**Francesco Peri**

Areas of expertise: Organic and medicinal chemistry, drug discovery and development, natural products, immunology, inflammation

**CV summary and scientific activity**

Full Professor of Organic Chemistry at the University of Milan-Bicocca (UNIMIB) since November 2017. Since 2009, he has also been a tenured professor at the École Normale Supérieure (ENS) in Lyon, where he teaches a course in Pharmaceutical Chemistry (3 ECTS) at M2 level (master's degree).

His scientific interests focus on organic chemistry, pharmaceutical chemistry and the discovery of new drugs, with particular attention to the molecular mechanism of action of drug candidates. His main line of research is aimed at developing drug candidates that modulate the activity of Toll-like receptor 4 (TLR4) with a view to developing new generations of therapies targeting these important receptors of human immunity.

 In this context, from 2015 to 2018, he coordinated a Marie Curie project funded by the European Community (Horizon call), the TOLLerant project (activation of Toll-like receptor 4 in health and disease: an integrated study of immunology and biochemistry), GA number 642157. He was then a partner unit in the MSCA-ETN BactiVax project, funded by H2020 (www.bactivax.eu, 2019-2022). Research in this field has yielded fundamental results in understanding the activation and inhibition of TLR4, and technology transfer has led to numerous patents on TLR4 antagonists and agonists in the preclinical stage of development as anti-inflammatory drugs (antagonists) and vaccine adjuvants (agonists).

In 2025, he obtained funding for the project he coordinated, 101223893-EVADERE Enhanced VAccines DEsign against antimicrobial REsistance (Marie Skłodowska-Curie Actions Doctoral Networks), GA 101223893.

The patents granted on TLR4 agonists as vaccine adjuvants have been licensed to Croda/Avanti through the spin-off CP2 Biotech. A collaboration agreement between CP2 and Croda has just begun in March 2023 to bring some new vaccine adjuvants to the veterinary market and for clinical trials.

In collaboration with other academic groups and pharmaceutical companies (CVie Therapeutics, Taiwan; Windtree, USA), his research group has discovered new drugs for heart failure based on an innovative mechanism of action, namely the activation of the human SERCA2a protein.

His research group has achieved important results in basic and applied research in the field of drug discovery using a multidisciplinary approach, employing organic synthesis, pharmaceutical chemistry, biophysics, molecular modelling and NMR, drawing on a wide network of collaborations around the world. His group's research has been disseminated through more than 140 scientific publications and more than 50 invited plenary lectures at international conferences.

He has supervised 15 PhD students and 10 postdocs. He has coordinated or participated in two EU-funded projects under the MSCA/ITN and Health programmes.

Since 2023, he has been president of the Division of Chemical Biology and Chemistry in Life Science of the European Chemical Society (EuChemS), where he is also a member of the executive board as representative of Professional Networks.

**Education**

1998 PhD in Chemical Biology from the Department of Chemistry, University of Lausanne, Switzerland, Supervisor Prof. Manfred Mutter

1996 PhD in Chemistry from the University of Parma, Italy, Supervisor Prof. Giovanni Sartori

1992 Degree in Chemistry from the University of Milan (grade 110/110 cum laude), Milan, Italy, Supervisor Prof. Bruno Danieli

Current position

2017- Full Professor of Organic Chemistry at the Department of Biotechnology and Biosciences, University of Milan-Bicocca, Milan, Italy

2010- Professor of Pharmaceutical Chemistry at the Ecole Normale Superieure (ENS) in Lyon, France.

Previous positions

2012-Visiting Professor, UC Davis, specialisation course “Advanced Organic Synthesis” Chem231B, Davis (CA), USA

2012-Lecturer at Paris 5 University, Chemistry at the interface with biology, Paris,

**Publications and patents**

Bibliometric data

Bibliographic parameters: Google Scholar (October 2024): Citation= 6501; h-index = 43; i10-index=93

Scopus (October 2024): Citations = 4966 ; h-index= 38

Since 2022, I’m in the top 2% of the world's most cited scientists (Stanford University Ranking)

Patents as inventor: 1) EP03100991.3 ‘Fused oxabicyclic aminoalcohols as new scaffolds for combinatorial libraries’, (2003); 2) PCT2007/002279, WO 2007/107285 ‘Lipid A antagonists with anti-septic shock, anti-inflammatory, anti-ischaemia and analgesic activity’, 3) EP 10014657.0-2101, 7/01/2011. ‘Compound for the covalent attachment of the chemiluminescent probe N-(4-aminobutyl)-N-ethylisoluminol (ABEI) to target molecules and uses thereof’, 4) EP 19202257.2 (12/2019) “Androstane derivatives with activity as pure or predominantly pure stimulators of SERCA2a for the treatment of heart failure”, 5) IP 102018000000728 (2018), New human TLR4 antagonists, 6) IP no. 102017000126612 (2017) “New TLR4 agonists”, EP18808499.0 (2020) USA no. 16/761,304 of

04.05.2020.

Linkhttps://scholar.google.it/citations?hl=en&user=5B\_uILAAAAAJ&view\_op=list\_works&sortby=pubdate

Scientific leadership

**Funding (as PI):**

1) 2026-2030 Project coordinator EVADERE Enhanced VAccines DEsign against antimicrobial REsistance (Marie Skłodowska-Curie Actions Doctoral Networks 2024) Project financed by EU in 2025, UNIMIB coordinator. The project will be active from 1 January 2026 to 31 December 2029 (4 years), GA 101223893.

2) 2015-2018 Coordinator of the MSCA-ETN grant for the TOLLerant project ‘Toll like Receptor 4 activation and function in diseases: an integrated chemical biology approach’, GA no. 642157 (4-year project, total funding €1.4 million)

3) 2010-2012 National coordinator of the PRIN project ‘Mono- and multivalent ligands for human galectins: new molecular systems and functionalised nanoparticles for diagnosis and specific anti-tumour therapies’, protocol no. 200858SA98 (2-year project, total funding €150,000)

4) 2016-2018: National coordinator of the bilateral project with South Korea (Prof. Sung You Hung, Ulsan) funded by the Italian Ministry of Foreign Affairs (MAECI, 2 years, total funding 200 kE)

**Funding as a partner (last 10 years):**

2019-2022: MSCA-ETN project BactiVax (www.bactivax.eu) (350 kE per unit)

2020-2023: PRIN grant ‘BacHounds: Supramolecular nanostructures for bacteria detection’ (75 kE per unit)

2013-2016: PRIN “Italian network for the development of multivalent nanosystems (multinanoITA)” (3-year grant, 53 kE for the research unit)

2010-2011: PRIN: New multivalent ligands for human galectins as diagnostic and therapeutic agents (3-year grant, 130,000 E for the research unit)

2009-2014: NIH grant AI 59372 ‘Regulation of MD-2 function and expression’, in collaboration with J. Weiss (University of Iowa) (5 years, 50,000 E/year)

**Management**

Since 2025, vice-coordinator of the interdisciplinary industrial PhD programme ‘Strategic Innovation for Sustainable and Smart Ecosystems (SIS2E)’ at the University of Milano-Bicocca.

Since 2019, he has been Rector's Delegate and board member of the University for Innovation Foundation (U4i, website: www.u4i.it), which promotes technology transfer and research enhancement at the three universities of Milano-Bicocca, Bergamo and Pavia. Since March 2023, he has been president of the Life Science division of the European Chemical Society (EuChemS).

He is the founder and, together with Maria Rescigno and Nicasio Mancini, a member of the board of directors of the non-profit association MicrobiotaMi (www.microbiotami.it).

In 2020, he founded and became a board member of the UNIMIB-accredited spinoff CP2 Biotech, whose mission is to bring pharmaceutical leads derived from natural and synthetic compounds to clinical trials.

**Innovation and industrial collaborations**

Founder of CP2 Biotech (March 2020), a spin-off accredited by the University of Milan-Bicocca

CP2's mission is to bring new pharmacological results from basic research to clinical trials. Main projects: TLR4 agonists as vaccine adjuvants (co-development contract with Croda, signed in February 2022); TLR4 antagonists in new therapies targeting neuropathic pain and inflammatory diseases (including those of autoimmune origin).

Leader and PI in the following industrial collaborations (last 10 years):

2021-2023 Croda Vaccines and Avanti Lipids (scientific collaboration agreement); 2019-2022 Windtree (USA) and 2016-2018 CVie Therapeutics (Taiwan) (agreements for the development of new cardiac drugs targeting the Serca 2a protein); 2015-2017 Rottapharm Biotech (scientific collaboration on TLR4 antagonists as lead drugs against rheumatoid arthritis), 2014-2016 Laboratori Farmacologici Milanesi; 2003-2010 Diasorin S.p.A. (Saluggia, VC), 2 joint patents.

**Organiser of the following events (last 10 years):**

1) ECBS/ICBS Chem Bio Paris 6-9 October Paris

2) Young Investigator Workshop, Paris 10th October 2025

3) Young Investigator Workshop, Galway, July 2024

4) International congress MicrobiotaMi, 3-5 April 2023, University of Milano-Bicocca

5) Congress of the Division of Chemistry of Biological Systems of Italian Chemical Society, Milan 26-29 September 2023

6) European Chemical Biology Symposium ECBS-LS EuchemS-openscreen, 2023, 9-11 May Gothenburg, Sweden

7) European Chemical Biology Symposium ECBS-LS EuchemS-openscreen, 26-28 May 2021: www.ecbs.eu, main organiser and coordinator of the scientific board

8) International congress MicrobiotaMi 2020, 5-7 February 2020, Humanitas Congress Centre, Milan, main organiser and member of the scientific board

9) International congress MicrobiotaMi 2018, Milan, 5-7 November 2018, main organiser and member of the scientific board

**Scientific dissemination and outreach**

15 conferences as invited plenary speaker at international conferences over the last 10 years, for a total of 20 conferences by invitation.

Participation in various editions of the European Researchers' Night, scientific dissemination on radio (Radio 24, Smart Cities XL with Maurizio Melis, podcast on Molecular Machines, July 2024) and on television, Rai Cultura, Nautilus programme with Luca Perri, episode on Microbiota “The universe within us”.

https://www.raicultura.it/scienza/articoli/2020/05/Luniverso-dentro-di-noi-74e5de24-f3c1-41a2-92e0-0820a24f974e.html.