che tutte le informazioni contenute nel proprio curriculum vitae sono veritiere.

Novara, 31/07/2024

Il DICHIARANTE

PERSONAL INFORMATIONS

Name	DIEGO CAPRIOGLIO

PROFESSIONAL EXPERIENCE

• Date	May 2022- Now (9 months)
• Job and position	**"Ricercatore a tempo determinato tipologia B"- SSD CHEM-05**
• Main activities and responsabilities	Study of the chemistry of natural products, teaching of the courses of Organic Chemistry (5 CFU), Preparatory Laboratory of Chemistry (3 CFU), Chemistry of Biomolecules (5 CFU) within the Master Degree in Biotechnology (DISS-UNIUPO), Organic Chemistry (5 CFU) within the Master Degree in Pharmacy (DISS-UNIUPO), Organic Chemistry (3 CFU) within the Master Degree in CTF (DISS-UNIUPO) Department responsible for "UpoJunior", responsible for organization of Department Seminar Cycle
• Name and address of the employer	Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100 Novara (NO)
• Date	March 2019- March 2022 (3 years)
• Job and position	**"Ricercatore a tempo determinato tipologia A"- SSD CHIM-06**
• Main activities and responsabilities	Study of the chemistry of natural products, teaching of the courses of Organic Chemistry (5 CFU) and Preparatory Laboratory of Chemistry (3 CFU) within the Master Degree in Biotechnology (DISS-UNIUPO), Department responsible for "Notte dei Ricercatori", responsible for organization of Department Seminar Cycle

• Name and address of the employer	Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100 Novara (NO)
• Date	November 2016-March 2019 (2 years 4 months)
• Job and position	**Adjunct Professor**
• Main activities and responsabilities	Teacher for the courses of Organic Chemistry (5 CFU) and Preparatory Laboratory of Chemistry (3 CFU) within the Master Degree in Biotechnology (DISS-UNIUPO)
• Name and address of the employer	Dipartimento di Scienze della Salute, Via Solaroli 17, 28100 Novara (NO)
• Date	Febbraio 2016- March 2019 (3 years 1 month)
• Job and position	**Post Doc Researcher** (Tutor. Prof. G. Appendino)
• Main activities and responsabilities	Synthesis of new Curcuminoids and Study of the Phytocannabinoid chemical space in terms of drug discovery
• Name and address of the employer	Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100 Novara (NO)
• Date	February 2015- July 2015 (6 months)
• Job and position	**Visiting student at CRL- University of Oxford (UK)** (Tutor Prof. S.P. Fletcher)
• Main activities and responsabilities	Development of an alternative synthetic route of the anticancer agent Fulvestrant via copper-catalyzed asymmetric conjugate addition of an alkyl-zirconic species
• Name and address of the employer	University of Oxford, Chemistry Research Laboratory, OX1 3TA, UK
• Date	November 2012- February 2016 (3 years 4 months)
• Job and position	**PhD in "Scienza delle Sostanze Bioattive"** (Tutor Prof. G. Appendino)
• Main activities and responsabilities	Use of organic synthesis and semi-synthesis for the creation of new series of analogues of natural compounds present in spices, with the aim of improving their potency and stability.
• Name and address of the employer	Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100 Novara (NO)
• Date	January 2012- October 2012 (8 months)
• Job and position	**Junior Researcher** (Tutor Prof G. Appendino)
• Main activities and responsabilities	Study of the structure-activity relationships of beta-caryophyllene, a natural selective agonist of the peripheral cannabinoid receptor, and synthesis of new derivatives. Study of the inhibition of the enzyme MAG-lipase, important for the metabolism of endocannabinoids, by pentacyclic triterpenes.
• Name and address of the employer	Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100 Novara (NO)
• Date	December 2009- October 2010 (8 months)
• Job and position	**Experimental Thesis**
• Main activities and responsabilities	Experimental thesis in organic synthesis (supervisor Prof. G.C. Tron). The studies carried out concerned in the first part the setting up of a multicomponent reaction for the one-pot synthesis of tetrasubstituted furans, subsequently the synthesis of combrethiophenes by Suzuki reaction and their biological evaluation as antitubulins.
• Name and address of the employer	Università degli studi del Piemonte Orientale A. Avogadro- Facoltà di Farmacia, Largo Donegani 2, 28100 Novara (NO)
• Date	October 2009- December 2009 (3 months)
• Job and position	**Part-time teaching assistance**
• Main activities and responsabilities	Tutor in the laboratories of the Drug Analysis courses for the Degree Course in Pharmacy (Tutor

Dr. U. Galli) and the Degree Course in C.T.F. (Tutor Prof. G. Grosa). Recognition of inorganic salts, recognition of organic compounds and evaluation of the conservation title through IR.

• Name and address of the employer: Università degli studi del Piemonte Orientale A. Avogadro- Facoltà di Farmacia, Largo Donegani 2, 28100 Novara (NO)

EDUCATION AND TRAINING

• Date	November 2012-February 2016
• Name and type of educational institution	Università degli Studi del Piemonte Orientale A. Avogadro- Facoltà di Farmacia
• Main subjects / occupational skills covered by the study	PhD Scienza delle Sostanze Bioattive
• Qualification achieved	PhD in Organic Chemistry (SSD CHIM-06)
• Date	September 2005- October 2011
• Name and type of educational institution	Università degli Studi del Piemonte Orientale A. Avogadro- Facoltà di Farmacia
• Main subjects / occupational skills covered by the study	Master Degree in Chimica e Tecnologia Farmaceutiche
• Qualification achieved	Master degree with vote 101/110
• Date	September 2000- July 2005
• Name and type of educational institution	Istituto Superiore A. Sobrero – Casale M.to
• Main subjects / occupational skills covered by the study	Liceo Scientifico Tecnologico
• Qualification achieved	High school diploma with a score of 90/100

PERSONAL SKILLS AND COMPETENCES

MOTHERTONGUE: **ITALIAN**

ALTRE LINGUE

ENGLISH

• Reading	EXCELLENT
• Writing	GOOD
• Oral	GOOD

TECHNICAL SKILLS AND COMPETENCES

- COMPLETE KNOWLEDGE OF THE OFFICE PACKAGE
- USE OF THE CHEMOFFICE SUITE
- USE OF WINDOWS AND MAC OSX OPERATING SYSTEMS
- ADVANCED EXPERIENCE IN THE FIELD OF ORGANIC SYNTHESIS AND CHEMISTRY OF NATURAL COMPOUNDS GAINED OVER 10 YEARS. IN PARTICULAR, EXPERIENCE IN THE USE OF ORGANOMETALLIC REAGENTS, IN THE ISOLATION AND PURIFICATION OF NATURAL PRODUCTS FROM VEGETABLE MATRIX WITH THE AID OF ADVANCED AND GREEN TECHNIQUES, IN THE CHEMISTRY OF NATURAL PHENOLIC COMPOUNDS, TRITERPENOIDS AND CANNABINOIDS.
- EXPERTISE IN THE USE OF THE MAIN SPECTROPHOTOMETRIC INSTRUMENTS

FOR THE STRUCTURAL IDENTIFICATION OF ORGANIC MOLECULES (NMR, LC-MS, IR) AND IN THE PURIFICATION OF ORGANIC MOLECULES (HPLC).

- EXPERIENCE IN THE USE OF MICROWAVE REACTOR (CEM DISCOVER) AND PHOTOCHEMICAL REACTORS.

DRIVING LICENSE

B ITALIAN

ADDITIONAL INFORMATIONS

NATIONAL SCIENTIFIC QUALIFICATION AS PROFESSOR OF II LEVEL SECTOR 03/C1 SSD CHIM/06 (NOW CHEM-05) OBTAINED ON 01/02/2022 (VALID UNTIL 01/02/31)

RESEARCH INTEREST

My research interests are focused on natural substances, particularly in understanding their chemical composition, biological activities, and potential applications in various fields such as medicine, agriculture, and environmental science. This area of study encompasses several key aspects, including extraction and modification of bioactive compounds (investigation of the chemical compounds present in natural sources, creation of novel chemical entities through organic synthesis isolation and characterization of bioactive compounds that have beneficial effects on health, understanding how these compounds interact with biological systems) and technological integration. Through my research, I aim to contribute to the scientific understanding of natural substances, unlocking their potential to improve human health, support sustainable agriculture, and protect the environment.

My last research regards the study of cannabinoids and their role in inflammatory and neurodegenerative diseases, which led to the discovery of two semi-synthetic derivatives currently in phase 2 clinical development with orphan drug status in the USA and Australia, and the synthesis of new curcumin derivatives (a bioactive compound in numerous spices, including curry) as fluorescent probes for imaging, as well as new anti-inflammatory/anti-tumor drugs.

H INDEX: 17
TOTAL PUBLICATIONS: 47
TOTAL CITATIONS: 771
(UPDATED JULY 2024)

Most significant recent publications:

1. **Diego Caprioglio,*** Daiana Mattoteia, Eduardo Muñoz, Orazio Taglialatela-Scafati and Giovanni Appendino*, *One-pot Oxidative Heterofunctionalization of Resorcinolic Cannabinoids to Non-thiophilic Aminocannabinoquinones*, EurJOC, 2022 (6) (DOI: 10.1002/ejoc.202101410)
2. Daiana Mattoteia, Aniello Schiano Moriello, Orazio Taglialatela-Scafati, Pietro Amodeo,Luciano De Petrocellis, Giovanni Appendino, Rosa Maria Vitale and **Diego Caprioglio*,** *The Combined Effect of Branching and Elongation on the Bioactivity Profile of Phytocannabinoids. Part I: Thermo-TRPs.* Biomedicines 2021, 9(8), 107
3. Mattoteia, D., Taglialatela-Scafati, O., Muñoz, E., de la Vega, L., **Caprioglio, D.*,** Appendino, G.*, *Regiodivergent Synthesis of ortho- and para-Cannabinoquinones,* EurJOC, 2020 (48), pp. 7429-7434.
4. **Caprioglio, D.,** Mattoteia, D., Minassi, A., Pollastro, F., Lopatriello, A., Muñoz, E., Taglialatela-Scafati, O., Appendino, G.*, *One-Pot Total Synthesis of Cannabinol via Iodine-Mediated Deconstructive Annulation,* Organic Letters (2019) 21 (15), pp. 6122-6125.
5. **Caprioglio, D.,** Fletcher, S.P.* *An alternative synthesis of the breast cancer drug fulvestrant (Faslodex®): catalyst control over C-C bond formation*, Chemical Communication (2015) 51 (80), pp. 14866-14868.

NATIONAL AND INTERNATIONAL COLLABORATIONS AND PROJECTS

- Multi-year collaboration with the Phytochemistry Group of the University of Naples Federico II (Prof. Taglialatela-Scafati) in the study of the cannabinoid phytochemical space and in the structural identification of new biologically active products.
  Duration: 2013-ongoing
- Multi-year collaboration with the Immunology group of the University of Cordoba (Prof. Muñoz) in the study of the pharmacological profile of cannabinoids
  Duration: 2013-ongoing
- Multi-year collaboration with the Endocannabinoid Research Group of the Institute of Biomolecular Chemistry (CNR) (Dr. De Petrocellis) for the study of cannabinoids and other natural molecules in their interaction with vanilloid receptors
  Duration: 2013-ongoing
- Multi-year collaboration with the Institute of Biochemistry and Molecular Medicine (Bern) (Prof. Gertsch) for the study of non-classical cannabinoids
  Duration: 2013-2015
- Multi-year collaboration with the Universität Jena (Prof. Werz) for the study of the biological activity of new curcuminoids
- Duration: 2013-ongoing

- Participation in the European Project COFIN TriForC (Triterpenes for Commercialization) in the synthesis and isolation of new biologically active compounds with a triterpene structure
  Duration: 2013-2017
- Participation in PRIN 2017 Bioactivity Directed exploration of the phytocannabinoid chemical space aimed at exploring the phytocannabinoid chemical space
  Duration: 2018- ongoing
- Internal collaboration with the Biochemistry group of the University of Eastern Piedmont (Prof. Garavaglia) in the synthesis of curcuminoid scaffold probes for the identification of glioblastoma and related patent filing for Industrial Invention.
  Duration: 2019- ongoing
- Collaboration with the Institute of Biosciences and BioResources (CNR) (Dr. Perugino) for the development of new synthetic approaches to SNAP-tag Technology
  Duration: 2019- ongoing
- Collaboration with several companies active in cannabinoid research, such as Emerald Health Pharmacueticals (CN) (2017-2019), Emerald Biotechnology Espana (ES) and Vivacell Biotechnology Espana (ES) (2013- ongoing) and Skye Biosciences (USA) (2021- ongoing)
- Winner of the FAR 2019 UNIUPO funds as Co-PI for the presentation of a project on the synthesis of a biosensor for measuring collagen degradation levels (in collaboration with Dr. Miggiano, DSF-UNIUPO)

TEACHING ASSISTANCE activities carried out in the teaching laboratories of:

- 2009: Analisi dei Medicinali, Prof. Ubaldina Galli (Corso di Laurea in Chimica e Tecnologia Farmaceutiche, Dip. Scienze del Farmaco, Università degli studi del Piemonte Orientale)
- 2009: Analisi dei Farmaci, Prof. G. Grosa (Corso di Laurea in Chimica e Tecnologia Farmaceutiche, Dip. Scienze del Farmaco, Università degli studi del Piemonte Orientale)
- 2013-2014-2015: Laboratorio di Fitochimica e Preparazioni Erboristiche, Prof. Alberto Minassi (Corso di Laurea in Farmacia, Dip. Scienze del Farmaco, Università degli studi del Piemonte Orientale)

TEACHING ACTIVITY:

- **Adjunct Professor** for 2016/17 and 2018/19 in Organic Chemistry (SSD CHEM-05) at Dipartimento di Scienze della Salute, Master Degree in Biotechnology (40 hours, 5 CFU).
- **Adjunct Professor** for 2016/17, 2017/18 and 2018/19 in Preparatory Laboratory of Chemistry (SSD CHEM-05) at Dipartimento di Scienze della Salute, Master Degree in Biotechnology (40 hours, 5 CFU).
- As **RTD-A and RTD-B,** Professor in Organic Chemistry (SSD CHEM-05) at Dipartimento di Scienze della Salute, Master Degree in Biotechnology, and Professor in Preparatory Laboratory of Chemistry (SSD CHEM-05) at Dipartimento di Scienze della Salute (UNIUPO), Master Degree in Biotechnology; Professor in Organic Chemistry (SSD CHEM-05) for the Master Degree in Pharmacy and CTF at Dipartimento di Scienze del Farmaco (UNIUPO)
- **Teaching** of "Introduction to Bioorganic Chemistry" and "Rivoluzioni molecolari: racconti di molecule che hanno cambiato la storia" for **PhD** in Drug Innovation (DSF-UNIUPO).
- **Supervisor or Co-Supervisor** of more than 60 experimental theses and 4 PhD theses concerning the chemistry of natural compounds (SSD CHEM-05) for the Degree Courses in Biotechnology, Pharmacy and Pharmaceutical Chemistry and Technology.

Activities of **THIRD MISSION:**

- **Referent, Manager and Coordinator** for the DSF (UNIUPO) of UPOJunior 2022/23
- **Referent, Manager and Coordinator** for the DSF (UNIUPO) of the European Researchers' Night 2019/20 and 2020/21
- **Responsible organization of the cycle of DSF-UNIUPO Departmental Seminars** for 2019/20, 2020/21 and 2021/22
- **Dissemination activity in primary schools for the "ChimicAmica" project** carried out by the DSF-UNIUPO in collaboration with the Novara Development Foundation for

the A.Y. 2017/18, 2018/19, 2019/20 and 2020/21

- **Dissemination activity** on the occasion of the UNIUPO European Researchers' Night 2017, 2019, 2020 and 2021

CONGRESS:

Oral Communication

- Invited Speaker- "Regiodivergent Synthesis of ortho- and para-Cannabinoquinones" on the occasion of *International conference* "Spanish-Italian Symposium on Organic Chemistry (SISOC 2024)" (Torino, Italy, February 2024)
- Invited Speaker- "Exploring the cannabinome: Novel Frontiers in cannabinoid chemistry" on the occasion of *International conference* "24th Argentinian National Symposium of Organic Chemistry (SINAQO 2023)" (Rosario, Argentina, November 2023)
- **"**The oxidation of phytocannabinoids: a systematic investigation" on the occasion of *Convegno Nazionale* "Congresso Nazionale della Società Chimica Italiana" (Online, September 2021)
- "Sintesi one-pot del cannabinolo (CBN) da citrale e olivetolo on the occasion of *Convegno Nazionale* "Scienza e Fede" (Rome, Italy February 2020)
- "Iodine-mediated deconstructive annulation of isoprenylchromenes to benzo[c]chromenes. Development of a one-step synthesis of cannabinol (CBN)" on the occasion of *Convegno Nazionale* "XXXIX Convegno della Divisione di Chimica Organica 2019" (Torino, Italy, September 2019)
- "Iodine-induced prenylative benzoannulation: mechanistic study and application to a two-step total synthesis of cannabinol on the occasion of *Convegno Internazionale* "4th Sino-Italian Symposium on Bioactive Natural Products" (Torino, Italy, Settembre 2018)
- "Carbonyl Activation in Electrophilic Polyene Cyclizations: A Toolbox for the Design of Isoprenoid Libraries" on the occasion of *Convegno Internazionale* "11° Giornate Italo-Francesi di Chimica" (Genova, Italy, April 2018)
- "Pain-less Curcuminoids: sharpening the blurred bioactivity profile of the natural product" on the occasion of *Convegno Internazionale* "2nd Sino-Italian Symposium on Bioactive Natural Products" (Napoli, Italy, November 2016)

Poster Communications:

- "Strigoprenoids, a class of cross-kingdom response modulators" on the occasion of 4th China-Italy Bilateral Symposium on Organic Chemistry (Bologna, april 2019)
- "Iodine-induced prenylative benzoannulation: mechanistic study and application to a two-step total synthesis of cannabinol" on the occasion of XXII International Conference on Organic Synthesis (Firenze, september 2018)
- "A general entry into Aralkylphytocannabinoids and Amorfrutin" on the occasion of XXXVIII Convegno della Divisione di Chimica Organica 2016 (Venezia, september 2016)
- "A general entry into *Helichrysum* Cannabinoids" on the occasion of 7° Giornate Italo-Francesi di Chimica (Torino, may 2014)
- "SYNTHESIS AND TUBULIN-BINDING PROPERTIES OF NON-SYMMETRICAL CLICK CURCUMINOIDS" on the occasion of XXXVIII Edizione "Attilio Corbella Summer School On Organic Synthesis (Gargnano, BS, june 2013)
- "RING-OPENING CROSS METATESIS OF MEDIUM-SIZED OLEFINS: DISCOVERY OF A NOVEL CLASS OF CANNABINOMIMETIC SECO-BISHOMOCARYOPHILLENOIDS" at XXXIV Convegno della Divisione di Chimica Organica (september 2012)

Partecipation to XXXIX Edizione "Attilio Corbella Summer School On Organic Synthesis" (Gargnano, BS, june 2014)

Partecipation XXXVIII Edizione "Attilio Corbella Summer School On Organic Synthesis" (Gargnano, BS, june 2013)

Member of **Società Chimica Italiana- Sezione Piemonte e Valle d'Aosta**

Honorary member of **Sociedad Argentina de Investigación en Química Orgánica**

Guest-editor of Frontiers special issue " From Chemistry to Therapeutics: Exploring the Universe of Cannabinoids and Related Meroterpenoids";
https://www.frontiersin.org/research-topics/47789/from-chemistry-to-therapeutics-exploring-the-universe-of-cannabinoids-and-related-meroterpenoids

Activity as **Reviewer** for several journals in the field of organic chemistry and the chemistry of natural substances (Plants, Molecules, Fitoterapia, Pharmacuetics)

Author of Patent 102021000008504- PCT/IB2022/053216 "SONDA DIRETTA ALL'ENZIMA ALDH1A3 E RELATIVO USO NELLA DIAGNOSI DI GLIOBLASTOMA"