




Curriculum Vitae **Valentina Pirota**

 Dipartimento di Chimica, Sez. Chimica Organica  
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 @VaLePirota

VP's primary research interests are innovative gene therapies based on the selective targeting of nucleic acid secondary structures to identify novel, safe, and effective approaches for the treatment of different pathologies. VP's main efforts are aimed at identifying secondary nucleic acid structures (i.e.: G-quadruplex (G4)), located in regulatory regions of genes, providing their implication in different pathways involved in the progression of neurodegenerative diseases. The most significant works in this context are (i) design and synthesis of highly selective G4-ligands; (ii) specific cleavage of DNA/RNA-G4s through metal-catalyzed redox processes; (iii) conjugation of G4-ligands with peptide nucleic acids to boost selectivity between different G4s by a combination of G4-structural interaction and PNA/nucleic acids sequence-specific hybridization; (iv) bioinformatics and biophysical studies for the analysis of the interaction between G4s and ligands.

Current Position

From 01/06/2023 **Assistant Professor (RTD-A)** at the Department of Chemistry, University of Pavia, Italy with the national scientific qualification as Associate Professor of Organic Chemistry (03/C1).

Previous Positions     Department of Chemistry, University of Pavia, Italy

- 2022 - 2023     **Research Fellowship**  
Research title: "Synthesis and characterization of selective ligands for secondary structures of acids nucleic". Supervisor: Prof. F. Doria.
- 2021 - 2022     **Senior Postdoctoral Researcher**, type A fellowship supported by UNIPV.  
Research title: "Synthesis and characterization of photoactivable selective ligands for nucleic acids". Supervisor: Prof. F. Doria
- 2020 - 2021     **Senior Postdoctoral researcher**, type B fellowship  
Research title: "Synthesis and characterization of antibiotics binding nucleic acids".  
Supervisor: Prof. M. Freccero
- 2016 - 2020     **Junior Postdoctoral researcher**, fellowship supported by ERC (ERC-CG n. 615879).  
Research title: "Reactive and selective ligands for quadruple helical nucleic acids".  
Supervisor: Prof. M. Freccero
- 2015 - 2016     **Junior Postdoctoral researcher**, fellowship supported by AIRC (AIRC IG2013-14708).  
Research title: "Photoactive and selective ligands for telomere G-quadruplex structures as anticancer agents". Supervisor: Prof. M. Freccero

Education     Department of Chemistry, University of Pavia, Italy

- 2012 - 2015     **Ph.D. in Chemical Science** supported by MIUR.  
Ph.D. thesis defense: January 27<sup>th</sup>, 2016.     Score: Excellent  
Thesis Title: "Model systems for oxidative processes" within the PRIN project 2010M2JARJ\_004 and MIUR-PRIN 2015 n. 2015T778JW. Supervisor: Prof. L. Casella
- 2013     **Ph.D. Training School** within the COST scientific program on "Biological oxidation reactions-mechanism and design of new catalysts", in Louvain-La-Neuve (Belgium).

- 2012 State-certified to practice Chemistry.  
 2010 – 2012 **Master's degree in chemistry**. Score: 110/110 summa cum laude.  
 2007 – 2010 **Bachelor's degree in chemical science**. Score: 110/110

Institutional responsibilities Department of Chemistry, University of Pavia, Italy

- From 2024 Erasmus's contact person in the Department of Chemistry  
 From 2024 Classroom commissioner for the TOLC@CASA tests  
 From 2018 Technical scientific contact for experimental optimization and management of the Jasco J1500 Spectropolarimeter instrument at the "Centro Grandi Strumenti"  
 2022-2024 Ambassador for the "My Ph.D. Mentor"  
 2020 – 2023 Postdoctoral representative  
 2013 – 2015 Ph.D. students' representative

Funding from national and international competitive tenders

- May 2024 IS3NA contribution (€ 2500) to support the INTERACTION WINS 2025 School  
 May 2024 "Intensive summer e winter school di Ateneo 2024" Globec grant amounting to € 7000, to organize as a Principal Investigator the winter School "INTERACTION WINS 2025"  
 Dec. 2023 IS3NA contribution (€ 1000) to support the INTERACTION WINS 2024 School  
 Sept. 2021 "International summer & winter school 2021 – II edition" Globec grant amounting to € 2000, to organize as a Principal Investigator the winter School "INTERACTION WINS 2021 - *INnovative ThERapeutiC Targets In nOn-canonical Nucleic acids structures Winter InterNational School 2021*"  
 Sept. 2021 Funding to support the creation of the "INTERACTION WINS 2021" School from the "Federal Research and Clinical Center of Physical-Chemical Medicine of Federal Medical-Biological Agency", Moscow, RU (€1000.00).  
 May 2021 Winner of the Project "Strengthening and attractiveness of the "research system" of the University of Pavia – Strengthening" (€30000)  
 Oct. 2017 Winner of Teaching Staff Mobility grant by UNIPV amounting to € 2220, to perform a teaching course on Bioinorganic Chemistry at "Universidade Estadual De Campinas", Brasil.  
 May 2013 COST Action CM1003 grant amounting to € 1000 for a Training School on "Biological oxidation reactions-mechanism and design of new catalyts", in Louvain-La-Neuve (Belgium).

Prizes and Awards

- Nov. 2022 Invited to evaluate the Times Higher Education World University Rankings. Selected based on scientific publications and invited as a representative of colleagues in their discipline.  
 Oct. 2022 "**Gian Piero Spada award**". Award designated for young researchers who have conducted significant research on non-canonical DNA structures.  
 Oct. 2022 Special Mention for Best Poster Award during the "2nd Virtual Symposium for Young Organic Chemists - ViSYOChem 2022".  
 June 2021 SCI fellowship granted by the "Organic Chemistry Division"  
 Sept. 2018 Best poster award, selected for short-oral presentation during BIONIC 2018 "Biology of non-canonical nucleic acids: from humans to pathogens" International symposium, Padova (Italy).

Organization of scientific meetings

- Feb. 2025 **Main Organizer (PI) of INTERACTION WINS 2025** - *INnovative ThERapeutiC Targets In nOn-canonical Nucleic acids structures Winter InterNational School 2025*. **In-person school** for Ph.D. and master's degree students with lectures and laboratory activities. Release of 6 CFUs  
 Feb. 2024 - **Main Organizer (PI) of INTERACTION WINS School** - *INnovative ThERapeutiC Targets In nOn-*  
 Feb. 2023 - *canonical Nucleic acids structures Winter InterNational School* – 2021 – 2023 – 2024.  
 Nov. 2021 International online School for Ph.D. and master's degree students. Release of 4 CFUs  
 May 2021 **Selected as a Judge** for the Poster competition during the European Chemical Biology Symposium 2021

- Sept. 2018 **Selected as Chair** for the session "Oral presentation of selected posters 4" during BIONIC 2018 "Biology of non-canonical nucleic acids: from humans to pathogens" International symposium, Padova (Italy).
- Oct 2017 Member of the "Organic Chemistry Day 2017 Pavia" management staff, International Congress, Pavia (Italy).
- June 2014 Member of the "International Symposium on Metal Complexes 2014" management staff, International Congress, Pavia (Italy).

Oral communications and poster presentations during international congresses

**Oral communications:**

- 2024 **Pirota V.**, Bari E., Bisbano G., Torre M. L., Serra M., Paolillo M., Doria F.; "Selective delivery of G4-ligands: new strategies for potential cancer therapy"; G4ME 2024, G4 MEeting 2024, Perugia, IT.
- 2022 **Pirota V.**, Platella C., Manet I., Zizza P., Freccero M., Montesarchio D., Biroccio A., Doria F.; "New insights in multimeric telomeric G4s selective targeting"; G4ME 2022, G4 MEeting 2022, Napoli, IT.  
**Pirota V.\***, Lunghi E., Benassi A., Crespan E., Freccero M., Doria F.; "Selective functional ligands towards parallel G-Quadruplexes", 2nd Virtual Symposium for Young Organic Chemists, online.  
**Pirota V.\***, Fantini V., Di Geraldo R., Doria F., Carelli S., Pansarasa O., Freccero M., Cereda C.; "Groundbreaking G-quadruplex in SNCA genome as an innovative therapeutic target in Parkinson's disease"; G4thering 2022, 8<sup>th</sup> International Meeting on Quadruplex Nucleic Acids, Marienbad, CZ.
- 2021 **Pirota V.**, Freccero M., Doria F.; "Selective hydrolysis of water-soluble naphthalene diimides driven by core-substitution"; "XXVII Congresso Nazionale della SCI", online.  
**Pirota V.**, Lunghi E., Benassi A., Freccero M., Doria F.; "Peg-like chains make naphthalene diimide-copper complexes more suitable for parallel G-quadruplexes"; 20<sup>th</sup> Symposium "Scientific Days of the Consortium CINMPIS", online.  
**Pirota V.**; "Aims of G4-Interact Group on USERN"; "Nucleic acid secondary structures: G4s and beyond" Webinar Series 2020-III young scientists, online.
- 2020 **Pirota V.**; Zuffo M.; Tassinari M.; Sevilla Montalvo A.C.; Doria F.; Nadai M.; Scalabrin M.; Richter S.N.; Freccero M.; "Sequence-structure conjugates to selectively target G-Quadruplex in HIV-1"; 1<sup>st</sup> Virtual Symposium for Young Organic Chemists of SCI, online.  
**Pirota V.**; Zuffo M.; Tassinari M.; Sevilla Montalvo A.C.; Doria F.; Nadai M.; Scalabrin M.; Richter S.N.; Freccero M.; "New «sequence-structure» conjugates able to discern a specific G-quadruplex in HIV-1"; 19<sup>th</sup> Symposium "Scientific days of the CINMPIS", Pavia, IT.
- 2018 Zuffo M.; Tassinari M.; **Pirota V.**; Sevilla Montalvo A.C.; Nadai M.; Doria F.; Scalabrin M.; Richter S.N.; Freccero M.; "Targeting of HIV-1 LTR promoter G-quadruplex structures by NDI-PNA conjugates"; BIONIC 2018 "Biology of non-canonical nucleic acids: from humans to pathogens" International symposium, Padova, IT.

**Poster presentations:**

- 2022 **Pirota V.**, Lunghi E., Benassi A., Crespan E., Freccero M., Doria F.; "Selective functional ligands towards parallel G-Quadruplexes", 2nd Virtual Symposium for Young Organic Chemists, Online.
- 2021 **Pirota V.\***, Lunghi E., Benassi A., Crespan E., Freccero M., Doria F.; "A solid mainstay for the development of selective functional ligands towards parallel G-Quadruplexes"; AMYC-BIOMED 2021, online.  
 Fantini V., Doria F., Carelli S., Pansarasa O., Freccero M., Cereda C.\*, **Pirota V.**; "G-quadruplex in SNCA genome as innovative therapeutic target in Parkinson's disease"; 19th National Congress of the Italian Society for Neuroscience, Online.
- 2018 Zuffo M.; Tassinari M.; **Pirota V.**; Sevilla Montalvo A.C.; Nadai M.; Doria F.; Scalabrin M.; Richter S.N.; Freccero M.; "Targeting of HIV-1 LTR promoter G-quadruplex structures by NDI-PNA conjugates"; BIONIC 2018 "Biology of non-canonical nucleic acids: from humans to pathogens" International symposium, Padova, IT. **Best Poster.**
- 2017 Zuffo M.; Tassinari M.; Sevilla Montalvo A.C.; **Pirota V.**; Nadai M.; Doria F.; Scalabrin M.; Richter S.N.; Freccero M.; "NDI-PNA conjugates targeting G4 structures within HIV-1 LTR promoter"; G4thering 2017, 6<sup>th</sup> International Meeting on Quadruplex Nucleic Acids, Praga, CZ.

- 2016 **Pirota V.**, Doria F., Grande V., Bergamaschi G., Nadai M., Scalabrin M., Richter S.N., Freccero M.; "A Multimodal and Functional Cu(II) Complex Targeting G-quadruplex DNA"; ICC2016, 42<sup>nd</sup> International Conference on Coordination Chemistry, Brest, FR
- 2015 **Pirota V.**, Dell'Acqua S., Monzani E., Casella L.; " $\alpha$ -Synuclein quenches the copper (II) oxidation of catecholic substrates"; 6<sup>th</sup> EuCheMS in Life Sciences, , Lisbona, PT
- 2014 **Pirota V.**, Monzani E., Dell'Acqua S., Casella L.; "Heme interaction and reactivity with neuronal Tau protein fragment"; ISMEC2014 International Symposium on Metal Complexes, Pavia, IT
- 2013 **Pirota V.**, Gennarini F., Dell'Acqua S., Monzani E., Casella L.; "Bioinspired Catalysts. Cooperation between heme and non-heme complexes"; COST Summer School "Chemistry of Metals in Biological System", Louvain-La-Neuve, BEL

#### Editorial activities

- 2022 **Guest Editor Life IF 2022: 3.251**. Special Issue "G-quadruplex Folding Modulation: Structural Insights, Selective Interaction, and Functional Activity".  
[https://www.mdpi.com/journal/life/special\\_issues/JI901S521P](https://www.mdpi.com/journal/life/special_issues/JI901S521P)
- 2021 **Guest Editor Biomolecules IF 2022: 6.064**. Special Issue "Principles and Molecular Mechanisms of DNA and RNA G-Quadruplexes in Gene Regulation".  
[https://www.mdpi.com/journal/biomolecules/special\\_issues/DNA\\_RNA\\_G4](https://www.mdpi.com/journal/biomolecules/special_issues/DNA_RNA_G4)
- 2016 **Member of the Editorial Board for EC Neurology**

#### Track-record

38 Publications of which 36 Scientific Articles and 2 Book Chapters.

3 publications as corresponding author; 14 publications as first author.

**H index=16**; Citations: 590 (Scopus).

1 Hot Paper in Medicinal Chemistry identified by the Editors of "Chemistry, A European Journal", Wiley, for its importance in a rapidly evolving and highly topical sector.

23 publications related to the selective targeting of G-quadruplex structures.

Updated information on [V.P. Scopus Page](#).

#### Scientific Articles

36. Pica, G., et al.; Unraveling Bulk versus Surface Passivation Effects in Highly Efficient p-i-n Perovskite Solar Cells Using Thiophene-Based Cations; *Solar RRL*, 2024, 8(9), 2300681
35. Nadai, M., Doria, F., Frasson, I., Perrone R., **Pirota V.**, Bergamaschi G., Freccero, M., Richter, S.N.; Naphthalene Diimide-Tetraazacycloalkane Conjugates Are G-Quadruplex-Based HIV-1 Inhibitors with a Dual Mode of Action; *ACS Infectious Diseases*, 2024, 10(2), 489–499
34. Dominik, N., et al.; Normal and pathogenic variation of RFC1 repeat expansions: implications for clinical diagnosis; *Brain*, 2023, 146(12), 5060–5069
33. Wegermann C.A., **Pirota V.**, Monzani E., Casella L., et al.; Interaction studies of oxindole-derivatives with  $\beta$ -amyloid peptides inhibiting its aggregation induced by metal ions; *Journal of Inorganic Biochemistry*, 2023, 245, 112227.
32. **V. Pirota**, Bari E., Bisbano G., Torre M. L., Serra M., Paolillo M., Doria F.; cRGD-Functionalized Silk Fibroin Nanoparticles: A Strategy for Cancer Treatment with a Potent Unselective Naphthalene Diimide Derivative; *Cancers*, 2023, 15(6), 1725
31. E. Napolitano, C. Riccardi, R. Gaglione, A. Arciello, **V. Pirota**, A. Triveri, F. Doria, D. Musumecia, D. Montesarchio; Selectively lighting-up dimeric G-quadruplex forming aptamers for efficient VEGF<sub>165</sub> targeting; *Int. J. Biol. Macromol.*, 2023, 224, 344–357.
30. **V. Pirota**, G. D'Acerno, P. Quadrelli; Synthesis of tetrazole- and imidazole-based compounds: prophetic molecules made real for biological studies; *Arkivoc*, 2022, part V, 245-258.
29. I. Frasson<sup>‡</sup>, **V. Pirota<sup>‡</sup>**, S.Richter, F. Doria; Multimeric G-quadruplexes: biological roles and targeting; *Int. J. Biol. Macromol.*, 2022, 204, 89-102.
28. A. Triveri, C. Sanchez-Martin, L. Torielli, S. A. Serapian, F. Marchetti, G. D'Acerno, **V. Pirota**, M. Castelli, E. Moroni, M. Ferraro, P. Quadrelli, A. Rasola, G. Colombo; Protein allostery and ligand design: Computational design meets experiments to discover novel chemical probes; *JMB*, 2022, 434(17), 167468.

27. **V. Pirota**, A. Benassi, F. Doria; Lights on 2,5-diaryl tetrazoles: applications and limits of a versatile photoclick reaction; Accepted for publication in *Photochemical & Photobiological Sciences*, 2022, 21(5), pp. 879–898.
26. R. Cebrián<sup>‡</sup>, E. Belmonte-Reche<sup>‡</sup>, **V. Pirota**<sup>‡</sup>, A. De Jong, J. C. Morales, M. Freccero, F. Doria, O. P. Kuipers; G-quadruplex DNA as a target in pathogenic bacteria: efficacy of an extended naphthalene diimide ligand and its mode of action; *JMedChem*, 2022, 65, 6, 4752–4766.
25. A. Zanetta A., Z. Andaji-Garmaroudi Z., **V. Pirota**, G. Pica, F. Utama Kosasih, L. Gouda, K. Frohna, C. Ducati, F. Doria, S.D. Stranks, G. Grancini; Manipulating color emission in two-dimensional hybrid perovskites by fine tuning halide segregation: a transparent green emitter; *Advanced Materials*, 2022, 34 (1), 2105942.
24. A. Palma, S. Grande, A. M. Luciani, L. Ricci-Vitiani, M. Buccarelli, R. Pallini, A. Triveri, **V. Pirota**, F. Doria, F. Berardinelli, A. Antocchia, A. Rosi; Effects of the combined treatment with a G-quadruplex stabilizing ligand and photon beams on Glioblastoma stem-like cells: a magnetic resonance study; *Int. J. Mol. Sci.*, 2021, 22, 12709.
23. A. Benassi, **V. Pirota**, F. Doria, M. Freccero; The quest for the right trade-off for an efficient photoclick monitoring reaction; *ChemPhotoChem*, 2021, 5, 1-11.
22. C. Platella, R. Gaglione, E. Napolitano, A. Arciello, **V. Pirota**, F. Doria, D. Musumeci, D. Montesarchio; DNA Binding Mode Analysis of a Core-Extended Naphthalene Diimide as a Conformation-Sensitive Fluorescent Probe of G-Quadruplex Structures; *Int. J. Mol. Sci.* 2021, 22(19), 10624
21. **V. Pirota**<sup>\*</sup>, E. Lunghi, A. Benassi, E. Crespan, M. Freccero, F. Doria<sup>\*</sup>; Selective Binding and Redox-Activity on Parallel G-Quadruplexes by Pegylated Naphthalene Diimide-Copper Complexes; *Molecules*, 2021, 26(16), 5025.
20. M. Castelli, S.A. Serapian, F. Marchetti, A. Triveri, **V. Pirota**, L. Torielli, S. Collina, F. Doria, M. Freccero, G. Colombo; New perspectives in cancer drug development: computational advances with an eye to design; *RSC Med. Chem.* 2021, 12, 1491-1502.
19. M. Dede<sup>‡</sup>, S. Napolitano<sup>‡</sup>, A. Melati, **V. Pirota**, G. Maga, E. Crespan; High Flexibility of RNaseH2 Catalytic Activity with Respect to Non-Canonical DNA Structures; *Int. J. Mol. Sci.* 2021, 22(10), 5201.
18. S. Lago, M. Nadai, E. Ruggiero, M. Tassinari, M. Marušič, B. Tosoni, I. Frasson, F.M. Cernilogar, **V. Pirota**, F. Doria, J. Plavec, G. Schotta, S.N. Richter; The MDM2 inducible promoter folds into four-tetrad antiparallel G-quadruplexes targetable to fight malignant liposarcoma; *Nucleic Acids Res.* 2021, 49, 2, 847–863.
17. **V. Pirota**<sup>‡</sup>; C. Platella<sup>‡</sup>; D. Musumeci; A. Benassi; J. Amato; B. Pagano; G. Colombo; M. Freccero; F. Doria; D. Montesarchio; On the binding of naphthalene diimides to a human telomeric G-quadruplex multimer model; *Int. J. Biol. Macromol.* 2021, 166, 1320-1334.
16. A. Benassi; F. Doria; **V. Pirota**<sup>\*</sup>; Groundbreaking Anticancer Activity of Highly Diversified Oxadiazole Scaffolds; *Int. J. Mol. Sci.* 2020, 21, 8692.
15. M. Tassinari<sup>‡</sup>, M. Zuffo<sup>‡</sup>, M. Nadai, **V. Pirota**, AC Sevilla Montalvo, F. Doria, M. Freccero, SN Richter; Selective targeting of mutually exclusive DNA G-quadruplexes: HIV-1 LTR as paradigmatic model; *Nucleic Acids Res.* 2020, 48 (9), 4627–4642.
14. C. Platella<sup>‡</sup>, **V. Pirota**<sup>‡</sup>, D. Musumeci, F. Rizzi, S. Iachettini, P. Zizza, A. Biroccio, M. Freccero, D. Montesarchio, F. Doria; Trifunctionalized naphthalene diimides and dimeric analogues as G-quadruplex-targeting anticancer agents selected by affinity chromatography; *Int. J. Mol. Sci.*, 2020, 21(6), 1964.
13. I. D'Annessa, N. Hurwitz, **V. Pirota**, G.L. Beretta, S. Tinelli, M. Woodford, M. Freccero, M. Mollapour, N. Zaffaroni, H. Wolfson, G. Colombo; Design of disruptors of the Hsp90-Cdc37 interface; *Molecules*, 2020, 25(2), 360.
12. **V. Pirota**, M. Nadai, F. Doria, S.N. Richter; Naphthalene diimides as multimodal G-quadruplex-selective ligands; *Molecules*, 2019, 24(3), 426.
11. F. Doria<sup>‡</sup>, E. Salvati, L. Pompili, **V. Pirota**, D'Angelo C, F. Manoli, M. Nadai, S.N. Richter, A. Biroccio, I. Manet, M. Freccero; Dyads of G-Quadruplex Ligands Triggering DNA Damage Response and Tumour Cell Growth Inhibition at Subnanomolar Concentration; *Chem. Eur. J.* 2019, 25(47), 11085-11097.
10. M. Nadai<sup>‡</sup>, F. Doria<sup>‡</sup>, M. Scalabrin, **V. Pirota**, V. Grande, G. Bergamaschi, V. Amendola, F.R. Winnerdy, A.T. Phan, S.N. Richter, M. Freccero; A Catalytic and Selective Scissoring Molecular Tool for Quadruplex Nucleic Acids; *J. Am. Chem. Soc.*, 2018, 140, 14528–14532.

9. M. Zuffo, A. Guédin, E.D. Leriche, F. Doria, **V. Pirota**, V. Gabelica, J. L. Mergny, M. Freccero; More is not always better: finding the right trade-off between affinity and selectivity of a G-quadruplex ligand; *Nucleic Acids Res.* 2018, 46 (19), e115.
8. F. Doria, **V. Pirota**, M. Petenzi, M.P. Teulade-Fichou, D. Verga, M. Freccero; Oxadiazole/pyridine-based ligands: A structural tuning for enhancing G-quadruplex binding; *Molecules*, 2018, 23 (9), 2162-2179.
7. M. Tassinari, A. Lena, E. Butovskaya, **V. Pirota**, M. Nadai, M. Freccero, F. Doria, S.N. Richter; A Fragment-Based Approach for the Development of G-Quadruplex Ligands: Role of the Amidoxime Moiety; *Molecules*, 2018, 23 (8), 1874-1891.
6. **V. Pirota\***, M. Zuffo\*; Apolipoprotein E in Alzheimer's Disease; *EC Neurology* 2017, 6(2), 54-59
5. **V. Pirota**, S. Dell'Acqua, E. Monzani, S. Nicolis, L. Casella; Copper-A $\beta$  peptides and the oxidation of catecholic substrates: Reactivity and endogenous peptide damage; *Chem. Eur.J.* 2016, 22, 16964 –16973. **Hot Paper**
4. **V. Pirota**, E. Monzani, S. Dell'Acqua, L. Casella; Interaction between heme and tau-derived R1 peptide: Binding and reactivity; *Dalton Trans.*, 2016, 45 (36), 14343-51.
3. S. Dell'Acqua, **V. Pirota**, E. Monzani, F. Camponeschi, R. De Ricco, D. Valensin, L. Casella; Copper(I) Forms a Redox Stable 1:2 Complex with  $\alpha$ -Synuclein in the Membrane; *Inorg. Chem.*, 2016, 55 (12), 6100–6106.
2. S. Dell'Acqua, **V. Pirota**, C. Anzani, M.M. Rocco, S. Nicolis, D. Valensin, E. Monzani, L. Casella; Reactivity of copper- $\alpha$ -synuclein peptide complexes relevant to Parkinson's disease; *Metallomics*, 2015, 7, 1091-1102.
1. **V. Pirota**, F. Gennarini, D. Dondi, E. Monzani, L. Casella, S. Dell'Acqua; Dinuclear heme and non-heme metal complexes as bioinspired catalysts for oxidation reactions; *New J. Chem.*, 2014, 38 (2), 518-528.

#### Book chapters

2. **V. Pirota**, M. Stasi, A. Benassi, F. Doria\*; An overview of quadruplex ligands: Their common features and chemotype diversity; *In Annual Reports in Medicinal Chemistry*, Neidle, S., Chapter 6; Ed. Academic Press: 2020; 54, 163-196.
1. M. Zuffo, **V. Pirota**, F. Doria; Photoresponsive molecular devices targeting nucleic acid secondary structures; *In Photochemistry: Volume 46, The Royal Society of Chemistry*, 2019, 46, 281–318.

#### Memberships in scientific societies

- Member of "Universal Scientific Education and Research Network" (USERN) Community
- Founder and Managing Director of G4-INTERACT (G-quadruplexes As INnovative ThERapeutic Targets) Group
- Member of STEM Women Community
- Member of the Italian Society of Chemistry (SCI)
- Member of e-COST Action

#### Supervision of graduate students and postdoctoral fellows

*In this section only the works for which the undersigned is the official co-supervisor are reported.*

*Co-supervisor of the experimental scientific work of 3 Ph.D. students, 2 Post-Graduate Master's scholarship holders, 9 master's degree students in Chemistry, 1 master's degree student in Biotechnology, and 7 bachelor's degree students in Biotechnology. Remote support of 1 Ph.D. student from KAUST, Thuwal, Saudi Arabia.*

#### Teaching activities

[Higher Technical Institute Foundation for New Life Technologies](#); Bergamo (Italy).

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| 2023-2024 | Professor of "Advanced Organic Chemistry UF14" for a post-diploma training course for "Higher Technician for Industrial Biotechnology Production"   |
| 2021-2022 | Professor of "Advanced Organic Chemistry UF14" for two post-diploma training courses: "Higher Technician for Industrial Biotechnology Production" and "Industrial Chemistry, Polymers, and Biopolymers"   |
| 2020-2021 | Professor of "Advanced Organic Chemistry UF14" for three post-diploma training courses: "Higher Technician for Industrial Chemical Production", "Higher Technician for Industrial Biotechnology Production" and "Industrial Chemistry, Polymers, and Biopolymers" |
| 2019-2020 | Professor of "Advanced Organic Chemistry UF14" for a post-diploma training course on "Higher  |
| 2018-2019 | Technician for Industrial Chemical Production"  |

Teaching activities at the University of Pavia, Pavia (Italy).

- 2024 - 2025 Professor for the course: "Solid phase synthesis of macro and biomolecules" (CHIM07) – master's degree in chemistry (6 CFU)
- 2023 - 2024 Professor for the course: "Chemistry didactics 2" (CHIM06) – 1 CFU
- 2021 - 2022 Professor for supplementary teaching in the Organic Chemistry Laboratory 1 (CHIM06) bachelor's degree in chemistry (20 hours).
- 2020 - 2023 "Expert on the subject" for the Bachelor-level course of Biotechnology "Organic chemistry of biomolecules" (CHIM06)
- May 2019 Invited Lecturer Master-level course of Pharmaceutical Chemistry "PSF MASTER course, Advance Pharmaceutical Chemistry: Process of HIT-to -LEAD". Topic: "Selective Fluorescence Probes for Non-Canonical NA Structures"

Educational seminars at the University of Pavia, Pavia (Italy).

- 2022 - 2023 Educational seminar for the Chemistry course for the three-year degree in Geological Sciences. Responsible: Prof. O. Carugo (10 hours).
- 2021 - 2022 Individual assignment of occasional or professional work for the needs of the Department of Chemistry having as its object highly qualified functions relating to teaching support and orientation activities within the scope of the activities of the National Plan for Scientific Degrees - Chemistry for the year academic 2021-2022 (2 months).  
Educational seminar for the Organic Chemistry course for the three-year degree in Biotechnology. Responsible: Prof. M. Freccero (12 hours).
- 2020 - 2021 Educational seminar for Inorganic and General Chemistry course for bachelor's degree in biotechnology. Responsible: Prof. S. Dell'Acqua (10 + 9 hours)
- 2019 - 2020 Educational seminar for Organic chemistry of biomolecules course for bachelor's degree in biotechnology. Responsible: Prof. F. Doria (9 + 10 hours)
- 2018 - 2019 Educational seminar for Chemistry course for bachelor's degree in Natural Sciences. Responsible: Prof. O. Carugo (12 + 12 hours)
- 2017 - 2018 Educational seminar for Organic Chemistry course for bachelor's degree in biotechnology. Responsible: Prof. M. Freccero (12 +12 hours)  
Educational seminar for Organic Chemistry course for bachelor's degree in biotechnology. Responsible: Prof. G. Colombo (12 +12 hours)
- 2016 - 2017 Educational seminar for Organic Chemistry course for bachelor's degree in biotechnology. Responsible: Prof. M. Freccero (30 hours)
- 2015 - 2016 Educational seminar for Inorganic Chemistry II course for bachelor's degree in chemical sciences. Responsible: Prof. L. Casella. (8 hours)
- 2015 - 2016 Educational seminar for Inorganic and General Chemistry course for bachelor's degree in biotechnology. Responsible: Prof. E. Monzani (15 + 10 hours)
- 2014 - 2015 Educational seminar for Inorganic and General Chemistry course for bachelor's degree in physics. Responsible: Prof. M. Licchelli (8 + 4 hours)
- 2013 - 2014 Educational seminar for Chemistry course for bachelor's degree in Geological Sciences. Responsible: Prof. O. Carugo (30 hours)
- 2012 - 2013 Educational seminar for Chemistry course for bachelor's degree in Geological Sciences. Responsible: Prof. O. Carugo (30 hours)
- From Oct. 2010 Assistance in the performance of laboratory experiences of General, Inorganic, and Analytical Chemistry for bachelor's students of Chemistry, Biology, Geology, Biotechnology, and Physics (> 400 hours)

Career breaks

Second maternity leave from April 19<sup>th</sup>, 2023, until December 20<sup>th</sup>, 2023. First maternity leave from April 25<sup>th</sup>, 2018, until September 26<sup>th</sup>, 2018.