



Daniela Valensin

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● WORK EXPERIENCE

ASSOCIATE PROFESSOR FOR THE SCIENTIFIC-DISCIPLINARY SECTOR CHIM/03 – GENERAL AND INORGANIC CHEMISTRY – UNIVERSITY OF SIENA – 01/03/2016 – Current – SIENA, ITALY

Department: Department of Biotechnology, Chemistry, and Pharmacy | **Website:** <https://www.dbcf.unisi.it/it>

Research Activities:

- Study of the protective action exerted by certain natural compounds with antioxidant and anti-aggregating activity in Alzheimer's disease through a multidisciplinary approach combining molecular spectroscopic studies (NMR, Fluorescence, CD, EPR, UV-Vis, MS, XAS) and in vitro cellular studies.
- Understanding the role of metal ions such as Cu(II), Cu(I), Fe(III), Fe(II), Zn(II), in the aggregation and oxidation process of some amyloidogenic proteins (A β , α S, PrP) characteristic of neurodegenerative diseases through experimental and in silico methods.
- Structural effect of coordination of Zn(II), Cu(II), and Ni(II) ions in antimicrobial peptides (Semenogelins, Alloferon) and protein fragments derived from certain bacterial metalloproteins (AprA, CpaA, GroEL1, HypB, ZnuA).

Teaching Activities:

General and Inorganic Chemistry and Stoichiometry, Advanced Inorganic Chemistry, NMR Applications for Food Chemistry courses for Bachelor's and Master's students

ASSISTANT PROFESSOR – UNIVERSITY OF SIENA – 01/11/2007 – 29/02/2016 – SIENA, ITALY

Department: Department of Chemistry & Department of Biotechnology, Chemistry and Pharmacy

Research Activities:

Understanding the role played by transition metal ions (Cu(II), Zn(II), Ni(II), Cu(I), Al(III), Fe(III)) in certain neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease, and transmissible spongiform encephalopathies.

Teaching Activities:

General and Inorganic Chemistry, Bioinorganic Chemistry and NMR spectroscopy courses for Bachelor's and Master's Students

FIXED-TERM CONTRACT – CONSORZIO INTERUNIVERSITARIO RISONANZE MAGNETICHE DI METALLOPROTEINE PARAMAGNETICHE (CIRMMP) – 01/01/2007 – 31/10/2007 – SESTO FIORENTINO (FI), ITALY

Department: Department of Chemistry

Research topic: "Structural characterization of metal complexes (Cu(II), Zn(II)) of peptides derived from proteins involved in neurodegenerative diseases."

RESEARCH GRANT – UNIVERSITY OF SIENA – 01/01/2003 – 31/12/2006 – SIENA, ITALY

Department: Department of Chemistry

Research in the scientific area of general and inorganic chemistry, disciplinary sector CHIM/03

Study of interactions between cupric ion and peptide sequences involved in neurodegenerative diseases.

● EDUCATION AND TRAINING

12/04/2017 – CURRENT Italy

HABILITATION AS FULL PROFESSOR IN THE COMPETITIVE SECTOR 03/B1 FUNDAMENTALS OF CHEMICAL SCIENCES AND INORGANIC SYSTEMS National Scientific Habilitation (ASN) first semester 2016-2018

Website <https://abilitazione.mur.gov.it/public/index.php> |

Field of study Fundamentals of Chemical Sciences and Inorganic Systems | **Valid until** 12/04/2028

23/12/2013 – 23/12/2022 Italy

HABILITATION AS ASSOCIATE PROFESSOR IN THE COMPETITIVE SECTOR 03/B1 FUNDAMENTALS OF CHEMICAL SCIENCES AND INORGANIC SYSTEMS National Scientific Habilitation 2012

Website <https://abilitazione.mur.gov.it/public/index.php> |

Field of study Fundamentals of Chemical Sciences and Inorganic Systems

01/11/2001 – 28/02/2002 Stockholm, Sweden

VISITING STUDENT AT THE DEPARTMENT OF PHYSICAL CHEMISTRY AT STOCKHOLM UNIVERSITY (SWEDEN) Stockholm University

Studies on nuclear spin relaxation related to molecular motions in solution. Supervisor: Prof. Jozef Kowalewski.

Field of study Chemistry

15/09/2000 – 15/10/2000 Wroclaw, Poland

VISITING STUDENT AT THE DEPARTMENT OF CHEMISTRY AT THE UNIVERSITY OF WROCLAW (POLAND) University of Wroclaw

Short Term Scientific Mission COST D8 project. Studies on potentiometry applied to metal complexes with peptide sequences - Supervisor: Prof. Henryk Kozlowski.

Field of study Chemistry

01/11/1999 – 31/10/2002 Siena, Italy

PHD IN CHEMICAL SCIENCES University of Siena

Field of study Chemistry | **Thesis** Spectroscopic Studies on Biologically Active Peptide Sequences Coordinating Metal Ions

01/12/1998 – 30/11/1999 Montelibretti - ROMA, Italy

RESEARCH SCHOLARSHIP Istituto di Strutturistica Chimica "Giordano Giacomello"- CNR

Research on the knowledge, conservation, and use of paper-based materials: methodologies for intervention on the Italian documentary and library heritage.

Field of study Chemistry

01/10/1992 – 07/04/1998 Siena, Italy

MASTER IN CHEMISTRY University of Siena

Field of study Chemistry | **Final grade** 110/110 cum laude |

Thesis Specificità del sito prolinico in sequenze peptidiche coordinate al rame (II): studi di spettroscopia di risonanza magnetica". Relatore Prof. Riccardo Basosi, Correlatore Prof.ssa Rebecca Pogni.

● LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Microsoft Office | Microsoft Word | Microsoft Excel | webex | skype

ORGANISATIONAL SKILLS

Recent Funding - Research Projects

MIUR-PRIN 2022RCRWE5 "Bioinspired systems for ROS regulation: metalloporphyrinoids in neurodegeneration and artificial biocatalysis"
Project Duration: 24 months (10/2023 – 10/2025)
Role: Participant in the Research Program

Regione Toscana Call 2 "Research and Development Projects of MPMI" Project "PROBIOS" - Production of Bio-stimulating Protein Hydrolysates through Chemical Scission Processes and Transformation of Leather Waste from Waste to Resource. Start date 08/03/2021 end date 15/12/2023.
Role: Scientific Coordinator UNISI

MIUR-PRIN 2015T778JW_003 "Metal ions, dopamine, and oxidative stress in Parkinson's disease".
Project Duration: 36 months (05/02/2017 – 05/02/2020)
Role: Scientific Coordinator of the Research Unit

MIUR-PRIN 2010M2JARJ_004 "Metal Ions in Aging-related Pathologies: Interplay between Metallostasis and Proteostasis in Neurodegeneration".
Project Duration: 36 months (01/02/2013 – 01/02/2016)
Role: Participant in the Research Program

Development of Scientific Networks and Collaborations

I have been actively involved in cultivating scientific networks and fostering collaborations both nationally and internationally. These partnerships have been instrumental in enriching my research endeavors and promoting the exchange of knowledge and expertise in my field of study.

Over the past 10 years, I have established a longstanding collaboration with Professor Simone dell'Acqua and his research group at the University of Pavia. Together, we have conducted three national research projects focusing on the role of Cu(II)/Cu(I) ions in neurodegenerative diseases, with particular attention to the relationship between redox-active ions and oxidative stress.

In 2017 I have also forged a close collaboration with Professor Yifat Miller for studying Cu-AS (fibrils) interactions, leading to the signing of a Cooperation Agreement between the University of Siena and the Ben-Gurion University of the Negev in Israel. Additionally, I facilitated a Material Transfer Agreement with Professor Mariusz Jaremko of the King Abdullah University of Science and Technology in Saudi Arabia.

To delve deeper into the study of ternary interactions between amyloidogenic proteins and metal ions, I collaborated with research groups led by Professor Peter Faller at the University of Strasbourg, France, and Professor Christelle Hureau at CNRS, Toulouse, France. They graciously hosted one of my UNISI doctoral students in their laboratory to conduct EPR and UV-Vis analyses.

Furthermore, I established a robust collaboration with the research group of Professor Magdalena Rowinska-Zyrek and Professor Slawomir Potocki at the University of Wroclaw, Poland. This collaboration facilitated personnel exchanges between our institutions, supported by Short-Term Scientific Missions (STSMs) under the Network for Equilibria and Chemical Thermodynamics Advanced Research COST ACTION 18202, of which I am a member.

Since 2016, I have served on the Board of Directors and Scientific Committee of the Interuniversity Consortium For Metalloprotein Magnetic Resonance (CIRMMP), contributing to the advancement of scientific research in the field of metalloprotein magnetic resonance.

Publications

My research activity is documented from 1999 to the present day. This activity consists more than **120** publications in international journals (**H-index = 37**, Times cited without self-citations 4565, Web of Science Thomson Reuters, March 14, 2026).

Here are **12 selected publications** related to the last 5 years (2020-2025)

1. Small Cysteine-Rich Motif, Big Function—Metal-Driven Dimerization of the CopY C-Terminal Fragment. Hecel A, Kola A, Dominguez-Martin A, **Valensin D**. Inorg Chem. 2025 Nov 24;64(46):22615-22630. doi: 10.1021/acs.inorgchem.5c03226.
2. NMR Metabolomic Profiling of Differentiated SH-SY5Y Neuronal Cells: Amyloid- β Toxicity and Protective Effects of Galantamine and Lycorine. Kola A, Costanti F, Kahfi J, Emwas AH, Jaremko M, **Valensin D**. Cells. 2025 Apr 1;14(7):525. doi: 10.3390/cells14070525.
3. Cu(II) binding to an antimicrobial shrimp peptide - a small step for structural chemistry, a big leap for medicinal applications. Miller A, Matera-Witkiewicz A, Mikołajczyk-Tarnawa A, Kola A, Wiloch M, Jonsson-Niedziolka M, Wieczorek R, Wąty J, **Valensin D**, Rowińska-Żyrek M Chem Sci. 2025 Jan 23;16(8):3447-3458. doi: 10.1039/d4sc05222f.
4. Protective Contribution of Rosmarinic Acid in Rosemary Extract Against Copper-Induced Oxidative Stress. Kola A, Vigni G, Lamponi S, **Valensin D**. Antioxidants (Basel). 2024 Nov 19;13(11):1419. doi: 10.3390/antiox13111419.
5. Impact of metal coordination and pH on the antimicrobial activity of histatin 5 and the products of its hydrolysis. Dzień E, Wąty J, Kola A, Mikołajczyk A, Miller A, Matera-Witkiewicz A, **Valensin D**, Rowińska-Żyrek M. Dalton Trans. 2024 Apr 30;53(17):7561-7570. doi: 10.1039/d4dt00565a.
6. Bioinorganic Chemistry of Micronutrients Related to Alzheimer's and Parkinson's Diseases. Kola A, Nencioni F, **Valensin D**. Molecules. 2023 Jul 17;28(14):5467. doi: 10.3390/molecules28145467.
7. Semenogelins Armed in Zn(II) and Cu(II): May Bioinorganic Chemistry Help Nature to Cope with Enterococcus faecalis? Dudek D, Miller A, Hecel A, Kola A, **Valensin D**, Mikołajczyk A, Barcelo-Oliver M, Matera-Witkiewicz A, Rowińska-Żyrek M. Inorg Chem. 2023 Aug 28;62(34):14103-14115. doi: 10.1021/acs.inorgchem.3c02390.
8. Copper Binding and Redox Activity of α -Synuclein in Membrane-Like Environment. Bacchella C, Camponeschi F, Kolkowska P, Kola A, Tessari I, Baratto MC, Bisaglia M, Monzani E, Bubacco L, Mangani S, Casella L, Dell'Acqua S, **Valensin D**. Biomolecules. 2023 Feb 3;13(2):287. doi: 10.3390/biom13020287.
9. A Comparative Study between Lycorine and Galantamine Abilities to Interact with AMYLOID β and Reduce In Vitro Neurotoxicity. Kola A, Lamponi S, Currò F, **Valensin D**. Int J Mol Sci. 2023 Jan 28;24(3):2500. doi: 10.3390/ijms24032500.
10. Dynamic Interplay between Copper Toxicity and Mitochondrial Dysfunction in Alzheimer's Disease. Tassone G, Kola A, **Valensin D**, Pozzi C. Life (Basel). 2021 Apr 24;11(5):386. doi: 10.3390/life11050386.
11. Metal Complexation Mechanisms of Polyphenols Associated to Alzheimer's Disease. Kola A, Dudek D, **Valensin D**. Curr Med Chem. 2021;28(35):7278-7294. doi: 10.2174/0929867328666210729120242.
12. Novel Perspective on Alzheimer's Disease Treatment: Rosmarinic Acid Molecular Interplay with Copper(II) and Amyloid β . Kola A, Hecel A, Lamponi S, **Valensin D**. Life (Basel). 2020 Jul 20;10(7):118. doi: 10.3390/life10070118.

Link [https://usiena-air.unisi.it/simple-search?](https://usiena-air.unisi.it/simple-search?query=valensin+daniela&location=11365%2F973049&rpp=10&sort_by=dc.date.issued_dt&order=desc)

[query=valensin+daniela&location=11365%2F973049&rpp=10&sort_by=dc.date.issued_dt&order=desc](https://usiena-air.unisi.it/simple-search?query=valensin+daniela&location=11365%2F973049&rpp=10&sort_by=dc.date.issued_dt&order=desc)

● COMMUNICATION AND INTERPERSONAL SKILLS

Support to the Scientific Community

From 2016 to 2019, I served as the Delegate for Orientation at the Department of Biotechnology, Chemistry, and Pharmacy of the University of Siena, promoting outreach activities and guiding the educational offerings of the department. This involved organizing Open Days, internships, and lectures at Secondary Schools in the Tuscany region. Since 2022, I have been a member of the Unified Committee for Teaching of the Bachelor's Degree in Chemical Sciences and the Master's Degree in Chemistry.

Since 2015 I have been a member of the Faculty Board of the Doctoral Program in Chemical and Pharmaceutical Sciences.

I acted as an external examiner for the national and international doctoral thesis and I served as a member of the evaluation committee for national and international research projects.

I have contributed as an external reviewer for several international scientific journals in the field of Inorganic Chemistry, Medicinal Chemistry, Biochemistry and Food Chemistry

I acted as a guest editor for the special issue "Protein Interplay in Neurodegeneration" in the journal Biomolecules-MDPI.

Conferences

Throughout the years, I have actively participated in numerous national and international scientific conferences, presenting research findings through Invited Lectures and contributions. These conferences provided valuable opportunities to share our findings, exchange ideas with colleagues, and stay updated on the latest developments in the field of bioinorganic chemistry and neurodegenerative diseases Below are the most recent and significant ones:

1. Invited Lecture at 1st Polish-Italian Conference on Chemistry, Materials and Biomedicine (CMB), Rome, Italy from 17-19 September 2025-
2. Invited Lecture at ACS Fall 2025, Global Virtual Symposium: Progress in Understanding and Tackling Multifactorial Alzheimer's Disease, 17-21 August 2025.

3. Invited Lecture at EuroBIC17, Münster, Germany, from August 25-29 2024.
4. Invited Plenary Lecture at Chemistry towards Biology 11 (CTB11) Krakow, Poland from July 1-4, 2024.
5. Invited Lecture at the Invited Lecture at the 2nd International Conference on Metal-Binding Peptides, Toulouse, France July 10 – 12 2024.
6. Lecture at the International Symposium on Metal Complexes (ISMEC 2023), Urbino, Italy, 11-14 June 2023.
7. Lecture at the International Symposium on Pathomechanisms of Amyloid Diseases, Catania, Italy, August 25-27.
8. Invited Lecture at the 1st International Conference on Metal-Binding Peptides, Nancy, France July 5 – 8 2022.
9. Invited Lecture at eBic21 20-23 July 2021.
10. Invited Lecture at 7th International Symposium on Metallomics in Warsaw, Poland, 30 June-3 July 2019.
11. Invited Lecture at "Current Challenges in Amyloid Diseases: from molecular mechanisms to the cell and clinics" Research Workshop at the Israel Science Foundation, Dead Sea, Israel, 2-6 September 2018.
12. Invited Lecture at EuroBIC 14, Birmingham, UK, 26-30 August 2018.
13. Invited Seminar at CNRS, Aix Marseille Université, France, 16 March 2018.
14. Invited Professor at the 3rd Summer School of Bioinorganic Medicinal Chemistry, Cagliari, Italy, 28 August-2 September 2017.
15. Invited Lecture at BioBilbao, Bilbao, Spain, 9-12 July 2017.
16. Invited Lecture at ISABC14, 2017, Toulouse, France, 7-10 June 2017.
17. Invited Lecture at XIII International Symposium on Inorganic Biochemistry, Karpacz, Poland, 1-6 September 2015.
18. Invited Plenary Lecture at ISMEC 2015, Wroclaw, Poland, 24-28 June 2015.
19. Invited Lecture at XIX Scuola Nazionale di Chimica Inorganica, SCI, Roma, Italy, 22-24 October 2014.
20. Invited Lecture at EUROBIC 12, Zurich, Switzerland, 24-28 August 2014.
21. Invited Lecture at ICCMSE 2014, Atene, 4-7 April 2014.
22. Invited Lecture at XI International Symposium on Inorganic Biochemistry, Kudowa Zdroj, Poland, 4-8 September 2010.
23. Invited Lecture at Third International Meeting of the Institute of Metals in Biology of Grenoble, Autrans, France, 21-24 September 2008.
24. Invited Lecture at EUROBIC 9, Wroclaw, Poland, 2-6 September 2008.
25. Invited Lecture at 3rd Central European Conference Chemistry towards Biology, Kraków, Poland, 8-12 September 2006.

Analysis and Consulting Services

The pharmaceutical industry, Galenica Senese s.r.l. requested characterization measurements on raw material (MP) and post-sterilization samples (MS) through nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry. Consorzio S.G.S. spa (based in Santa Croce Sull'Arno, PI) sought characterization services for samples (C and R) using NMR spectroscopy and mass spectrometry (MS).

In the environmental sector, Ambiente spa (located in Nazzano, Carrara, MS) requested qualitative and quantitative characterization of complex matrices derived from industrial processes through NMR and GC-MS analyses.

The timeline of these engagements is as follows:

2020: Analysis and Consulting for Galenica Senese s.r.l. (SI)

2018: Analysis and Consulting for Consorzio SGS spa (PI)

2017: Analysis and Consulting for Ambiente spa (MS)