

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.

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Sex Male | Date of birth 28/05/1967 | Nationality Romanian, USA

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 cumulative grade 9.88 (Max 10) occupying at graduation the 4<sup>th</sup> position from 500 graduates.
- 1995-2000 Ph.D Doctorate-State University (SUNY) of New York at Buffalo, USA- Center for Advanced Molecular Biology and Immunology Program (CAMBI). My cumulative 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 6 members, including me :1) Mihai Ciubotaru MD, Ph.D (Principal Investigator, CSI ), 2)Rodica Badea Ph.D experienced senior Research Scientist, works in experiments on recombination involved in chromosomal translocations detected in non-hodgkin lymphomas, 3) Marius Surleac young Ph.D student second year in Molecular Biology and Biochemistry, studies the DNA topological effects on rate and efficiency of recombination which the core of her thesis 4)Mihaela Georgiana Musat young graduate in Pharmacology follows her Master degree, first year, studies the pharmacological interference effects of HIV-Integrase inhibitors, on RAG and somatic recombination 5)Elena Ionita young Ph.D student in Biophysics, second year studies by tethered particle motion TPM, the dynamics of synapsis in somatic recombination, for her Thesis 6)Ana Matei MS young graduate in Biophysics joined our team as a laboratory technician.

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 -currently active.

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 -currently active.

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"**

## Publications

1. Elena Ioniță, Aurelian Marcu, Mihaela Temelie, Diana Savu, Mihai Șerbănescu and **Mihai Ciubotaru**, "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,
2. **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
3. **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, Impact Factor 9.12.
4. **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.
5. **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. Impact Factor 8.28.
6. 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, Impact Factor 12.71.
7. **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. Impact Factor 5.53.
8. 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. Impact Factor 5.52.
9. **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. Impact Factor 5.52.
10. **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. Impact Factor 4.77.
11. **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.

## Publications

12. 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, Impact Factor 5.79.

13. **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.

14. **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.

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

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1. **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.

Presentations  
at Scientific  
Conferences  
& Seminars

2. **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.

3. **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.

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

5. **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 11<sup>th</sup> Conference of Biomolecular Stereodynamics, 18 June, 1999, Albany, NY, USA.

Editorial Board  
Scientific  
Journals

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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).
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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>)
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