PERSONAL INFORMATION

Simona Collina

University of Pavia

Department of Dug Sciences
Viale Taramelli 12, 27100 Pavia

00390382987379 3392908246

simona.collina@unipv.it

https://labmedchem.unipv.it/

Sex female | *Date of birth* 14/02/1964 | *Nationality* Italian

Enterprise	University	EPR
☐ Management Level	X **Full professor**	☐ Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator
☐ Mid-Management Level	☐ Associate Professor	☐ Level III Researcher and Technologist
☐ Employee / worker level	☐ Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	☐ Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

2019 – ongoing
Full Professor in Medicinal Chemistry (SSD CHIM/08) Department of drug Sciences, University of Pavia
Lecturing, research, project preparation and management.

2021-ongoing
Local Coordinator of Paul Ehrlich MedChem Euro-PhD Network
Guide and organisation of the PhD Network@UniPV

2019 – ongoing
Dean of five-year master's degree courses in Pharmacy and Industrial Pharmacy (LM13)
Coordination and Management of the Courses

2013 – ongoing
Member of Teaching Staff of the PhD Course in Chemical and Pharmaceutical Sciences and Industrial Innovation (ex PhD Course in Chemical and Pharmaceutical Sciences)

2013 – 2019
Vice-dean of two-year master's degree course in Medical and Pharmaceutical Biotechnologies
Coordination of the Pharmaceutical curriculum

2006 – ongoing
Tutoring of PhD Students

2009 – ongoing
Head of the MedChemLab, Dept of Drug Sciences, University of Pavia
Group coordination, and management

2009 – ongoing
Coordinator of post-graduated Master Course in Drug Design and Development
Coordination and Management of the Courses- Networking activities.

2001 – 2019
Associate Professor in Medicinal Chemistry (SSD CHIM/08) Department of Drug Sciences, University of Pavia
Lecturing, research, project preparation and management

1992 – 2001
Assistant Professor in Medicinal Chemistry (SSD CHIM/08), Faculty of Pharmacy, University of Pavia
Lecturing, research

1989 – 1992
Researcher at the laboratory "Drug analysis development" of SPA (Società Prodotti Antibiotici) Milan

EDUCATION AND TRAINING

1989 — graduation cum laude in Medicinal Chemistry and Pharmaceutical Technology, University of Pavia, Italy.

WORK ACTIVITIES

Editorial activity

Associate Editor of Chirality (Wiley),
Member of the Editorial Board of Molecules (MDPI), Section of Medicinal Chemistry
Guest Editor of Special Issues, Collections and Topics in MDPI journals (Special Issues in Pharmaceuticals, Separations, and Molecules)

Project Reviewer

External reviewer for University of Padova projects
External reviewer for University of Trieste projects
Member of "Virtual Panel review of the Science Foundation Ireland Career Development Award (CDA) Programme Call 2015 (SFI panel)." Science Foundation Ireland
Member of Panel Reviewer of government agency of National Science Centre (Narodowe Centrum Nauki), Poland, Call 2018
Evaluation of "Vinci 2021" projects (Italo-French University/French-Italian University)

Cooperations

In the last fifteen years, Collina has started several co-operation with international research groups, believing that the success of drug discovery process depends on the cross-connection between various areas of knowledge, to generate **active interdisciplinarity**. In such a way, specific knowledge to resolve the problem have been produced, as evidenced by her scientific production.

Moreover, Collina has gained research contracts with important Pharmaceutical Industries for the identification of biologically active compounds.

Invited presentations

- KEY NOTE lecture - ISPROF 2015 , Caparica, Lisbon, Portugal (21st, 24th September 2015
- Lecture "Le donne incontrano la ricerca", november 20th, 2015 (http://news.unipv.it/?p=7875)
- KEY NOTE lecture "Tissue repair: from biochemical mechanisms to formulation approaches" march 10th, 2016 http://cht.unipv.it/index.php/it/eventi/workshop/ws-tissue-repair
- Lecture: "CHIRALITA' e SALUTE DELL'UOMO" Istituto Lombardo, accademia di Scienze e Lettere, SCI (Palazzo di Brera – Milano) march 13th, 2017
- KEY NOTE lecture "Pan-Sigma Receptor Modulators as Promising Anticancer-Agents—The Story of RC-106", "BIT's 10thAnnual Word Cancer Congress 2017" Barcelona, October 31st, 2017
- KEY NOTE lecture "Across the "Universe" of Sigma receptor modulators. The experience of the MedChemLab", 9th World Congress on Chemistry and Medicinal Chemistry, Prague, Czech Republic, May 13-14, 2019
- Invited lecture "Neuropatic pain treatment" (Use of arylakanol-amines as sigma-1 receptor antagonists, PCTIB2015051573), "BioVaria", Munich, may 8-9, 2019.

Grants

Participation to research activity of INTEGRATE (Marie Sklodowska Curie Grant Agreement 642620; 2015-2018). The goal of INTEGRATE project was the **development of novel potential drugs to counteract Antimicrobial Resistance**
Research grants from Pharmaceutical Industries

Patents

1) **Collina S.**, Rossi D., Marra A., Peviani M., Curti D. (2015). Use of arylalkanolamines as sigma-1 receptor antagonists. WO2015132733 A1; EP3113768A1; US20170015640
2) **Collina S.**, Rossi D., Linciano P., Rossino G., Listro R., Peviani M., Rossi S., Vigani B. (2021). Substituted vinyl piperazine-piperidine urea derivatives as anticancer agents. EP21201359

Both patents testify the ability to obtain protection for compounds useful to the treatment or prevention of a particular disease or condition.

PERSONAL SKILLS

Mother tongue(s) — Italian

Other language(s) English, C1

Job-related skills Coordination skills (time management, organization, teamwork, communication). Planning and organization of the MedChemLab team activities.
Skills in planning and writing scientific papers and proposals

Drug discovery, adopting different strategies (ligand-based, target-based or rational design) focused on biologically relevant, often underexplored targets. More in details, Collina research group possess
-skills in drug discovery process: design and synthesis of small molecules, peptides, and peptidomimetics and focus of their therapeutic application
-skills in preparation and analysis of chiral compounds and in studying the relationship between absolute configuration and biological activity. Efficient production of single enantiomers from small to large scale, throughout Drug Discovery (DD) programs, as well as efficient analytical methods for evaluating the enantiomeric excess and for determining the absolute configuration of homochiral compounds have become of great interest and a fundamental challenge for medicinal chemists.
-skills in Nature Aided Drug Discovery

Digital Skills Use of Microsoft Office, use of software for Virtual Screening, ADME and neurotoxicity prediction.

ADDITIONAL INFORMATION

Statement of Research Interests

Medicinal chemistry to
1) design, synthesize and identify high-quality hits and hit series
2) select the most promising series through focused structure–activity relationship studies.

Proven expertise in identifying and advancing small molecule drug candidates into preclinical studies. Modulators of targets involved in several pathologies (infectious diseases, cancer, neurodegeneration) have been identified. The inter-disciplinary approach is the driving force of the research activity, ensuring project advances through the stages of drug discovery. Over the years, more than 1500 molecules with drug-like properties have been prepared. Biological investigations are carried out with national and international collaborations.

Publications

total number of publications in peer-review journals: 146 (90 as corresponding Authors)
total number of citations: 2270
H index (Scopus): 25
ORCID: 0000-0002-2954-7558

10 Selected publications

Topic: Antimicrobial Resistance and Infectious Diseases. *In the following manuscripts, novel potential LsrK inhibitors have been designed, prepared and tested, thus leading to the identification of molecules active in the low-micromolar range. Moreover, a plant secondary metabolite has been identified as hit against leishmaniasis, thus inspiring the design and synthesis of analogues.*

1) Linciano, P., Cavalloro, V., Martino, E., Kirchmair, J., Listro, R., Rossi, D., **Collina, S**.* Tackling Antimicrobial Resistance with Small Molecules Targeting LsrK: Challenges and Opportunities. *J.Med.Chem.*, 63, 15243-15257, **2020**.
IF: 7.446 Subject category: Chemistry, medicinal

2) Stotani, S.; Gatta, V.; Madarametla, P.; Padmanaban, M.; Karawajczyk, A.; Giordaletto, F.; Tammela, P.; Laitinen, T.; Poso, A.; Tzalis, D., **Collina, S**.* DPD-inspired discovery of novel LsrK kinase inhibitors: an opportunity to fight antimicrobial resistance. *J. Med. Chem.*, 62, 5, 2720-2737, **2019**.
IF: 7.446 Subject category: Chemistry, medicinal

3) Stotani, S., Gatta, V., Medda, F., Padmanaban, M., Karawajczyk, A., Tammela, P., Giordanetto, F., Tzalis, D., **Collina, S.*** A versatile strategy for the synthesis of 4,5-dihydroxy-2,3-pentanedione (DPD) and related compounds as potential modulators of bacterial quorum sensing. *Molecules*, 23 (10), art. no., **2018**
IF: 4.412 Subject category: Drug Discovery

4) Rossi, D., Ahmed, K.M., Gaggeri, R., Volpe, S.D., Maggi, L., Mazzeo, G., Longhi, G., Abbate, S., Corana, F., Martino, E., Machado, M., Varandas, R., Do Céu Sousa, M., **Collina, S.*** (R)-(-)-Aloesaponol III 8-methyl ether from eremurus persicus: A novel compound against leishmaniosis *Molecules*, 22 (4), art. no. 519, **2017**
IF: 4.412 Subject category: Drug Discovery

Topic: Hit identification. *In the following manuscripts, different strategies have been used, depending on the degree of knowledge about the targets and their complexity.*

5) Ambrosio, F.A., Coricello, A., Costa, G., Lupia, A., Micaelli, M., Marchesi, N., Sala, F., Pascale, A., Rossi, D., Vasile, F., Alcaro, S., **Collina, S**.* Identification of Compounds Targeting HuD. Another Brick in the Wall of Neurodegenerative Disease Treatment *J. Med. Chem.*, 64 (14), pp. 9989-10000, **2021**
IF: 7.446 Subject category: Chemistry, medicinal

6) Della Volpe, S., Nasti, R., Queirolo, M., Unver, M.Y., Jumde, V.K., Dömling, A., Vasile, F., Potenza, D., Ambrosio, F.A., Costa, G., Alcaro, S., Zucal, C., Provenzani, A., Di Giacomo, M., Rossi, D., Hirsch, A.K.H., **Collina, S**.* Novel Compounds Targeting the RNA-Binding Protein HuR. Structure-Based Design, Synthesis, and Interaction Studies *ACS Medicinal Chemistry Letters*, 10 (4), pp. 615-620, **2019**.
IF: 4.345 Subject category: Chemistry, medicinal

7) Rui, M., Rossino, G., Coniglio, S., Monteleone, S., Scuteri, A., Malacrida, A., Rossi, D., Catenacci, L., Sorrenti, M., Paolillo, M., Curti, D., Venturini, L., Schepmann, D., Wünsch, B., Liedl, K.R., Cavaletti, G., Pace, V., Urban, E., **Collina, S**.* Identification of dual Sigma1 receptor modulators/acetylcholinesterase inhibitors with antioxidant and neurotrophic properties, as neuroprotective agents *European Journal of Medicinal Chemistry*, 158, pp. 353-370, **2018**.
IF: 6.514 Subject category: Chemistry, medicinal

Topic: Hit expansion. *In the following manuscripts, different strategies have been used and run sequentially, or in parallel, for optimal impact.*

8) Della Volpe, S., Linciano, P., Listro, R., Tumminelli, E., Amadio, M., Bonomo, I., Elgaher, W.A.M., Adam, S., Hirsch, A.K.H., Boeckler, F.M., Vasile, F., Rossi, D., **Collina, S.*** Identification of N,N-arylalkyl-picolinamide derivatives targeting the RNA-binding protein HuR, by combining biophysical fragment-screening and molecular hybridization. *Bioorganic Chemistry*, 116 **2021** **IF: 5.275** Subject category: Drug Discovery

9) Listro, R., Stotani, S., Rossino, G., Rui, M., Malacrida, A., Cavaletti, G., Cortesi, M., Arienti, C., Tesei, A., Rossi, D., Giacomo, M.D., Miloso, M., **Collina, S**.* Exploring the RC-106 Chemical Space: Design and Synthesis of Novel (E)-1-(3-Arylbut-2-en-1-yl)-4-(Substituted) Piperazine Derivatives as Potential Anticancer Agents *Frontiers in Chemistry*, 8, art. no. 495, **2020** **IF: 5.221** Subject category: Chemistry, multidisciplinary

Topic: New compounds as pharmacological tools to study the target. *In the following manuscript bitopic ligands have been prepared. Bivalent ligands may be used as chemical probes, or hits for therapeutic application. Bridging ligands is a promising strategy to counteract AMR.*

10) Rossino, G., Rui, M., Linciano, P., Rossi, D., Boiocchi, M., Peviani, M., Poggio, E., Curti, D., Schepmann, D., Wünsch, B., González-Avendaño, M., Vergara-Jaque, A., Caballero, J., **Collina, S**.* Bitopic Sigma 1 Receptor Modulators to Shed Light on Molecular Mechanisms Underpinning Ligand Binding and Receptor Oligomerization *J. Med. Chem.*, 64 (20), pp. 14997-15016, **2021** **IF: 7.446** Subject category: Chemistry, medicinal

*Corresponding Author

Pavia, 2023, January 17th

Professor Simona Collina