PERSONAL INFORMATION

MIHAI CIUBOTARU



Affiliation- Horia Hulubei Institute of Nuclear Physics Magurele Bucharest Romania (IFIN-HH), Department of Life and Environmental Physics(DFVM).

Head of The Molecular Immunology Laboratory, Center for Research (CDPC), Colentina Hospital Bucharest,Romania.

POSITION

Senior Research Scientist I First Degree(CSI)

WORK EXPERIENCE

July 2012-present	Senior Research Scientist I First Degree(CSI), IFIN-Horia Hulubei Institute of Nuclear Physics Magurele Bucharest Romania and
2013-present	Head of The Molecular Immunology Laboratory, Center for Research (CDPC), Colentina Hospital Bucharest,Romania.
Oct. 2006- June 2012	Associate Research Scientist, Immunobiology Department, Yale University School of Medicine, USA.
2000- Sept. 2006	Postdoctoral Associate - Yale University School of Medicine, USA / Howard Hughes Medical Institute Fellow Dr. David G. Schatz's Laboratory, Immunobiology Department.
1995-2000	Graduate Student - SUNY at Buffalo , USA Dr. Gerald B. Koudelka's Laboratory Biology dept.
1992-1994	Postdoctoral Fellow -UT Southwestern Medical Center at Dallas, Texas, USA. Dr.Sally E. Ward's laboratory, Immunology Dept.
1991 -1992	Resident Physician Internal Medicine, Coltea Hospital, Bucharest, Romania

EDUCATION AND TRAINING

1985-1991	M.D. Degree -University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania. Graduated with cummulative grade 9.88 (Max 10) occupying at graduation the 4th position from 500 graduates.
	Ph.D Doctorate-State University (SUNY) of New York at Buffalo,

1995-2000 USA- Center for Advanced Molecular Biology and Immunology Program (CAMBI). My cummulative QPA at graduation was 3.83 from a maximum grade of 4.

PERSONAL KILLS

Mother tongue(s): Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	TOEFL- 120 maximal score				
French	C1	C1	B2	B2	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Communication skills

- Excellent communication skills gained through my experience as laboratory principal investigator

Organisational / managerial skills

- Our current team that I lead at IFIN-HH- Magurele Institute and Colentina Hospital has 4 members, including me :1) Mihai Ciubotaru MD, Ph.D (Principal Investigator, CSI), 2) Elena Ionita experienced Biotechnology Engineer, works in experiments on recombination involved in chromosomal translocations detected in non-hodgkin lymphomas, 3) Alexandru Rusu CS2 experienced Electronics Engineer investigates the effects of Electromagnetic and Magnetic fields applied on human monocytes and lymphocytes, and helps with design and manufacture of various assemblies required for our studies of single molecule Biophysics like TPM(Tethered particle motion) 4)Denis Sandu MS young graduate in mecatronics joined our team as a master thesis student building the piezo-electric mechanism required for an optical tweezers setup.

Past and Present Research Grant Support

A)As an Associate Research Scientist in Dr David G. Schatz (main PI) on grant during 2 consecutive sessions with continuous renewal. As pointed in David G. Schatz application renewal the core of this grant was centered around the work that I was performing in his laboratory, published by us in: Ciubotaru et al. 2003, Ciubotaru and Schatz 2004, Ciubotaru et al. 2007. This is also reflected by the specific aims of the grant R01 AI 32524-14 (Schatz) 4/1/02 – 3/31/07 and then renewed 4/01/2007-3/31/2012. NIH/NIAID $150,000 Immunoglobulin and T Cell Receptor Gene Assembly

The specific aims of this project were:

1. Characterize the protein-protein and protein-DNA interactions involving RAG1 and RAG2.
2. Examine the process of synapsis and the structure of the RAG-RSS synaptic complex.
3. Determine how the RAG proteins stabilize post-cleavage complexes and prevent translocations.

B) In 2012 as a main PI coordinator , I obtained financial support from the Romanian Organization UEFISCDI(Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii), via the National Complex Ideas Plan 2012, with the project PN-II-ID-PCCE-2011-2-0024 with title "V(D)J recombination targeted *in cis* by transcription induced DNA supercoiling" funded with 1,383,000 euros for 4 years.

C) 2013 as a main PI coordinator of a Consortium of 4 teams, I obtained financial support from the Romanian Organization UEFISCDI**, via the Partnership Projects 2013, with the project** PN-II-PT-PCCA-2013-4-0930 with title " Design and testing of a new family of specific drug HIV Integrase inhibitors which do not interfere with V(D)J recombination" funded with 321,000 euros for 3 years -currently active.

D) june 2016 as a main PI coordinator of a Consortium of 5 teams. Besides our Coordinator team (Colentina Hospital Bucharest)our Partners: From Hungary(University of Szeged, Dr. Hohman's group), Latvia(Center For Advanced Chemical Synthesis Riga Dr. Abele's group), Hungary Budapest(Center For Epidemiology Dr. Mezey's group), Romania(Institute of Biochemistry, Dr. A.J. Petrescu's), we obtained financial support from the European HIVERA Horizon 2020**, with the project** HIVERA-

INinRAGI with title " Screening and developing of a novel family of natural and synthetic HIV Integrase inhibitors " funded with 530,000 euros for 3 years.

E) september 2016, Leader of the IFIN-HH partner team 5/5.1/ELI - RO on the project 17-ELI "Electromagnetic shielding structures to assure biological safety during target hitting experiments performed on PW Laser Facilities" BIOSAFE, project coordinated by Dr. Marcu Aurelian from National Institute of Laser and Plasma Physics Magurele, funded with 266,700 euros for 3 years.

F) June of 2018 as a main PI coordinator from IFIN-HH of a Consortium of 8 teams,we obtained financial support from National Project PN-III-P1-PCCDI-2017-0769 with the project ONCORAD **"The development in oncology of novel radiopharmaceuticals and nuclear techniques for diagnostic imaging and personalized treatment at molecular level"** funded with 1,110,200 euros for 3 years.

G) In 2022 as a main PI coordinator , I obtained financial support from the Romanian Organization UEFISCDI(Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii), via PN-III-P2-2.1-PED-2021-1482, Contract 626PED/2022**, Title "Development of ultrasensitive single molecule biomarkers of protein-DNA interactions for early diagnosis of acute leukemias"** (TPMLEUK) three years, 598795 lei.

H) July 2024, Leader of the IFIN-HH partner team 5.9/5.9.1/ELI-RO 2024 on the project 30-ELI " High-Power laser generated ultra-intense transient magnetic field molecular effects on leukemic and lymphomatous cancer cells " HiPOCell, project coordinated by Dr. Marcu Aurelian from National Institute of Laser and Plasma Physics Magurele, funded with 235,000 euros for 3 years -currently active.

I) July 2024, Leader of the IFIN-HH partner team 5.9/5.9.1/ELI - RO on the project 39-ELI " REal-time Molecular Imaging of reactive oxygen species effects in tumoral, non-tumoral and immune cells using high-power LAser and plasma Sources In the FLASH and conventional regime " REMILASI-FLASH, project coordinated by Dr. Vasos Paul from ELI NP Magurele, funded with 165,000 euros for 3 years -currently active.

Publications

1. Aude Sadet, Cristina Stavarache, Ioana Fidel, Mihai A. Voda, Andrei Ciumeica, Elena Ioniţă, ***Mihai Ciubotaru*** & Paul R. Vasos "Long-lived coherences for the observation of oxidation kinetics on different timescales by NMR.", *Nature Communications Chemistry*, 2026, **9, 211**, doi.org/10.1038/s42004-026-02002-w

2. Ioniţă E., Marcu A., Temelie M., Savu D. , Şerbănescu M. ***Ciubotaru M.,*** Radiofrequency EMF irradiation effects on pre−B lymphocytes undergoing somatic recombination", *Nature Scientific Reports*, 2021, **vol 11**, pg .12651, doi: 10.1038/s41598-021-91790-3.

3. ***Mihai Ciubotaru***, Mihaela Georgiana Musat, Marius Surleac, Elena Ionita ,Andrei Jose Petrescu, Edgars Abele, and Ramona Abele The Design of New HIV-IN Tethered Bifunctional Inhibitors using Multiple Microdomain Targeted Docking"*Current Medicinal Chemistry*, 2019, vol.26 pg 2574-2600, doi: 10.2174/0929867325666180406114405

4. ***Ciubotaru M. ,*** Surleac M. D., Metskas L. A., Koo P., Rhoades P., Petrescu A. J., Schatz D.G." The architecture of the 12RSS in V(D)J recombination signal and synaptic complexes ", *Nucleic Acids Research*, 2015, vol43, 917-931.

5.***Ciubotaru M.***, Surleac M.D., Musat G. M., Rusu A. M., Ionita E., Albu C. C. Paul " DNA bending in the synaptic complex in V(D)J recombination: turning an ancestral transpososome upside down"", *Discoveries*, 2014, 2(1):e13:1-15, 2359–7232; DOI: 10.15190/d.2014.5.

6. ***Ciubotaru M.***, Trexler Adam, SpiridonLaurentiu, Surleac Marius, Rhoades Elizabeth, Petrescu Andrei, Schatz G. David. "RAG and HMGB1 create a large bend in the 23RSS in the V(D)J recombination synaptic complex", *Nucleic Acids Research* 2013,vol41, 2437-2454.

7. F. F. Yin, Bailey S., A. C. Innis, ***M. Ciubotaru,*** Kamtekar S.,Steitz T.A. and Schatz D. G.."Crystal structure of the RAG1 nonamer-binding domain with DNA reveals a novel dimerization domain that mediates DNA synapsis" *Nature Structural and Molecular Biology*, 2009,**vol16**,499-508,

8. ***Ciubotaru M.,***Kriatchko A. N., Swanson P. C., Bright F. V. and Schatz D. G. "Fluorescence resonance energy transfer analysis of RSS configuration in the RAG1/2 synaptic complex" *Molecular and Cellular Biology*, 2007, **vol 27**, No13 of July, 4745-58.

9. Koudelka G. B., MauroA.S. and ***Ciubotaru M.*** "Indirect Readout of DNA Sequence by Proteins: The Roles of DNA Sequence-Dependent Intrinsic and Extrinsic Forces" *Progress in Nucleic Acid Research and Molecular Biology*, 2006, **vol 81**, 143-177.

10.***Ciubotaru M.***and Schatz D. G."Synapsis of RSSs located in cis

and DNA underwinding in V(D)J recombination"- 2004, *Molecular and Cellular Biology*, 2004**vol 24,** 8727-44.

11. ***Ciubotaru M.,*** Ptaszek L. M., Baker G. A.., Baker S. N., Bright F. V. and Schatz D binding in V(D)J recombination: Specificity and DNA-induced conformational changes revealed by fluorescence and CD spectroscopy", *Journal of Biological Chemistry*, 2003**, vol 278,** 5584-5596.

*12***. *Ciubotaru M***., and Koudelka G.B."DNA-stimulated assembly of oligomeric bacteriophage 434 repressor: evidence for cooperative binding by recruitme 2003, **vol 42**(14), 4253-64. Impact Factor 3.42.

13. Koudelka G. B., Donner A.L. and ***Ciubotaru M.*** "Recognizing Sequence-Dependent DNA Structure" *Journal of Biomolecular Structure and Dynamics*, special issue No.1, Conversation 11, May 2000: 135-141.

14. Rosloniec E.F., Brand D. D, Whittington K. D., Stuart J. M., ***Ciubotaru M.***, Ward E. S."Vaccination with a Recombinant V alpha Domain of a TCR Prevents the Development of Collagen-Induced Arthritis" *Journal of Immunology*, 1995, **155**(9):4504-11.

15. ***Ciubotaru M.*** and Ward E.S. "Expression of Soluble T-cell Receptor Fragments Derived from a T-cell Clone Associated with Murine Collagen-Induced Arthritis" *Immunology Letters*, 1994, **43**: 139-42. Impact Factor 2.53.

16. ***Ciubotaru M*** "The Hormones: a Model for a New Understanding of Cell Differentiation Process, Part II Why Does Mitosis avoid those Highly Differentiated cells?, *Endocrinology* 1991, **29**, 3-31.

17.***CiubotaruM.***"The Hormones: a Model for a New Understanding of Cell Differentiation Process ,Part I Differentiation; An Individual Cell Option? *Endocrinology*, 1990, **28**, 159-169

National Patent Applications

1 RO-BOPI 12/2020, din 30.12.2020
Ciubotaru Mihai (11) 134637 A2 (51) C12N 15/09 (2006.01); C12Q 1/00 (2006.01); (21) a 2019 00356 (22) 12/06/2019 (41) 30/12/2020//12/2020 (71) SPITALUL CLINIC COLENTINA BUCUREŞTI, „PROCEDEU FOLOSIND FLUORESCENŢA PENTRU SELECŢIA DE COMPUŞI CHIMICI SOLUBILI INHIBITORI AI REACŢIEI DE 3' PROCESARE CATALIZATĂ DE INTEGRAZA HIV"

National Patent Applications

2. RO-BOPI 10/2025, din 30.10.2025
Ciubotaru Mihai (11) 139156 A2 (51) A61K 51/00(2006.01), C07K 16/00 (2006.01)(21) a 2021 00607 (22) 01.10.2021 (41) 30/10/2025//10/2025 (71) IFIN-HH Magurele „ PROCEDEU RAPID PENTRU OBȚINEREA SELECTIVĂ DE ANTICORPI DIN PLASMĂ IMUNIZATĂ CU IDIOTIP CE INTERACȚIONEZĂ EFICIENT CU ANTIGENUL”

3.RO-BOPI 12/2025, din 30.12.2025
Ciubotaru Mihai (11) 139323 A2 (51) C12Q 1/68 (2018.01), G01N 33/53(2006.01)(21) a 2024 00339 (22) 19.06.2024 (41) 30/12/2025//202512(71) SPITALUL CLINIC COLENTINA BUCUREȘTI „PROCEDEU CU DETECȚIE ULTRASENSIBILĂ ÎN REGIM UNIMOLECULAR PENTRU IDENTIFICAREA LEGĂRII c-MYC DE ADN FOLOSIT LA DIAGNOSTICAREA LIMFOAMELOR ȘI LEUCEMIILOR”

Presentations at Scientific Conferences & Seminars

Ciubotaru M. “Radiofrequency EMF Irradiation Effects on pre-B lymphocytes Undergoing Somatic Recombination”, Invited talk presented at The 14th World Gene Congress (WGC-2025), October 15-17, 2025 in Nice, France.

Ciubotaru M. “Ultrasensitive Single Molecule TPM Detection of cMYC - Ebox DNA Interactions as Biomarker for Early Diagnosis of Acute Leukemias and Lymphomas”, Invited talk presented at 2nd World Summit in Immunology 14th-16th July 2025 Valencia Spain.

Ciubotaru M. “Radiofrequency EMF Irradiation Effects on pre-B lymphocytes Undergoing Somatic Recombination”, Invited talk presented at The 2nd World Congress Vaccines and Infectious Diseases October 23-25, 2023 in Boston, USA.

Ciubotaru M. “Development of antibodies against specific developmental markers of the myeloid lineage for the radio-detection in early stages of myeloid leukemias”, Invited talk presented at International Commemorative Symposium: “The Cantacuzino Institute – 100 Years in the Service of Health” November 25, 2021 Bucuresti Romania.

Ciubotaru M. “Simulation of High Intensity Pulsed Electromagnetic Fields Exposure of Developing pre B Lymphocytes Undergoing V(D)J Gene Recombination”, Invited talk presented at Corfu Greece 25 August 2018, High Power Laser Applications Conference, August 25-28th, 2018, Corfu Island Greece.

Ciubotaru M. "V(D)J recombination targeted in cis by transcription induced DNA supercoiling", Invited talk presented at Albany 2015, 19th Conversation, June 9th-13, 2015, University of Albany, NY, USA.

Ciubotaru M." V(D)J recombination targeted in cis by transcription induced DNA supercoiling", Invited talk presented at 14th edition of the Site-Specific Recombination, Transposition and DNA workshop, DNA transactions, Sept. 7-12, 2014 Isle d'Oleron, CNRS, France.

Ciubotaru M. -"Investigating RAG recombinase by single Molecule Techniques" Invited talk presented in the departmental seminar at The Institute of Enzymology Research Centre For Natural Sciences of The Hungarian Academy of Sciences, 1st Feb. 2013, Host Dr. David Szuts, Budapest, Hungary.

Ciubotaru M. "RAG induced DNA distortions in the synaptic complex in V(D)J recombination", Invited talk presented at 2nd American Society for Microbiology Conference on Mobile DNA, April 24-28, 2010 Montreal, Canada.

Ciubotaru M., Koudelka G. B.**"** *"In vitro* Selection of Sequence-Dependent DNA Structure: Selection and Characterization of DNA Sequences Having Different Helical Twists" – Invited talk presented at The 11th Conference of Biomolecular Stereodynamics, 18 June, 1999, Albany, NY, USA.

Editorial Board Scientific Journals

I am a member of the editorial board of the international scientific journal "**Discoveries**"

http://www.discoveriesjournals.org/editorial-board.html

Memberships

- 2004-2005 American Society for Microbiology (ASM).
- 2004-2005 American Society for Biochemistry and Molecular Biology (ASBMB).
- 2004 Canadian Society of Biochemistry, Molecular and Cellular Biology (CSBMCB).

Teaching Academic Activity

- At Yale University USA, I was teaching 2 consecutive years (2002 and 2003), covering only the Enzyme Kinetics topic for the graduate students course " Chemical Reactions in Engineering (ENAS 60201)"(Department of Chemical Engineering, course coordinator Dr. Dragos M. Ciuparu).

- 2010-present, professor: "***Protein-nucleic acid interactions and their role in directing cellular processes***", Ecole Normale Superieure – Bucharest (Romania), master SNSB, (http://imar.ro/~ipopescu/SNSB/ course ; http://imar.ro/~ipopescu/SNSB/Biochemistry.html)

- 2022