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EDUCATION

**University of British Columbia, Department of Biochemistry and
Molecular Biology, Vancouver, Canada**

Ph.D., Molecular Biology, January 2002

- Thesis: Ribonucleoprotein particles guide 2'-O-ribose methylation of rRNA in the archaeal genus *Sulfolobus*

University of Rennes I, Department of Biochemistry, Rennes, France

M.Sc., Non-thesis degree, June 1994

Polytechnic Institute of Bucharest, Bucharest, Romania

B.Sc., Biochemistry, June 1989

- Thesis: Spectrofluorimetric study of the biotin-avidin complex with nucleic acids

EXPERIENCE

**University of British Columbia, Department of Biochemistry and
Molecular Biology, Vancouver, Canada**

NSERC Discovery grantee and Instructor of Biochemistry:

September 2003 to present

Research

- Characterized novel families of non-coding RNAs in the hyperthermophilic archaeon *Sulfolobus solfataricus*.
- Trained and mentored six students throughout their research projects

Teaching

- Expanded the topics taught in a 3rd year biochemistry laboratory, allowing students exposure to an array of modern techniques used in protein and nucleic acid biochemical research and including PCR, RT-PCR, manual and/or automated DNA and RNA sequencing, in vitro transcription of DNA into RNA, in vitro translation of RNA into protein, overexpression of recombinant proteins, chromatographic purification methods and electrophoretic analysis of proteins, propagation of bacterial cultures.

University of British Columbia, Department of Biochemistry and Molecular Biology, Vancouver, Canada

Advisor: Patrick P. Dennis

Postdoctoral Fellow: January 2002 - August 2003

- Investigated the composition and assembly pathway of C/D box ribonucleoprotein (RNP) particles in Archaea.
- Demonstrated methylation activity on non-ribosomal RNA targets.
- Contributed to the structural characterization by X-ray crystallography of C/D box RNP complexes (a collaborative project with R. Luhrmann at Max-Planck Institute for Biophysical Chemistry and Dr R. Ficner at the University Georg-August, Goettingen, Germany).
- Refined the kinetic assay for *in vitro* guide directed methylation.

University of British Columbia, Department of Biochemistry and Molecular Biology, Vancouver, Canada

Thesis advisor: Patrick P. Dennis

Graduate Student: September, 1996 - January, 2002

- Identified the occurrence of methylation guide C/D box RNAs, in Archaea.
- Demonstrated methylase activity for archaeal Fibrillarin.
- Developed the first *in vitro* system for the study of assembly and activity of methylation guide RNP complexes.

Max-Planck Institute for Biophysical Chemistry, Goettingen, Germany

Visiting student: Dr R. Luhrmann Laboratory, October-November, 2001

- Initiated the structural characterization by X-ray crystallography of RNA-protein complexes responsible for methylation of RNA targets.

National Institute of Health and Medical Research (INSERM), Nutrition Lipoproteic Metabolism and Atherosclerosis, Rennes, France

Research assistant: 1994 – 1995

- Participated in the study of molecular mechanisms controlling lipid transport in human tissues

National Institute of Agronomic Research (INRA), Animal Genetics Laboratory, Rennes, France

Research assistant: 1993 – 1994

- Participated in the study of cis-acting elements that regulate stearoyl Co-A desaturase gene in chicken liver

Institute of Research and Environmental Engineering, Air Quality Monitoring and Managing Laboratory, Bucharest, Romania

Biochemist: 1989 – 1991

- Analyzed and integrated data on trace-level pollutants detected in air samples.

CONFERENCES

- *Gordon Conference on Archaea: Ecology, Metabolism and Molecular Biology*, Oxford, UK - August, 2005
(Invited speaker)
- *IUMS-XI international Congress of Bacteriology and Applied Microbiology*, San Francisco, California - July 2005
(Invited speaker)
- *Gordon Conference on Archaea: Ecology, Metabolism and Molecular Biology*, Andover, New Hampshire - August, 2003 (Invited speaker)
- *Gordon Conference on Archaea: Ecology, Metabolism and Molecular Biology*, Andover, New Hampshire - August, 2001 (Oral presentation)
- *6th Annual Meeting of the RNA Society*, Banff, Alberta - June 2001 (Oral and poster presentation)
- *8th International Conference on Small Genomes*, Lake Arrowhead, California - October 2000 (Poster presentation)
- *Canadian Institute for Advanced Research, Evolutionary Biology Annual Meeting*, Banff, Alberta - October 1999
(Oral presentation)
- *Gordon Conference on Archaea: Ecology, Metabolism and Molecular Biology*, Andover, New Hampshire - August, 1999 (Oral presentation)

AWARDS

- University of BC Graduate Fellowship: 1996 – 1997.
- Marianne Huyer Memorial Prize: 2002.
- NSERC University Faculty Award: 2003.

PUBLICATIONS

1. Homologs of small nucleolar RNAs in Archaea. *Science*, 2000 Apr 21; 288(5465): 517-522. **Arina D. Omer**, Todd M. Lowe, Anthony G. Russell, Holger Ebhardt, Sean R. Eddy, Patrick P. Dennis.
2. Genome sequence of Halobacterium species NRC-1. *Proc Natl Acad Sci U S A*, 2000 Oct 24; 97(22): 12176-12181. Wailap Victor Ng, Sean P. Kennedy, Gregory G. Mahairas, Brian Berquist, Min Pan, Hem Dutt Shukla, Stephen R. Lasky, Nitin S. Baliga, Vesteinn Thorsson, Jennifer Sbrogna, Steven Swartzell, Douglas Weir, John Hall, Timothy A. Dahl, Russell Welti, Young Ah Goo, Brent Leithauser, Kim Keller, Randy Cruz, Michael J. Danson, David W. Hough, Deborah G. Maddocks, Peter E. Jablonski, Mark P. Krebs, Christine M. Angevine, Heather Dale, Thomas A. Isenbarger, Ronald F. Peck, Mechthild Pohlschroder, John L. Spudich, Kwang-Hwan Jung, Maqseudul Alam, Tracey Freitas, Shaobin Hou, Charles J. Daniels, Patrick P. Dennis, **Arina D. Omer**, Holger Ebhardt, Todd M. Lowe, Ping Liang, Monica Riley, Leroy Hood, and Shiladitya DasSarma.
3. A guided tour: small RNA function in Archaea. *Mol Microbiol.* 2001 May; 40(3): 509-519. Patrick P. Dennis, **Arina D. Omer**, Todd Lowe.
4. *In vitro* reconstitution and activity of a C/D box methylation guide ribonucleoprotein complex. *Proc Natl Acad Sci U S A*, 2002 Apr 16; 99(8): 5289-5294. **Arina D. Omer**, Sonia Ziesche, Holger Ebhardt, Patrick P. Dennis.
5. RNA-modifying machines in Archaea. *Mol Microbiol.* 2003 May; 48 (3): 617-29 **Arina D. Omer**, Sonia Ziesche, Wayne A. Decatur, Maurille J. Fournier and Patrick P. Dennis.

6. RNA guided nucleotide modification of ribosomal and non-ribosomal RNAs in Archaea. S. Ziesche, **Arina D. Omer** and Patrick P. Dennis. *Mol Microbiol.* 2004, Nov; 54(4): 980-993. **Note:** S. Ziesche and A.D. Omer contributed equally to this work.
7. The expanding world of small RNAs in the hyperthermophilic archaeon *Sulfolobus solfataricus*. Maria. A. Zago, Patrick P. Dennis and **Arina D. Omer**. *Mol Microbiol.* 2005 Mar; 55(6):1812-28.
8. Small non coding RNAs in Archaea. Patrick P. Dennis and **Arina Omer**. *Curr Opin Microbiol.* 2005, 8 (6). (In press)
9. The expanding world of small non-coding RNAs in Archaea. **Arina Omer**, Maria. A. Zago and Patrick P. Dennis. Book chapter in *Archaea – evolution, biology and molecular biology*. Hans-Peter Klenk and Roger Garrett (ed.). 2006. (In press)
10. Probing the structure and function of an archaeal C/D box methylation-guide sRNA. **Arina D. Omer**, Alex Chang, Maria Zago and Patrick P. Dennis. 2005. (Submitted)

LANGUAGE ABILITY

Fluent in English and French

REFERENCES

Patrick P. Dennis
Maurille J. Fournier
John N. Reeve
Charles J. Daniels