

Vlad Cojocaru - Curriculum vitae

Personal Details

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Publications

1. Vlad Cojocaru, Peter J. Winn, Rebecca C. Wade. The ins and outs of cytochrome P450s. *Biochimica et Biophysica Acta*. 2006 July 21; [Epub ahead of print]
2. Vlad Cojocaru, Reinhard Klement, and Thomas M. Jovin. 2005. Loss of G-A base pairs is insufficient for achieving a large opening of U4 snRNA K-turn motif. *Nucleic Acids Research*. **33**:3435-3446. (paper accompanied by the chosen cover of *Nucleic Acids Research*, vol. 33, issue 10)
3. Vlad Cojocaru, Stephanie Nottrott, Reinhard Klement, and Thomas M. Jovin. 2005. The snRNP 15.5K protein folds its cognate K-turn RNA: A combined theoretical and biochemical study. *RNA* **11**:197-209.
4. Jurg Stebler, Derek Spieler, Krasimir Slanchev, Klathleen A. Moyneaux, Ulrike Richter, Vlad Cojocaru, Victor Tarabykin, Chris Wylie, Michael Kessel, and Erez Raz 2004. Primordial germ cell migration in the chick and mouse embryo: the role of the chemokine SDF-1/CXCL12. *Dev Biol*. **272**:351-61.
5. Vlad Cojocaru 2005. Molecular motions at the 5' stem-loop of U4 snRNA: Implications for U4/U6 snRNP assembly. Doctoral dissertation published online by the Georg-August-University Goettingen: <http://webdoc.sub.gwdg.de/diss/2005/cojocaru/>

Education

1) October 2000 – July 2005

International Max Planck Research School Molecular Biology (International MSc/PhD Program) Göttingen, Germany, co-organized by the Georg-August University and Max Planck Institutes for Biophysical Chemistry and Experimental Medicine.

URL: <http://www.gpmolbio.uni-goettingen.de/>

1.1) October 2001 – July 2005

Max Planck Institute for Biophysical Chemistry, Göttingen, Germany

Laboratory of **Dr. Thomas Jovin** (disputation 28.06.2005)

PhD awarded by Goettingen University with a total grade of “magna cum laude”

1.2) October 2000 – September 2001

Preparatory Year: Graduated with a total grade of 2.0 (very good)

Lectures and Method Courses covering different topics:

- Biochemistry and Structural Biology,
- Molecular Genetics,
- Functional Organization of the Cell,
- Model Systems of Molecular Biology

Three Laboratory Rotations (see Research Experience)

2) September 1999 – September 2000

West University of Timi oara, Romania

Master Program: “The chemistry of biologically active compounds” (interrupted after I joined the MSc/PhD program in Göttingen). Reference: Prof. Dr. Tudor Oprea

3) October 1995 – June 1999

West University of Timi oara, Romania

Physics-Chemistry Faculty (Graduated with a total grade of 9.64 out of 10.00)

BSc Thesis: “Chemical analysis of milk and milk products”

Research Experience

<p>Oct. 2001 – Sept. 2005 Max Planck Institute for Biophysical Chemistry Laboratory of Dr. Thomas Jovin Göttingen, Germany PhD thesis + 2 months of postdoctoral studies</p> <p>References: Dr. Thomas Jovin and Reinhard Klement</p>	<p>Title: “Molecular motions at the 5’ stem-loop of U4 snRNA: Implications for U4/U6 snRNP assembly”</p> <p><u>Methods:</u> Molecular dynamics simulations, locally enhanced sampling, essential dynamics, force field parameter development, simulated annealing, electrostatic calculations, molecular modeling, steady state fluorescence.</p>
<p>January 2001 – March 2001 Max Planck Institute for Biophysical Chemistry Laboratory of Dr. Thomas Jovin Göttingen, Germany Laboratory Rotation</p>	<p>Title: “Modeling of mixed DNA duplexes composed of one anti-parallel B or Z DNA flanked by two parallel stranded DNA in right-handed or left-handed conformation”</p> <p><u>Methods:</u> Molecular modeling</p>
<p>March 2001 – May 2001 Georg August University Laboratory of Prof. Dr. George Scheldrick Göttingen, Germany Laboratory Rotation</p>	<p>Title: “Structure determination of the sweet protein thaumatin using X-ray crystallography”</p> <p><u>Methods:</u> crystallization, structure determination by molecular replacement, crystal soaking, phasing via anomalous signal of iodide</p>

<p style="text-align: center;">May 2001 – July 2001 Georg August University Laboratory of Prof. Dr. Hans-Joachim Fritz Göttingen, Germany Laboratory Rotation</p>	<p>Title: “Uracil-DNA glycosylases in <i>Thermus thermophilus</i> : differences in primary sequence may lead to a different repair mechanism” <u>Methods</u> site-directed mutagenesis, PCR, cloning, gel electrophoresis</p>
<p style="text-align: center;">January 1999 – June 1999 West University Laboratory of Prof. Dr. Dumitru Tita Timi oara, Romania BSc Thesis</p>	<p>Title: “Chemical analysis of milk and milk products”</p>

Additional Experience

Teaching Experience

Teaching students of the International MSc/PhD Program in Göttingen:

- Tutorials in “DNA and chromatin structure”
- Methods course in “Molecular Modeling”

Scientific Meeting Organization

Former member of the organizing committee and chair of the Structural Biology section of the “Horizons in Molecular Biology” PhD student’s symposium in Göttingen, Germany (last meeting “Decoding Nature: Hierarchy of Interactions”, 17.03.05-19.03.05)

Scientific Conferences Attendance (Poster or oral presentation)

- Horizons in Molecular Biology PhD student’s symposium, Göttingen, Germany, December 2003, March 2005 – **poster presentation**

- Biannual meeting of the International Society of Quantum Biology and Pharmacology in Como (Italy) in June 2004, Strasbourg (France) in June 2006 – **poster presentations**
- EMBO conference on Structures in Biology, Heidelberg, Germany, Nov. 2004 – **poster presentation**
- RNA Structure and Function meeting, Edinburgh, Scotland, December 2004 – **poster presentation**
- Computer simulation & Theory of Macromolecules, Hühfeld, Germany, 22-24 April 2005 – **oral presentation**, May 2006 – **poster presentation**

Skills

Computer Knowledge

Operating Systems	SUSE LINUX 8.0++, UNIX, WINDOWS 95++
Molecular Modeling Software	AMBER, NAMD, VMD, GOPENMOL, GAUSSIAN, NAMOT, SYBYL, NAB, CURVES, RED, APBS, PDB and NDB databases
Other Software	MS OFFICE, XMGRACE, CORREL Suite, ENDNOTE, MATLAB (beginner level)
Programming Languages	PERL, TCL, CSH

Languages

fluent	Romanian, English, Spanish
good	German
average	French, Italian

Scholarships and Awards

1996-1999: Scholarship awarded for exceptional results during undergraduate studies, West University Timi oara, Romania

1999-2000: Scholarship for M.Sc. studies, West University Timi oara, Romania

2000-2001: Stipend, International M.Sc./Ph.D. Program, Georg August University Göttingen

2001-2005: PhD stipend, Max Planck Institute for Biophysical Chemistry, Göttingen

June 2004: Special award, 2nd ISQBPP President's meeting, Como, Italy

October 2005 – present: Post-Doc fellowship awarded by Klaus Tschira Foundation

Scientific Interests

In general terms, I am interested in dynamics of bio-molecular systems during biological processes. During my PhD I have been working on dynamical aspects of the RNA K-turn motif, which is a frequent RNA structural motif present in a variety of RNAs. I mainly applied computer simulations to investigate the system. Understanding the dynamics of individual RNA motifs is essential in our quest to elucidate the RNA folding process. In the future, I would like to continue doing computer simulations with the ultimate goal of simulating the dynamics of large structures such as the ribosome or the spliceosome. However, at present the computational methods are limited and the simulation of such large structures is still not a foreseeable goal. Therefore, in the near future I would like to explore a multitude of simulation techniques and apply them to study dynamics of large bio-molecular systems. Additionally, I would like to contribute to the development of new methods. I believe that the field of computer simulations has very exciting perspectives and new methods will emerge that will introduce more accuracy and less size dependency. I am also open to learn new experimental techniques that may be used to prove or disprove the simulations outcome. I believe that collaborations are vital for the success of a scientific project.

Other Interests & Hobbies

The reform of the Romanian scientific research (member of the Ad-Astra society <http://www.adastra.ro>),
Mountain trips, Football, Tennis, Rock Music

References

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