

PERSONAL INFORMATION

Marco Paolino



University of Siena
Department of Biotechnology, Chemistry and Pharmacy
Via A. Moro, 2 – 53100 Siena

0577 232830 ; +39 3293376824

paolino3@unisi.it

<https://docenti.unisi.it/it/paolino>

Sex Male | Date of birth 26/11/1983 | Nationality Italian

WORK EXPERIENCE

- from 11/2025 – to date **Director of the Specialization School in Hospital Pharmacy**
- from 12/2022 – to date **Associate Professor (SSD CHEM-07/A)**
University of Siena, Department of Biotechnology, Chemistry and Pharmacy
- from 11/2019 – 11/2022 **Senior researcher (RTD-B)**
University of Siena, Department of Biotechnology, Chemistry and Pharmacy
▪ Researcher in Medicinal Chemistry (SSD CHEM-07/A)
- from 04/2011 – to 10/2019 **Post-Doc fellowships**
University of Siena, Department of Biotechnology, Chemistry and Pharmacy
Post-doc fellowships in Pharmaceutical technology (SSD CHIM/09) and Organic Chemistry (SSD CHIM/06)
Supervisor Prof. A. Cappelli and Prof. M. Olivucci
- from 06/2011 – to 02/2012 **Guest Scientist**
Leibniz Institute of Polymer Research, Dresden (Germany), Department of Polymer Structures
Supervisors: Prof. Dr. Brigitte Voit and co-supervision of Dr. Dietmar Appelhans

EDUCATION AND TRAINING

- National scientific qualification (ASN)**
- Italian qualification to Full Professor in 03/D1 CHIMICA E TECNOLOGIE FARMACEUTICHE, TOSSICOLOGICHE E NUTRACEUTICO-ALIMENTARI (obtained 31/10/2025)
 - Italian qualification to Full Professor in 03/C1 CHIMICA ORGANICA (obtained 07/11/2025)
- from 10/2007- to 12/2010 **Ph. D. in Pharmaceutical Sciences**
University of Siena, Dipartimento Farmaco Chimico Tecnologico
Thesis: "Innovative systems in pharmaceutical field"
Advisor: Prof. Andrea Cappelli
- from 09/2002- to 09/207 **Master Degree in "Chimica e Tecnologia Farmaceutiche" (CTF)**
University of Siena
Advisor: Prof. Andrea Cappelli

WORK ACTIVITIES

Funded research projects as PI

- 2025- PRIN2022 (scorrimento). Title:** Photoactive Ligands towards Amyloidogenic Proteins: Effect on Inhibition of Aggregation, Amyloid Fibril Disaggregation and Proteasome-induced Degradation.
- 2024 - MARIE SKŁODOWSKA-CURIE ACTIONS Doctoral Networks (DN), Call:** HORIZON-MSCA-2022-DN-01-01. **Title:** LUMIERE, Liquid phase Ultrafast photoemission spectroscopy of biomimetic photoReactions. **Subproject** (Unit of Siena): Computational design, synthesis and characterization of biomimetic photoswitches based on a cinnamic scaffold and their application in biological systems.
- 2022 – PNRR Tuscany Health Ecosystems. Title:** Light-Driven Multi-target Inhibitors for Neurodegenerative Diseases.
- 2022 - Piano di Sostegno alla Ricerca 2022 – University of Siena. Title:** Design and Synthesis of Chromogenic Ligands for the Engineering of Genetically Encodable Unnatural Photoreceptors (Chromo-GENUP).

Teaching activity

- From A. Y. 2023/24 to date Professor of "Drug Analysis" (120 hours, 8 CFU, SSD CHIM/08) in the master degree in CTF at the Department of Biotechnology, Chemistry and Pharmacy of the University of Siena.
- From A. Y. 2019/20 to 2022/23 Professor of the laboratory course of "Drug Analysis II" (84 hours, 8 CFU, SSD CHIM/08) in the master degree in PHARMACY at the Department of Biotechnology, Chemistry and Pharmacy of the University of Siena.
- From A. Y. 2019/20 to date Professor of "Biomaterials" (8 hours, 1 CFU, SSD CHIM/08) at the School of Specialization in Hospital Pharmacy (SSFO) of the University of Siena.
- From A.Y. 2019/2020 to date Professor of "Radiopharmaceuticals" (8 hours, 1 CFU, SSD CHIM/08) at the School of Specialization in Hospital Pharmacy (SSFO) of the University of Siena.

From 2016 supervisor of co-supervisor of over 30 experimental theses in the degree courses of Pharmacy, CTF and Chemical Sciences in the disciplinary sectors CHIM/03, CHIM/06, CHIM/08 and CHIM/09.

Member of the PhD school in Chemical and Pharmaceutical Science at University of Siena. Prof. Paolino is Supervisor of 4 PhD students at the school.

- Editorial Activity** From 2023 Associate Editor of "frontiers in Chemistry – Medicinal Chemistry section"
From 2023 Associate Editor of "Pharmaceuticals"
- Co-author of chapter "Reversible Polymerization Techniques Leading to π -Stacked Polymers" in book " π -Stacked Polymers and Molecules", Edited by Nakano Tamaki, 12/2014. ISBN: 978-4-431-54129-5.
- from 2015 reviewer for:
"Analyst" (RSC Journal), "Nature Protocols" (NatureResearch), "ChemistrySelect" (Wiley-VCH), "Mini-Review in Organic Chemistry" (Bentham Science), "Biomacromolecules", "Journal of Medicinal Chemistry" (ACS), "Polymers", "Molecules", "Pharmaceutics", "Materials", (MDPI) "Carbohydrate Polymers", "Bioorganic Chemistry", "European Journal of Pharmacology", "European Journal of Medicinal Chemistry" (Elsevier), "Topics Current in Chemistry" (Springer).
- 2019 Guest Editor of "Pharmaceutics" (MDPI) for the Special Issue: "Physicochemical Properties of Polymeric Micro- and Nanoparticles as Drug Carriers".
- Selected Presentations** **26-30/08/2025** XXVIII National Congress of Società Chimica Italiana, Milan – ORAL COMMUNICATION: ORG-OR-084. "2-Benzylideneindan-1-one as Photoswitchable Scaffold for the Design of Light-Driven On–Off AChE Inhibitors"
- 17-20/09/2023** XXVIII National Meeting of Medicinal Chemistry –University "G. d'Annunzio" of Chieti Pescara - ORAL COMMUNICATION: "Donepezil-like Dual Target AChE and MAO-B Inhibitors with Photomodulable Inhibitory Activity"
- 16-17/04/2019** IV China-Italy Bilateral Symposium on Organic Chemistry (CISOC4) - University of Bologna - ORAL COMMUNICATION: "A fully Synthetic Rhodopsin Mimic Obtained by Functionalization of a Bile Acid Binding Protein and with a Biomimetic Photowitch"
- 04-05/10/2018** XXXVI Convegno Interregionale TUMA2018 - centro congressi "le benedettine", Pisa -INVITED SPEAKER: "Affinity Polymerization in the Synthesis of π -Stacked Polymers and their Potential Applications as Materials for Drug Delivery and OLED Systems"
- 10-14/09/2017** XXVI Congresso Nazionale della Società Chimica Italiana - SCI2017 - Hotel Ariston, Paestum - Divisione Chimica Farmaceutica - ORAL COMMUNICATION: " π -Stacked Polymers in Drug Delivery Applications"
- 10-14/09/2017** XXVI Congresso Nazionale della Società Chimica Italiana - SCI2017 - Hotel Ariston, Paestum - Divisione Chimica Organica - ORAL COMMUNICATION: "An Ultrafast Molecular Photoswitch Bio-inspired by Green Fluorescent Protein Fluorophore"
- 21-23/09/2015** Chemistry, Materials and Light (CM&L 2015) in IUPAC Special Section - CNR Bologna - ORAL COMMUNICATION: "From Computational Photobiology to the Design of Light-Driven Molecular Motors"
- 28-30/03/2011** Workshop "Nuove prospettive in chimica farmaceutica – V Meeting", Trieste – ORAL COMMUNICATION: "Exploration of Multivalency in 5-HT₃ Receptor"

ADDITIONAL INFORMATION

Publications total number of publications in peer-review journals: 109
total Impact Factor (IF): 515,73 (average IF/paper: 4.78)
total number of citations: 1550 (scopus)
H index: 23

Selected Publications

- Rotor-stator repulsion and medium-induced dephasing enhance and equalise the quantum efficiency of a fluorinated photon-only rotary motor**
M. Filatov Gulak,* M. Simachew Bezabih, S. M. E. Cabral, M. Paolino, M. Olivucci,* S. Kyu Min* *Nat. Commun.* **2026** <https://doi.org/10.1038/s41467-026-72484-8>
- VA1213, a selective COX-2 inhibitor, exhibits antitumor activity by suppressing EGFR, AKT, and ERK1/2 phosphorylation**
V. Ciccone, C. Cecchin, M. Frosini, M. Saletti, S. Maramai, G. Giuliani, M. Paolino, A. Cappelli, M. Anzini, S. Donnini, L. Morbidelli* *European Journal of Pharmaceutical Sciences* **2026**, 219, 107422.
- Light-mediated activation/deactivation control and in vitro ADME-Tox profiling of a donepezil-like Dual AChE/MAO-B Inhibitor**
F. Poggialini, P. Governa, C. Vagaggini, S. Maramai, S. Lamponi, C. Mugnaini, A. Brizzi, R. Purgatorio, M. de Candia, M. Catto, E. Dreassi, F. Manetti, F. Corelli, C. D. Altomare, A. Cappelli, M. Paolino* *European Journal of Pharmaceutical Sciences* **2025**, 209, 107066.
- Synthesis and Reactivity of Oligo(ethylene glycol)-Tethered Morita–Baylis–Hillman Dimers in the Formation of Macrocyclic Structures Showing Remarkable Cytotoxicity**
M. Paolino*, M. Saletti, J. Venditti, A. Zacchei, A. Donati, C. Bonechi, G. Giuliani, S. Lamponi, A. Cappelli *Pharmaceutics* **2025**, 18(4), 473.
- Design, Synthesis, and Characterization of pH-Resettable Photoswitches Mimicking the GFP Fluorophore Structure**
N. Ferrara, G. Giuliani, M. Maimaris, S. Prioli, M. Manathunga, L. Blancafort, J. Léonard, A. Cappelli, M. Olivucci, M. Paolino* *J. Phys. Chem. B* **2025**, 129 (11), 2845–2855.
- Morita-Baylis-Hillman Adduct Chemistry as a Tool for the Design of Lysine-Targeted Covalent Ligands**
M. Paolino*, G. Tassone, P. Governa, M. Saletti, M. Lami, R. Carletti, F. Sacchetta, C. Pozzi, M. Orlandini, F. Manetti, M. Olivucci, A. Cappelli *ACS Med. Chem. Lett.* **2025**, 16(3), 397–405.
- Use of imidazo[1,5-a]quinoline scaffold as the pharmacophore in the design of bivalent ligands of central benzodiazepine receptors**
M. Paolino*, M. Saletti, J. Venditti, F. Castriconi, G. Giuliani, S. Maramai, A. Toti, C. Ghelardini, R. Matucci, N. Alcazar Villalobos, M. Anzini, A. Cappelli *Bioorganic & Medicinal Chemistry* **2025**, 117, 118006
- Exploiting the bile acid binding protein as transporter of a Cholic Acid/Mirin bioconjugate for potential applications in liver cancer therapy**
G. Tassone, S. Maramai*, M. Paolino, S. Lamponi, F. Poggialini, E. Dreassi, E. Petricci, S. Alcaro, C. Pozzi*, I. Romeo *Scientific Reports* **2024**, 14, 22514.
- Preparation of Light-responsive Unnatural RNA Bases via a Chromogenic Morita-Baylis-Hillman Adduct Path**
M. Lami, L. Barneschi, M. Saletti, M. Olivucci, A. Cappelli, M. Paolino* *ChemPhotoChem* **2024**, 8, e202400093.

A Facile Access to Green Fluorescent Albumin Derivatives

M. Saletti, M. Paolino, J. Venditti, C. Bonechi, G. Giuliani, S. Lamponi, G. Tassone, A. Boccia, C. Botta, L. Blancafort, F. Poggialini, C. Vagaggini, A. Cappelli* *ChemBioChem* **2024**, *25*, e202300862.

Novel Dual-Acting Hybrids Targeting Type-2 Cannabinoid Receptors and Cholinesterase Activity Show Neuroprotective Effects In Vitro and Amelioration of Cognitive Impairment In Vivo

C. Mugnaini*, A. Brizzi, M. Paolino, E. Scarselli, R. Castelli, M. de Candia, N. Gambacorta, O. Nicolotti, M. Kostrzewa, P. Kumar, A. Mokhtar Mahmoud, V. Borgonetti, M. Iannotta, A. Morace, N. Galeotti, S. Maione, C. D. Altomare*, A. Ligresti*, Federico Corelli. *ACS Chem. Neurosci.* **2024**, *15* (5) 955–971.

Investigation on Novel E/Z 2-Benzylideneindan-1-One-Based Photoswitches with AChE and MAO-B Dual Inhibitory Activity

M. Paolino, M. de Candia, R. Purgatorio, M. Catto, M. Saletti, A. R. Tondo, O. Nicolotti, A. Cappelli, A. Brizzi, C. Mugnaini, F. Corelli, C. D. Altomare. *Molecules* **2023**, *28*(15), 5857.

Hyaluronan-coated poly(propylene imine) dendrimers as biomimetic nanocarriers of doxorubicin

M. Paolino*, P. Varvarà, M. Saletti, A. Reale, M. Gentile, E. Paccagnini, G. Giuliani, H. Komber, M. Licciardi, A. Cappelli. *Journal of Applied Polymer Science* **2023**, *140*, e53300.

Design, Synthesis and Biological Evaluation of Light-Driven On-Off Multi-target AChE and MAO-B Inhibitors

M. Paolino*, M. Rullo, S. Maramai, M. de Candia, L. Pisani, M. Catto, C. Mugnaini, A. Brizzi, A. Cappelli, M. Olivucci, F. Corelli, C. D. Altomare. *RSC Medicinal Chemistry* **2022**, *13*, 873–883.

Towards the engineering of a photon-only two-stroke rotary molecular motor

M. Filatov(Gulak)*, M. Paolino*, R. Pierron, A. Cappelli, G. Giorgi, J. Léonard*, M. Huix-Rotlant, N. Ferré, X. Yang, D. Kaliakin, A. Blanco-González, M. Olivucci* *Nature Communications*, **2022**, *13*, 6433.

Xanthopsin-Like Systems via Site-Specific Click-Functionalization of a Retinoic Acid Binding Protein

G. Tassone†, M. Paolino†, C. Pozzi, A. Reale, L. Salvini, G. Giorgi, M. Orlandini, F. Galvagni, S. Mangani, X. Yang, B. Carloti, F. Ortica, L. Latterini, M. Olivucci*, A. Cappelli* *ChemBioChem* **2022**, *23*, e202100449.

Bile Acid Binding Protein Functionalization Leads to a Fully Synthetic Rhodopsin Mimic

K.Pagano†, M. Paolino†*, S. Fusi, V. Zanirato, C. Trapella, G. Giuliani, A. Cappelli, S. Zanzoni, H. Molinari, L. Ragona*, M. Olivucci*. *The Journal of Physical Chemistry Letters* **2019**, *10*, 2235–2243.

Development of potent inhibitors of the Mycobacterium tuberculosis virulence factor Zmp1 and evaluation of their effect on mycobacterial survival inside macrophages

M. Paolino†, M. Brindisi†, A. Vallone, S. Butini, G. Campiani, C. Nannicini, G. Giuliani, M. Anzini, S. Lamponi, G. Giorgi, D. Sbardella, D. M. Ferraris, S. Marini, M. Coletta, I. Palucci, M. Minerva, G. Delogu, I. Pepponi, D. Goletti, A. Cappelli*, S. Gemma*, S. Brogi. *ChemMedChem* **2018**, *13*, 422–430.

Engineering the vibrational coherence of vision into a synthetic molecular device

M. Gueye, M. Manathunga, D. Agathangelou, Y. Orozco, M. Paolino, S. Fusi, S. Haacke, M. Olivucci*, and J. Leonard*. *Nature Communications*, **2018**, *9*, 313.

Development of subnanomolar-affinity serotonin 5-HT4 receptor ligands based on quinoline structures

F. Castriconi, M. Paolino, G. Grisci, C. M. Francini, A. Reale, G. Giuliani, M. Anzini, G. Giorgi, L. Mennuni, C. Sabatini, M. Lanza, G. Caselli and A. Cappelli*. *MedChemComm*, **2018**, *9*, 1466-147.

Multivalent Ligands for the Serotonin 5-HT4 Receptor

F. Castriconi, M. Paolino, A. Donati, G. Giuliani, M. Anzini, L. Mennuni, C. Sabatini, M. Lanza, G. Caselli, F. Makovec, M. Sbraccia, P. Molinari, T. Costa and A. Cappelli*. *MedChemComm*, **2017**, *8*, 647-651.

Design, Synthesis, and Dynamics of a Green Fluorescent Protein Fluorophore Mimic with an Ultrafast Switching Function

M. Paolino*, M. Gueye, E. Pieri, M. Manathunga, S. Fusi, A. Cappelli, L. Latterini, D. Pannacci, M. Filatov*, J. Leonard*, and M. Olivucci*. *Journal of the American Chemical Society*, **2016**, *138* (31), 9807–9825.

Dendrimeric Tetravalent Ligands for the Serotonin-gated Ion Channel

M. Paolino, L. Mennuni, G. Giuliani, M. Anzini, M. Lanza, G. Caselli, C. Galimberti, M. C. Menziani, A. Donati and A. Cappelli*. *Chemical Communication*, **2014**, *50*, 8582-8585.

Supramolecular Glycodendrimer-Based Hybrid Drugs

M. Paolino*, H. Komber, L. Mennuni, G. Caselli, D. Appelhans, B. Voit, and A. Cappelli. *Biomacromolecules*, **2014**, *15*, 3985-3993.

Bivalent Ligands for 5-HT3 Receptor

A. Cappelli*, M. Manini, M. Paolino, A. Gallelli, M. Anzini, L. Mennuni, M. Del Cadia, F. De Rienzo, M. C. Menziani, S. Vomero. *ACS Medicinal Chemistry Letters* **2011**, *2*, 571–576.

Multivalent Supramolecular Dendrimer-Based Drugs

S. Galeazzi†, T. M. Hermans†, M. Paolino, M. Anzini, L. Mennuni, A. Giordani, G. Caselli, F. Makovec, E. W. Meijer, S. Vomero, and A. Cappelli*. *Biomacromolecules* **2010**, *11*, 182–186.