

Cecilia Cristea, PhD, MSc, Chemist, Pharmacist

Scientific Curriculum Vitae

Romanian, Born January 1974, married, one child

1. Academic Training

- *Education: Undergraduate studies (1992-1997):* Chemistry, Physical-Chemistry from "Babes-Bolyai" University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania and Pharmacy (2005-2009) from "Iuliu Hatieganu" University of Medicine and Pharmacy, Faculty of Pharmacy, Cluj-Napoca, Cluj, Romania
Master of Science (1997-1998) in Applied Electrochemistry, "Babes-Bolyai" University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania
- *PhD: 1997-2003* PhD title in Chemistry at the University of Rennes 1, Rennes (France) and "Babes Bolyai" University, Cluj-Napoca (Romania) under the supervision of Prof. Dr. Claude Moinet and Prof. Dr. Catalin Popescu (joint thesis), gaining a fellowship from the French government (2001-2003). During my PhD, I acquired expertise in applied electrochemistry and organic electrosynthesis obtaining interesting results in electroanalytical studies of *p*-nitrophenylserinol and some derivatives and their application to the electrosynthesis of products of pharmacological interest.
- *Post-Doctorate:* January - October 2004 - postdoctoral researcher at the University of Sherbrooke, Quebec (Canada) with Prof. Jean Lessard, where I had the opportunity to deepen my knowledge in physical-chemistry, organic electrosynthesis and electroanalysis by working on the electroreduction of nitrocyclopropanes and nitroarylcyclopropanes.
- *Habilitation thesis:* June 2015, I defended my habilitation thesis presenting my achievements related to modified electrodes for electrochemical sensor design with applications in pharmaceutical, biomedical and environmental analysis.

2. Research stays and fellowships:

- 2000, five months (February- June) at "Grenoble Alpes" University, Grenoble (France) under the guidance of Dr. Serge Cosnier (I acquired expertise in the use of conductive polymers for the design and development of biosensors).
- 2006 and 2012 I gained skills in imprinting technique for electrodes production and in designing immunosensors for cancer biomarkers detection at "Ugo Schiff" Chemistry Department, University of Florence (Italy) working with Prof. Dr. Marco Mascini and Prof. Dr. Giovanna Marrazza.
- DAAD fellow (November - December 2015) in the Laboratory of Sensors led by Prof. Dr. Wolfgang Schuhmann from Ruhr University, Bochum (Germany), working on the design of DNA sensors and the use of SECM for biomedical analysis.

3. Professional experience:

I joined "Iuliu Hatieganu" University of Medicine and Pharmacy as Assistant professor in 2002. Since then, I passed through all academic positions to become Associate professor (October 2012) and full professor (February 2016). Currently, I work in the Department of Analytical Chemistry, where I am responsible for the lectures and practical sessions for the undergraduate students in Pharmacy enrolled in the first and the second years at the Romanian and French sections (Separation methods and instrumental techniques; Analytical Chemistry - quantitative analysis; Analytical Chemistry - qualitative analysis; Introduction in electroanalytical techniques - for PhD students from UMF "Iuliu Hatieganu"; Sensors and biosensors in pharmaceutical and biomedical analysis - for PhD students from UMF "Iuliu Hatieganu").

4. Scientific experience:

I have been involved in several *research grants* (8 as principal investigator and 24 as a member of the team) and as a *member of the organising and scientific committees of several summer schools and international conferences*, such as: the "Journées d'électrochimie, 2009", 6-10 July 2009, Sinaia, (Romania); the Third International Regional Symposium on Electrochemistry: South-East Europe, RSE-SEE, 13-17 May 2012, Bucharest (Romania); the "Electrochemistry for environment and biomedical applications" summer school, 17-21 June 2013, Cluj-Napoca (Romania); the International Workshop "Nouveaux Matériaux pour la Reconnaissance électrochimique minéraux et des espèces biologiques", NOMARES, 13-14 May 2012, Bucharest (Romania); the 3rd International Workshop on "Specific Methods for food safety and quality", 27th September 2016, Beograd (Serbia); the "International Conference on Advancements of Medicine and Health Care through Technology", 4-6 June 2014 and 24-26 October 2016, Cluj-Napoca (Romania); the Summer school in Bioelectrochemistry-SMOBE, 17-19 August 2016, Antwerp (Belgium).

5. Reviewing activity and Editorial Boards of International Scientific Journals

- Reviewer for several important journals, such as: *Analytica Chimica Acta*, *Electrochemistry Communication*, *Electrochimica Acta*, *Electroanalysis*, *Analytical and Bioanalytical Chemistry*, *Bioelectrochemistry*, *Sensors*, *Biosensors*, *Microchimica Acta*, *Nanomaterials*, *Biosensors* etc.
- Member of the editorial board of *World Journal of Pharmaceutical Sciences* and *Current Trends in Analytical and Bioanalytical Chemistry*.
- Expert evaluator for UEFISCDI Romania, Research Foundation Flanders FWO, Polish National Science Centre

6. Main scientific research are:

- The research activity has led to over 70 publications (Hirsch index 12; <http://www.researcherid.com/rid/B-6259-2011>; ORCID 0000-0002-4158-3324) in international peer review journals (26 as the main author - first or corresponding), 2 patents, 12 proceedings and, participation in national (25) and international conferences (over 100 with 9 invited conferences and keynote lectures, 17 oral presentations and over 70 poster presentations). I am

also co-author of 10 chapters in books published by CRC Press-Taylor and Francis, Springer, Wiley, Intech, Bentham (5 as the main author) and 6 books for students use. During the last 10 years, I supervised 16 undergraduate students and their theses in the field of bioelectrochemistry, electrode material modifiers, bio and immunosensors development and 5 PhD students (joint thesis).

- The main research interest, as well as the **main contributions**, are given in the field of design and development of modified electrodes, the elaboration of various nanoplatforms for electrochemical sensors development, immobilization of carbon nanotubes, graphene, metallic nanoparticles on the surfaces of electrochemical and optical transducers, entrapment of enzymes into conductive polymeric films for the development of biosensors for biomedical and pharmaceutical analysis, the use of graphite felt electrodes for organic electrosynthesis and sensors development for heavy metals detection, the use of antibody and aptamers for immunosensors development for the detection of ovarian and breast cancer biomarkers and of some drugs, design of hybrid sensors (electrochemical and SPR) for cancer biomarkers and antibiotics detection, the use of electrochemical impedance spectroscopy in sensors characterization.
- In this dynamic research field several transducers (carbon, metallic, hybrid-based transducers) and different bioelements (enzymes, antibodies, aptamers, microRNA) as well as an important number of techniques (electrochemical techniques: voltammetry, amperometry, electrochemical impedance spectroscopy; spectral techniques: UV-VIS, FTIR, Raman; separation techniques: HPLC, GC-MS, electrophoresis) were used, which would be helpful in carrying out the objectives of all these interdisciplinary projects.

7. Honors and Distinctions

- For the scientific achievements I was awarded by UEFISCDI (Romanian Funding agency for scientific research) in 2006 with "In hoc Signo vinces" for young researchers
- In 2014 UMF Iuliu Hatieganu University of Medicine and Pharmacy awarded me with Teodor Goina Prize for co-authoring a chapter in *Dekker Encyclopedia of Nanoscience and Nanotechnology, Third Edition*.

8. Scientific organization membership

- ISE, BES, Romanian Society of Chemistry, Romanian Society of Electrochemistry (Secretary), Romanian Society of Pharmaceutical Sciences, Romanian Ancient French Government Fellows.

Cluj-Napoca

9th of October 2017

Professor Cecilia Cristea