

Curriculum Vitae
Olga Zhaxybayeva

Simons Foundation Investigator in Mathematical Modeling of Living Systems
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A. BACKGROUND

EDUCATION AND PROFESSIONAL PREPARATION

- 01/2005 – 08/2009** – **Postdoctoral Fellowship**, Department of Biochemistry and Molecular Biology, Dalhousie University, Halifax, NS, Canada. *Postdoctoral Mentor: W. Ford Doolittle.*
- 09/1998 – 11/2004** – **Ph.D. in Genetics**, Department of Molecular and Cell Biology, University of Connecticut, Storrs, CT, USA. *Advisor: J. Peter Gogarten*
- 09/1993 – 06/1997** – **B.Sc. (cum laude) in Applied Mathematics**, with concentration in mathematical physics and mathematical modeling, Department of Mechanical Engineering and Applied Mathematics, Al-Farabi Kazakh State University, Almaty, Kazakhstan.
- 09/1990 – 06/1993** – Physicomathematical Lycée of Almaty - high school with special emphasis on education in Physics and Mathematics, Almaty, Kazakhstan.

ADDITIONAL TRAINING

- 10/2007** – **Power Scripting Certificate**, National Center for Biotechnology Information, NIH, Bethesda, MD, USA, October 16-19, 2007
- 01/2006-04/2007** – **Certificate in Computer Graphics**, Nova Scotia College of Art and Design (NSCAD), Halifax, NS, Canada.

POSTGRADUATE WORK EXPERIENCE

- 07/2012–present** – **Assistant Professor**, Department of Biological Sciences, Dartmouth College, Hanover, NH, USA.
- Adjunct Assistant Professor**, Department of Computer Science, Dartmouth College, Hanover, NH, USA.
- 01/2011–06/2012** – **Assistant Professor**, Biology Department, West Virginia University, Morgantown, WV, USA.

- 09/2010 – 12/2010** **Research Associate** (W.F. Doolittle Lab), Department of Biochemistry and Molecular Biology, Dalhousie University, Halifax, NS, Canada.
- 08/2009 – 07/2010** **Senior Bioinformatics Scientist**, Environmental Proteomics NB Inc., Sackville, NB, Canada.
- 12/2009 – 04/2010** **Part Time Lecturer I**, Department of Chemistry and Biochemistry, Mount Allison University, Sackville, NB.

FELLOWSHIPS AND HONORS

- 08/2014-present** Simons Foundation Investigator in Mathematical Modeling of Living Systems
- 07/2005 – 06/2008** Canadian Institutes of Health Research (CIHR) Postdoctoral Fellowship
- 05/2005 – 05/2007** Honorary Killam Postdoctoral Fellowship, Dalhousie University
- 07/2004** Doctoral Dissertation Fellowship, University of Connecticut
- 07/2001** Professor Claire M. Berg Fellowship in Genetics, University of Connecticut
- 07/1997 – 08/1997** NASA Planetary Biology Internship

TRAVEL AWARDS

- 03/2005** NSF travel award to attend World Summit on Evolution on Galapagos Islands, Ecuador, June 9-12, 2005
- 04/2002** Travel grant to attend 2nd Astrobiology Science Conference at NASA's Ames Research Center April 7-11, 2002
- 04/2001** Travel grant to attend 2001 meeting of the NASA Astrobiology Institute at the Carnegie Institution of Washington, Washington DC, April 10-12, 2001
- 10/2000** Grant to attend Short Course on the Mathematics of Biological Complexity: Complexity in Evolutionary Biology - Genetic Algorithms, Cellular Automata and Adaptive Landscapes
- 07/1996** Travel grant from the International Society for the Study of the Origin of Life (ISSOL) to attend ISSOL'96 meeting, Orleans, France

B. RESEARCH

PUBLICATIONS

Under review

1. Migun Shakya, Shannon M. Soucy, and **Olga Zhaxybayeva**: "Insights into Origin and Evolution of alpha-proteobacterial Gene Transfer Agents". Pre-print is available in *bioRxiv*, <https://doi.org/10.1101/189738>.

Peer-reviewed research publications

(Web of Science Stats: *cited 1969 times, h-index 22*; Google Scholar Stats: *h-index 26, i10-index 37*)

47. Stephen Pollo, Abigail A. Adebusuyi, Timothy S. Straub*, Julia Foght, **Olga Zhaxybayeva** and Camilla L. Nesbø: "Genomic insights and temperature-dependent transcriptional responses of *Kosmotoga olearia*, a deep-biosphere bacterium that can grow from 20° to 79°C", *Extremophiles*, 2017, E-pub ahead of print Sept 11.

*Dartmouth MCB graduate student

46. Timothy S. Straub* and **Olga Zhaxybayeva**: "A null model for microbial diversification". *Proc Natl Acad Sci U S A*, 2017, **114**: E5414-E5423.

*Dartmouth MCB graduate student

45. Hynes AP, Shakya M, Mercer RG, Grull MP, Bown L, Davidson F, Steffen E, Matchem H, Peach ME, Berger T, Grebe K, **Zhaxybayeva O***, Lang AS*: "Functional and Evolutionary Characterization of a Gene Transfer Agent's Multilocus 'Genome'", *Mol Biol Evol.* 2016, **33**: 2530-43.

*co-corresponding authors

44. Lori R. Shapiro, Erin D. Scully, Timothy J. Straub*, Jihye Park, Andrew G. Stephenson, Gwyn Beattie, Mark Gleason, Roberto Kolter, Miguel C. Coelho, Consuelo M. DeMoraes, Mark C. Mescher, and **Olga Zhaxybayeva**: "Horizontal Gene Acquisitions, Mobile Element Proliferation, and Genome Decay in the Host-Restricted Plant Pathogen *Erwinia tracheiphila*", *Genome Biol Evol.* 2016, **8**:649-664. *The article was highlighted in a Scientific American story.*

*Dartmouth MCB graduate student

43. Stephen M Pollo, **Olga Zhaxybayeva**, and Camilla L Nesbø: "Insights into thermoadaptation and the evolution of mesophily from the bacterial phylum Thermotogae", *Can J Microbiol.* 2015, **61**:655-70.

42. Shapiro LR, Scully ED, Roberts D, Straub TJ*, Geib SM, Park J, Stephenson AG, Salaaou Rojas E, Liu Q, Beattie G, Gleason M, De Moraes CM, Mescher MC, Fleischer SG, Kolter R, Pierce N, **Zhaxybayeva O.** "Draft Genome Sequence of *Erwinia tracheiphila*, an Economically Important Bacterial Pathogen of Cucurbits", *Genome Announc.* 2015, **3**: e00482-15.

*Dartmouth MCB graduate student

41. Julien Lossouarn, Camilla L. Nesbø, Coraline Mercier, **Olga Zhaxybayeva**, Milo S. Johnson^{13*}, Rhianna Charchuck, Julien Farasin, Nadège Bienvenu, Anne-Claire Baudoux, Grégoire Michoud, Mohamed Jebbar and Claire Geslin. "'Ménage à trois': a selfish genetic element uses a virus to propagate within Thermotogales", *Environ Microbiol.* 2015, **17**:3278-88.

*Dartmouth undergraduate student

40. Camilla L. Nesbø, Kristen Swithers, Håkon Dahle, Thomas H. A. Haverkamp, Nils-Kåre Birkeland, Tatiana Sokolova, Ilya Kublanov and **Olga Zhaxybayeva**: “Evidence for extensive gene flow and Thermotoga subpopulations in subsurface and marine environments”, *ISME J.*, 2015 **9**:1532-42. *The article was highlighted in a Scientific American story.*
39. Caroline E. Whidden, Katrina G. DeZeeuw, Jackie K. Zorz, Andrew P. Joy, David A. Barnett, Milo S. Johnson^{13*}, **Olga Zhaxybayeva**^{**}, and Amanda M. Cockshutt^{**}: “Quantitative and Functional Characterization of the Hyper-Conserved Protein of *Prochlorococcus* and marine *Synechococcus*”, *PLoS ONE*, 2014, **9**: e109327.
*Dartmouth undergraduate student
** co-corresponding authors
38. Douglas A. Campbell, Zakir Hossain, Amanda M. Cockshutt, **Olga Zhaxybayeva**, Hongyan Wu, and Gang Li: “Photosystem II protein clearance and FtsH function in the diatom *Thalassiosira pseudonana*”, *Photosynthesis Research*, 2013, **115**: 43-54.
37. **Olga Zhaxybayeva**, Ramunas Stepanauskas, Nikhil R. Mohan, and R. Thane Papke: "Cell sorting analysis of geographically separated hypersaline environments", *Extremophiles*, 2013, **17**: 265-75.
36. **Olga Zhaxybayeva**, Kristen S. Swithers, Julia Foght, Anna Green, Brittany Held, David Bruce, Chris Detter, Shunsheng Han, Hazuki Teshima, James Han, Tanja Woyke, Sam Pitluck, Len Pennacchio, Matt Nolan, Natalia Ivanova, Amrita Pati, Miriam L. Land, Marlena Dlutek, W. Ford Doolittle, Kenneth M. Noll and Camilla L. Nesbø: “Genome sequence of the mesophilic Thermotogales bacterium *Mesotoga prima* MesG1.Ag.4.2 reveals largest Thermotogales genome to-date”, *Genome Biology and Evolution*, 2012, **4**: 700-708. *The article was listed among 50 most-read GBE articles in the months of July and August (2012).*
35. Andrew S. Lang, **Olga Zhaxybayeva**, and J. Thomas Beatty: “Gene Transfer Agents: phage-like elements of genetic exchange”, *Nature Reviews in Microbiology*, 2012, **10**: 472-482
34. Feglou Mao, David Williams, **Olga Zhaxybayeva**, Maria Poptsova, J. Peter Gogarten and Ying Xu: “Quartet Decomposition Server: A Platform for Analyzing Phylogenetic Trees”, *BMC Bioinformatics*, 2012, **13**:123.
33. **Olga Zhaxybayeva** and W. Ford Doolittle: “Lateral Gene Transfer. A Primer”, *Current Biology*, 2011, **21**: R242-6.
32. W. Ford Doolittle and **Olga Zhaxybayeva**: “Metagenomics and the units of biological organization”, *BioScience*, 2010, **60**: 102-112.
31. **Olga Zhaxybayeva**, W. Ford Doolittle, R. Thane Papke and J. Peter Gogarten: “Intertwined Evolutionary Histories of Marine *Synechococcus* and *Prochlorococcus marinus*”, *Genome Biology and Evolution*, 2009, **1**: 325–339.
30. W. Ford Doolittle and **Olga Zhaxybayeva**: On the origin of prokaryotic species, *Genome Research* 2009, **19**:744-56.
29. **Olga Zhaxybayeva**, Kristen Swithers, Pascal Lapierre, Greg Fournier, Derek Bickhard, Robert T. DeBoy, Karen E. Nelson, Camilla L. Nesbø, W. Ford Doolittle, J. Peter Gogarten and Kenneth M. Noll: “On the Chimeric Nature, Thermophilic Origin and Phylogenetic Placement of the Thermotogales”, *Proc Natl Acad Sci USA*, 2009, **106**:5865-70.
28. Camilla L. Nesbø, Eric Bapteste, Bruce Curtis, Håkon Dahle, Philippe Lopez, Dave Macleod, Marlena Dlutek, Sharen Bowman, Angie Lewis, **Olga Zhaxybayeva**, Nils-Kåre Birkeland and W. Ford Doolittle: “The genome of *Thermosipho africanus* TCF52B: lateral genetic connections to the Firmicutes and Archaea”, *J.Bact.*, 2009, **191**:1974-8.

27. Lutz Hamel, Neha Nahar, Maria S. Poptsova, **Olga Zhaxybayeva** and J. Peter Gogarten: “Unsupervised Learning in Detection of Gene Transfer”, *Journal of Biomedicine and Biotechnology*, 2008, **2008**: 472719.
26. Adrian K. Sharma, **Olga Zhaxybayeva**, R. Thane Papke and W. Ford Doolittle: “Actinorhodopsins: proteorhodopsin-like gene sequences found predominantly in non-marine environments”, *Environmental Microbiology*, 2008, **10**: 1039–1056. *The article was highlighted in Nature Reviews Microbiology, doi:10.1038/nrmicro1865.*
25. Jeremy Koenig, Yan Boucher, Robert Charlebois, Camilla Nesbø, **Olga Zhaxybayeva**, Eric Bapteste, Matthew Spencer, H. W. Stokes and W. Ford Doolittle: “Integron-associated gene cassettes in Halifax Harbour: assessment of a mobile gene pool in marine sediments”, *Environmental Microbiology*, 2008, **10**: 1024–1038.
24. J Peter Gogarten, Gregory Fournier and **Olga Zhaxybayeva**: “Gene transfer and the reconstruction of life’s early history from the molecular record”, *Space Science Reviews*, 2008, **135**: 115-131
23. Lutz Hamel, Neha Nahar, Maria S. Poptsova, J. Peter Gogarten and **Olga Zhaxybayeva** “Unsupervised Learning in Spectral Genome Analysis”, *Proceeding of the IEEE Conference Frontiers in the Convergence of Bioscience and Information Technologies (FBIT 2007)*, October 2007, pp.317 - 321, IEEE Press, ISBN 0-7695-2999-2.
22. R. Thane Papke, **Olga Zhaxybayeva**, Edward Feil, Katrin Sommerfeld, Denise Muise, W. Ford Doolittle: “Searching for species in haloarchaea”, *Proc Natl Acad Sci USA*, 2007, **104**: 14092-14097, published online August 21, 2007.
21. **Olga Zhaxybayeva**, J Peter Gogarten and W. Ford Doolittle: “A hyperconserved protein in *Prochlorococcus* and marine *Synechococcus*”, *FEMS Microbiology Letters*, 2007, **274**: 30-34.
20. W. Ford Doolittle and **Olga Zhaxybayeva**: “Evolution: reducible complexity - the case for bacterial flagella”, *Current Biology*, 2007, **17**: R510-R512.
19. Sara Cuadros-Orellana, Ana-Belen Martin-Cuadrado, Boris Legault, Giuseppe D’Auria, **Olga Zhaxybayeva**, R. Thane Papke, Francisco Rodriguez-Valera: “Genomic Plasticity in Prokaryotes: the Case of the Square Haloarchaeon”, *ISME Journal*, 2007, **1**, 235–245.
18. **Olga Zhaxybayeva**, Camilla L. Nesbø and W. Ford Doolittle: “Systematic overestimation of gene gain through false diagnosis of gene absence”, *Genome Biology*, 2007, **8**:402.
17. "The Astrobiology Primer: An Outline of General Knowledge. Version 1, 2006". Editors: L.J. Mix, J.C. Armstrong, A.M. Mandell, A.C. Mosier, J. Raymond, S.N. Raymond, F.J. Stewart, K. von Braun, and **O. Zhaxybayeva**, Authors: L. Billings, V. Cameron, M. Claire, G.J. Dick, S.D. Domagal-Goldman, E.J. Javaux, O.J. Johnson, C. Laws, M.S. Race, J. Rask, J.D. Rummel, R.T. Schelble, and S. Vance, *Astrobiology*, 2006, **6**: 735-813.
16. **Olga Zhaxybayeva**, J. Peter Gogarten, Robert L. Charlebois, W. Ford Doolittle and R. Thane Papke: “Phylogenetic Analyses of Cyanobacterial Genomes: Quantification of Horizontal Gene Transfer Events”, *Genome Research*, 2006, **16**:1099-1108. *This paper was “Recommended” by Jeffrey Lawrence (University of Pittsburgh) at Faculty of 1000, <http://f1000.com/1033799>.*
15. Camilla L. Nesbø, Marlana Dlutek, **Olga Zhaxybayeva** and W. Ford Doolittle: “Evidence for the existence of mesotogas – members of the Thermotogales adapted to low temperature environments”, *Applied and Environmental Microbiology*, 2006, **72**:5061-8.
14. **Olga Zhaxybayeva**, Pascal Lapierre and J. Peter Gogarten: "Ancient Gene Duplications and the Root(s) of the Tree of Life", *Protoplasma*, 2006, **227**:53-64.
13. Alessia Morandi, **Olga Zhaxybayeva**, J. Peter Gogarten and Joerg Graf: "Evolutionary and Diagnostic Implications of Intragenomic Heterogeneity in the 16S rRNA Gene in *Aeromonas* Strains", *J. Bact.*, 2005, **187**:6561-4.

12. Lutz Hamel, **Olga Zhaxybayeva** and J. Peter Gogarten: "PentaPlot: A software tool for the illustration of genome mosaicism", *BMC Bioinformatics*, 2005, **6**: 13.
11. Brianna L. Sollod, David Wilson, **Olga Zhaxybayeva**, J. Peter Gogarten, Roger Drinkwater, and Glenn F. King: "Were arachnids the first to use combinatorial peptide libraries?", *Peptides*, 2005, **26**: 131-139.
10. **Olga Zhaxybayeva**, Pascal Lapierre and J. Peter Gogarten: "Genome Mosaicism and Organismal Lineages", *Trends in Genetics* 2004, **20(5)**: 254-260.
9. **Olga Zhaxybayeva** and J. Peter Gogarten: "Cladogenesis, Coalescence and the Evolution of the Three Domains of Life", *Trends in Genetics* 2004, **20(4)**: 182-187.
8. **Olga Zhaxybayeva**, Lutz Hamel, Jason Raymond, and J. Peter Gogarten: "Visualization of Phylogenetic content of Five Genomes with Dekapentagonal Maps", *Genome Biology* 2004, **5**: R20
7. **Olga Zhaxybayeva** and J. Peter Gogarten: "Spliceosomal Introns: New Insights into Their Evolution", *Current Biology* 2003, **13**: R764-766
6. **Olga Zhaxybayeva** and J. Peter Gogarten. "An Improved Probability Mapping Approach to Assess Genome Mosaicism", *BMC Genomics* 2003 **4**: 37
5. Jason Raymond, **Olga Zhaxybayeva**, J. Peter Gogarten and Robert E. Blankenship: "Evolution of photosynthetic prokaryotes: a maximum-likelihood mapping approach", *Phil. Trans. R. Soc. Lond. B* 2003, **358**: 223-230.
4. Raymond, J.[#], **Zhaxybayeva, O.[#]**, Gogarten, J.P., Gerdes, S., Blankenship, R.E.: "Whole Genome Analysis of Photosynthetic Prokaryotes". *Science* 2002, **298**: 1616-1620.
- these authors contributed equally to the published work
This article was "Recommended" by Jeffrey Lawrence at Faculty of 1000, <http://f1000.com/1013791>
3. J. Peter Gogarten, Alireza G. Senejani, **Olga Zhaxybayeva**, Lorraine Olendzenski, and Elena Hilario: "Inteins: Structure, Function, and Evolution", *Annu. Rev. Microbiol.* 2002, **56**: 263-287
2. **Olga Zhaxybayeva**, J Peter Gogarten: "Bootstrap, Bayesian probability and maximum likelihood mapping: exploring new tools for comparative genome analyses". *BMC Genomics* 2002, **3**:4. *The article is designated as "Highly Accessed" at BioMedCentral, and was "Recommended" by Eugene Koonin (NIH) at Faculty of 1000, F1000.com/1005711.*
1. Olendzenski, L., Liu, L., **Zhaxybayeva, O.**, Murphey, R., Shin, D.G., and Gogarten, J.P. "Horizontal Transfer of Archaeal Genes into the Deinococcaceae: Detection by molecular and computer based approaches", *Journal of Molecular Evolution*, 2000, **51(6)**: 587-599.

Invited Perspectives and Book Reviews

3. **Olga Zhaxybayeva**: "Anciently duplicated genes reduce uncertainty in molecular clock estimates", *Proc Natl Acad Sci USA*, 2013, **110**:12168-9.
2. **Olga Zhaxybayeva**: "The Mystery of Eukaryotic Cell Origin". Book review of "*Secret Chambers: The Inside Story of Cells & Complex Life*" by Martin Brasier (Oxford University Press). *BioScience*, 2012, **62**: 997-998.
1. **Olga Zhaxybayeva** and J. Peter Gogarten: Review of "Cladistics: a practical primer on CD-ROM" by Peter Skelton and Andrew Smith, *Origin of Life and Evolution of Biospheres*, 2005, **35**: 69-71.

Book Chapters

10. W. Ford Doolittle and **Olga Zhaxybayeva** (2013): “What is a Prokaryote?”, pp. 21-37 in "The Prokaryotes: Prokaryotic Biology and Symbiotic Associations", 4th Ed. (Eds: E. Rosenberg, E. F. DeLong, S. Lory, E. Stackebrandt, F. Thompson), Springer.
9. **Zhaxybayeva, O.** (2009): Detection and quantitative assessment of horizontal gene transfer, chapter 11 in Horizontal Gene Transfer: Genomes in Flux (Eds. M. Gogarten, L. Olendzenski and JP Gogarten), Humana Press.
8. **Zhaxybayeva, O.**, Gogarten, J.P. and Olendzenski, L. (2008): Orthologs, Paralogs, and Xenologs in Human and Other Genomes (version 2.0), in Encyclopedia of Life Sciences (ELS), John Wiley and Sons, Ltd: Chichester.
7. Gogarten JP and **Zhaxybayeva O.** (2008): The role of gene transfer in microbial evolution. Chapter 6 in Computational Methods for Understanding Bacterial and Archaeal Genomes (eds. Y.Xu and J. P. Gogarten), Imperial College Press, London.
6. Doolittle WF, Nesbø CL, Baptiste E and **Zhaxybayeva O** (2007): Lateral Gene Transfer. Chapter 4 (pp. 45-79) in Evolutionary Genomics and Proteomics (eds. M Pagel and A Pomiankowski), Sinauer Associates, Sunderland, MA.
5. **Zhaxybayeva, O.** and Gogarten, JP (2007): Horizontal gene transfer, gene histories and the root of the tree of life. Chapter 9 (pp. 178-192) in Astrobiology and the Origins of Life, RE Pudritz, PG Higgs and J Stone (eds.), Cambridge University Press.
4. Olendzenski, L. **Zhaxybayeva, O.**, and Gogarten JP. (2004) A Brief History on Views of Prokaryotic Evolution and Taxonomy. In Microbial Genomes, CM Fraser, T Read and KE Nelson (eds), pp. 143-154, Humana Press.
3. Olendzenski, L., **Zhaxybayeva, O.**, and Gogarten, J.P. (2003): Orthologs, Paralogs and Xenologs in Human and other Genomes. In Encyclopedia of the Human Genome, Nature Publishing Group.
2. Olendzenski, L., **Zhaxybayeva, O.**, and Gogarten, J.P. 2002. Horizontal Gene Transfer: A new taxonomic principle? Chapter 34 in: Horizontal Gene Transfer 2nd ed., Syvanen, M. and Kado C.I. (eds.) Academic Press, London.
1. Olendzenski, L., **Zhaxybayeva, O.**, and Gogarten, J.P. 2001. What's in a Tree?: Does Horizontal Gene Transfer Determine Microbial Taxonomy? In: Cellular Origin and Life in Extreme Habitats, Vol 4: Symbiosis, Seckbach, J. (ed.) Kluwer Academic Publishers, Netherlands. p. 65-78.

Ph. D. Thesis

“Horizontal Gene Transfer and Innovation in Genome Evolution”, University of Connecticut, Storrs, CT, 2004 (adv. Dr. J. Peter Gogarten).

INVITED RESEARCH SEMINARS

- American Museum of Natural History, New York, NY, October 21, 2015
- Dartmouth’s Molecular and Cell Biology Graduate Program Retreat, Whitefield, NH, August 27, 2015
- Biology Department, Memorial University, St. John’s, NL, September 17, 2014
- Department of Earth Sciences, Dartmouth College, Hanover, NH, March 8, 2013
- Department of Biological Sciences, University of Alberta, Edmonton, AB, November 9, 2012

- Department of Computer Science, Dartmouth College, Hanover, NH, October 17, 2012
- Dartmouth's Molecular and Cell Biology Graduate Program Retreat, Whitefield, NH, August 31, 2012
- Department of Microbiology, Immunology and Cell Biology, West Virginia University School of Medicine, Morgantown, WV, March 22, 2012
- Department of Biology, University of Rochester, Rochester, NY, March 5, 2012
- Department of Biological Sciences, Dartmouth College, Hanover, NH, February 9, 2012
- Molecular and Cell Biology Department, University of Connecticut, Storrs, CT, May 27, 2010
- Biology Department, East Carolina University, Greenville, NC, March 31, 2010
- Biology Department, Pennsylvania State University, University Park, PA, March 23, 2010
- Biology Department, West Virginia University, Morgantown, WV, February 23, 2010
- Computer Science and Biology Departments, Memorial University, St. John's, NL, March 30, 2009
- Biology Department, Mount Allison University, Sackville, NB, October 28, 2008
- Centre de recherche du CHUL, Laval University, Quebec City, March 2, 2007
- Biology Department, University of Ottawa, Ottawa, September 6, 2006
- Biology Department, St. Lawrence University, Canton, NY, October 6, 2005
- National Center for Biotechnology Information (NCBI), Bethesda, MD, December 16, 2003
- Computer Science Department, University of Rhode Island, Kingston, RI, October 27, 2003

PRESENTATIONS AT SCIENTIFIC MEETINGS

Invited Talks

- “*A null model for microbial diversification*”, pre-conference workshop on "Species in the Age of Discordance", Evolution 2017 meeting, Portland, OR, June 23, 2017.
- “*On a puzzling relationship between a bacterium and its virus*”, Theory and Biology Conference, Simons Foundation, New York, NY, April 7, 2017
- Annual Meeting of Canadian Institute of Advanced Research (CIAR) Program in Evolutionary Biology, Vancouver Island, BC, September 15-19, 2005
- The 1st Astrobiology Graduate Conference (ABGradCon2004), Tucson, AZ, January 7-10, 2004

Contributed Talks

- Nesbø CL and **Zhaxybayeva O**, "*There is a World Going on Underground: Evolution of Bacterial Populations in Subsurface Environments*", Astrobiology Science Conference, Chicago, IL, June 15-19, 2015.
- **Olga Zhaxybayeva** and Camilla Nesbø: "*Mesotoga: A thermophile that is cooling off?*", Poster awardee 5 min. presentation, Thermophiles Conference, Big Sky, MT, September 11-16, 2011.
- **Olga Zhaxybayeva**: "*In Search of Clusters*", CIHR Microbiomics Workshop, Halifax, NS, June 8-9, 2011.
- **Olga Zhaxybayeva**, David Williams, Kristen Swithers and J. Peter Gogarten: "*Quartet Decomposition And Its Applications To Study Evolutionary Histories Of Genes In Genomes*", 6th International Symposium on

Bioinformatics Research and Applications, Storrs, CT, May 23-26, 2010.

Poster Presentations

- Soucy S.M., Shakya M., Chen X, and **Zhaxybayeva, O.** “Domestication of a virus by alpha-proteobacteria”, Evolution 2017 meeting, Portland, OR, June 23-27, 2017.
- Farrell A., **Zhaxybayeva O.**, Pollo S.M.J., Nesbø C. "Temperature-induced changes in gene expression and genome methylation of a deep-biosphere bacterium with a 20°-79°C growth range", Boston Bacterial Meeting, Cambridge, MA, June 16, 2017.
- **Olga Zhaxybayeva**, Stephen M. J. Pollo and Camilla L. Nesbø, "Temperature-induced transcriptional responses of a deep-biosphere bacterium illuminate its adaptation to growth from 20°C to 79°C", Molecular and Cell Biology retreat, Whitfield, NH. September 1-2, 2016
- Xin Chen and **Olga Zhaxybayeva**, "Could gene transfer agent still be a selfish genetic element? - An investigation via mathematical modeling", Molecular and Cell Biology retreat, Whitfield, NH. September 1-2, 2016
- **Olga Zhaxybayeva**, Stephen M. J. Pollo and Camilla L. Nesbø, "Temperature-induced transcriptional responses of a deep-biosphere bacterium illuminate its adaptation to growth from 20°C to 79°C", 16th International Symposium on Microbial Ecology, Montreal, QC, August 21-16, 2016.
- Xin Chen and **Olga Zhaxybayeva**, “Could gene transfer agent still be a selfish genetic element?”, The 22nd annual Boston Bacterial Meeting, Boston, MA, June 14 – 15, 2016.
- Xin Chen and **Olga Zhaxybayeva**, "Could gene transfer agent still be a selfish genetic element? - An investigation via mathematical modeling", Dartmouth's Microbiology and Molecular Pathogenesis (M2P2) Annual Retreat, Lake Morey Resort, Fairlee, VT, Feb 11-12 2016.
- Shakya M, Birnbaum DP, Neely TB, **Zhaxybayeva O**, "Gene Transfer Agents: Their Evolution and Potential Role in Microbial Cooperation", Dartmouth's Microbiology and Molecular Pathogenesis (M2P2) Annual Retreat, Lake Morey Resort, Fairlee, VT, Feb 11-12 2016.
- Shakya M, Birnbaum DP, Neely TB, **Zhaxybayeva O**, "Gene Transfer Agents: Their Evolution and Potential Role in Microbial Cooperation", Gordon Research Conference on Microbial Population Biology, Andover, NH, July 19-24, 2015.
- Shakya M, Birnbaum DP, Neely TB, **Zhaxybayeva O**, "Gene Transfer Agents: Their Evolution and Potential Role in Microbial Cooperation", Astrobiology Science Conference, Chicago, IL, June 15-19, 2015.
- Neely TB*, Shakya M, Birnbaum D, **Zhaxybayeva O**, "Identification of Gene Transfer Agents via a Support Vector Machine Approach", 24th Annual Karen E. Wetterhahn Science Symposium, Dartmouth College, Hanover, NH, May 28, 2015.
*Dartmouth undergraduate Presidential scholar
- Feng I*, **Shakya M, Chen X, Zhaxybayeva O**, "Bacterial DNA Modification in Response to Temperature Fluctuations", 24th Annual Karen E. Wetterhahn Science Symposium, Dartmouth College, Hanover, NH, May 28, 2015.
*Dartmouth undergraduate Sophomore Science scholar
- Shakya M, Neely TB, Birnbaum D, **Zhaxybayeva O**, "Origin and Evolution of Gene Transfer Agent in Alphaproteobacteria", Dartmouth's Microbiology and Molecular Pathogenesis (M2P2) Annual Retreat, Lake Morey Resort, Fairlee, VT, Feb 12-13 2015.
- Shakya M, Neely TB, Birnbaum D, **Zhaxybayeva O**, "Origin and Evolution of Gene Transfer Agent in Alphaproteobacteria", Annual Retreat, Dartmouth's Molecular and Cell Biology Graduate Program, Whitfield, NH. August 28-29, 2014.
- 114th General Meeting of the American Society for Microbiology, Boston, MA, May 17-20, 2014:

- S. Pollo, J. Foght, **O. Zhaxybayeva**, C. L. Nesbø. *Transcriptional Responses to Temperature Shifts in Kosmotoga olearia, a Bacterium Capable of Growth between 20°C and 80°C.*
- R. Charchuk, **O. Zhaxybayeva**, J. Foght, C. L. Nesbø. *Biogeography of Mesotoga in Hydrocarbon-Impacted Environments: Evidence for both Global and Endemic Lineages.*
- Boston Bacterial Meeting (BBM 2014), Harvard University, Cambridge, MA, June 12-13, 2014:
 - Timothy Straub and **Olga Zhaxybayeva**. “Phylogenetic pattern formation under neutral evolutionary models and its implication for the definition of prokaryotic species.”
 - Migun Shakya and **Olga Zhaxybayeva**. “Distinguishing Gene Transfer Agent genes from their phage homologs”.
- **O. Zhaxybayeva**, R. Stepanauskas, N. Ram Mohan, R.T. Papke. *Cell-sorting analysis of geographically separated hypersaline environments*, Halophiles 2013, Storrs, CT, USA, June 23-27, 2013. **Winner of the Poster Award.**
- C.L. Nesbø, K.S. Swithers, **O. Zhaxybayeva**. *Phylogeography of Thermotoga isolates*, 113th General Meeting of American Society for Microbiology, Denver, CO, May 18-21, 2013.
- C.L. Nesbø, N. A. Laban, J. Fowler, L. Gieg, J. Foght, and **O. Zhaxybayeva**. *Mesotoga lineages: important bacterial constituents of the ‘rare biosphere’ in polluted environments*, ISME 14: The Power of the Small, Copenhagen, Denmark, August 19-24, 2012.
- C.L. Nesbø, C. Geslin, J. Lossouarn, M. Jebbar and **O. Zhaxybayeva**. *Discovery and Characterization of the First Prophage in Thermotogales: a Tailed Bacteriophage Predicted to Infect Thermosipho and Thermotoga*, 112th General Meeting of American Society for Microbiology, San Francisco, CA, June 16-19, 2012.
- A.G. Green, K.S. Swithers, **O. Zhaxybayeva**, K.M. Noll, and J.P. Gogarten. *Reconstructing ancient RNA reveals biased evolution of optimal growth temperature in the Thermotogales*, 2012 Frontiers of Undergraduate Research, University of Connecticut, Storrs, CT, April 13-14, 2012.
- **O. Zhaxybayeva** and C. L. Nesbø. *Mesotoga: A thermophile that is cooling off?*, Thermophiles Conference, Big Sky, MT, September 11-16, 2011. **Winner of the Best Poster Award.**
- L.P. Henry, A.K.Snyder, **O. Zhaxybayeva** and R.V.M. Rio: *Tsetse fly (Diptera:Glossinidae) endosymbionts’ genomic evolution leads to specialization and complementation*, 2011 Summer Undergraduate Research Symposium, West Virginia University, Morgantown, WV, July 28, 2011.
- K. DeZeeuw, J.K. Zorz, **O. Zhaxybayeva** and A. Cockshutt: *The Prochlorococcus/Synechococcus Hyper-Conserved Protein (PS-HCP) Gene Encodes a Highly Expressed Basic Protein in Picocyanobacteria*, 61st Annual Conference of Canadian Society of Microbiologists, St. John’s, NL, Canada, June 20-23, 2011.
- A. G. Green, K. Swithers, **O. Zhaxybayeva**, J. P. Gogarten and K. M. Noll: *Genomic Signals for Thermophily in the Thermotogales*, 111th General Meeting of the American Society for Microbiology, New Orleans, May 21-24, 2011.
- K. Swithers, D. Williams, **O. Zhaxybayeva** and J. P. Gogarten: *Quartet Decomposition and Its Application to Study Evolutionary Histories of Genes in Genomes*, NEScent workshop on "Challenges for large-scale phylogeny and alignment estimation", Duke University, March 31-April 1, 2011.
- F. Mao, M. Poptsova, D. Williams, **O. Zhaxybayeva**, J. P. Gogarten and Y. Xu: *Quartet Decomposition Server: A Platform For Analyzing Phylogenetic Trees*, 6th International Symposium on Bioinformatics Research and Applications, Storrs, CT, May 23-26, 2010
- **O. Zhaxybayeva**, C. L. Nesbø, J. P. Gogarten, K. M. Noll and W. F. Doolittle: *Thermoadaptation in Thermotogales: a Computational Assessment*, Molecular and Cell Biology Department Retreat, University of Connecticut at Avery Point, Groton, CT, September 12, 2009.
- **O. Zhaxybayeva**, C. L. Nesbø, J. P. Gogarten, K. M. Noll and W. F. Doolittle: *Thermoadaptation in Thermotogales: a Computational Assessment*, 74th Symposium: Evolution – The Molecular Landscape, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, May 27- June 1, 2009.

- **O. Zhaxybayeva**, J. P. Gogarten, M. Poptsova, R. T. Papke and W. F. Doolittle: *Evolution of Prochlorococcus and marine Synechococcus: an update*, CIFAR Integrated Microbial Biodiversity program meeting, Vancouver, BC, October 9-12, 2007.
- **O. Zhaxybayeva**, J. P. Gogarten and W. F. Doolittle: *A hyperconserved protein in Prochlorococcus and marine Synechococcus*, UConn's MCB Department Annual Retreat, September 8, 2007, Tolland, CT.
- R. T. Papke, **O. Zhaxybayeva**, E. J. Feil, K. Sommerfeld, D. Muise, W. F. Doolittle: *Fuzzy Haloarchaeal Species*, SMBE annual meeting, Halifax, Nova Scotia, June 24-28, 2007. **Winner of the Postdoctoral Poster Presentation Award.**
- **O. Zhaxybayeva**, J. P. Gogarten and W. F. Doolittle: *A hyperconserved protein in Prochlorococcus and marine Synechococcus*, SMBE annual meeting, Halifax, Nova Scotia, June 24-28, 2007.
- J. Koenig, Y. Boucher, C. Nesbo, R. Charlebois, **O. Zhaxybayeva**, E. Baptiste, M. Spencer, M. Joss, H. Stokes and W.F. Doolittle: *Diversity and Distribution of a Mobile Gene Pool in Bacteria: Analysis of Wild Integron Gene Cassettes in Nova Scotia*. Annual Environmental Research Symposium. Dalhousie University, Halifax, Nova Scotia, Canada, November 2006.
- **O. Zhaxybayeva**, J. P. Gogarten, R. L. Charlebois, W. F. Doolittle and R. T. Papke: *Phylogenetic Analyses of Cyanobacterial Genomes: Quantification of Horizontal gene Transfer Events*, Phylogenomics Conference, Sainte-Adele, Quebec, March 15-19, 2006.
- **O. Zhaxybayeva**, R. T. Papke, W. F. Doolittle and J. P. Gogarten: *Spectral Analyses of Cyanobacterial Genomes: Quantification of Horizontally Transferred Genes*, Annual Meeting of CIAR Program in Evolutionary Biology, Vancouver Island, BC, September 15-19, 2005.
- **O. Zhaxybayeva**, R. T. Papke, W. F. Doolittle and J. P. Gogarten: *Spectral Analyses of Cyanobacterial Genomes: Quantification of Horizontally Transferred Genes*, World Summit on Evolution, Galapagos Islands, Ecuador, June 9-12, 2005.
- **O. Zhaxybayeva**, R. T. Papke, W. F. Doolittle and J. P. Gogarten: *Spectral Analyses of Cyanobacterial Genomes: Quantification of Horizontally Transferred Genes*, Astrobiology and the Origins of Life Conference, McMaster University, Hamilton, Ontario, Canada, May 24-28, 2005.
- **O. Zhaxybayeva**, R. T. Papke, W. F. Doolittle and J. P. Gogarten: *Spectral Analyses of Cyanobacterial Genomes: Quantification of Horizontally Transferred Genes*, International Conference on Microbial Genomes, Halifax, Nova Scotia, Canada, April 13 - 16, 2005.
- **O. Zhaxybayeva** and J. P. Gogarten: *Spectral Analyses of Completely Sequenced Genomes using Bipartitions and Embedded Quartets*, the 15th Annual New England Evolutionary Biologists Meeting (NEMEB), Tufts University, Medford, MA, November 6, 2004.
- **O. Zhaxybayeva** and J. P. Gogarten: *Spectral Analyses of Completely Sequenced Genomes using Bipartitions and Embedded Quartets*, Annual Meeting of the CIAR Evolutionary Biology Program, Hotel du Lac Carling, Pine Hill, Quebec, October 13-17, 2004.
- Posters presented at the Annual Retreat of the Department of Molecular and Cell Biology, University of Connecticut, Crandall Lodge, Tolland, CT, August 28, 2004:
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
 - *P. Lapiere, **O. Zhaxybayeva** and J. P. Gogarten. *Whole genome analyses on the class levels: is there a consensus phylogeny?*
- **O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life (Cladogenesis, coalescencia y la evolucion de los tres dominios de vida)*, the First meeting of Cuatrocienegas researchers, Coahuila, Mexico, 13-14 August, 2004
- Posters presented at Genomes and Evolution Meeting, The Pennsylvania State University, University Park, PA, June 17-20, 2004:

- ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
- ***P. Lapierre, O. Zhaxybayeva** and J. P. Gogarten. *Whole genome analyses on the class levels: is there a consensus phylogeny?*
- **O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*, the meeting on "Lateral Gene Transfer and the Origins of Eukaryotes", Harrison Hot Springs Resort, B.C., May 5-9, 2004
- Posters presented at Astrobiology Science Conference 2004, NASA Ames, March 28-April 1, 2004:
 - ***P. Lapierre, O. Zhaxybayeva** and J. P. Gogarten. *Whole genome analyses on the class levels: is there a consensus phylogeny?*
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
- ***P. Lapierre, O. Zhaxybayeva** and J. P. Gogarten: *Whole Genome Analyses on the Class Levels: Is there a Consensus Phylogeny?* Gordon Research Conference on Molecular Evolution, Ventura, CA, Feb 1-6, 2004
- **O. Zhaxybayeva** and J. P. Gogarten: *Visualization of Genome Mosaicism: New And Improved Methods*, the Evolutionary Genomics Meeting, University of Arizona, Tucson, AZ, January 15-17, 2004
- Posters presented at the 14th Annual New England Evolutionary Biologists Meeting (NEMEB), University of Connecticut, Storrs, CT, November 1, 2003:
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
 - ***O. Zhaxybayeva, L. Hamel, and J. P. Gogarten: An Improved Probability Mapping Approach**
- Posters presented at the Annual Meeting of the Canadian Institute for Advanced Research Evolutionary Biology Program at White Point Beach, Nova Scotia, Canada September 10-14, 2003:
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Detecting Ancient Duplications Using Whole Genome Data*
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
 - ***O. Zhaxybayeva, L. Hamel, and J. P. Gogarten: An Improved Probability Mapping Approach**
- Posters presented at the Annual Retreat of the Department of Molecular and Cell Biology, University of Connecticut, Crandall Lodge, Tolland, CT, September 6, 2003:
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Detecting Ancient Duplications Using Whole Genome Data*
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
 - ***O. Zhaxybayeva, L. Hamel, and J. P. Gogarten: An Improved Probability Mapping Approach**
- Posters presented at Exobiology Principal Investigators' Seventh Triennial Science Conference, NASA Ames Research Center, Moffett Field, CA, August 25-29, 2003:
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Detecting Ancient Duplications Using Whole Genome Data*
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Cladogenesis, Coalescence and the Evolution of the Three Domains of Life*
 - ***O. Zhaxybayeva, L. Hamel, and J. P. Gogarten: An Improved Probability Mapping Approach**
 - ***O. Zhaxybayeva** and J. P. Gogarten: *Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome Analyses*
- Posters presented at the Gordon Research Conference on the Origin of Life, Bates College, Maine, July 13-18, 2003:
 - ***O. Zhaxybayeva** and J. Peter Gogarten: "Detecting Ancient Duplications Using Whole Genome Data".
 - ***O. Zhaxybayeva** and J. Peter Gogarten: "Cladogenesis, Coalescence and the Evolution of the Three Domains of Life"

- **O. Zhaxybayeva** and J. Peter Gogarten: "Detecting Ancient Duplications Using Whole Genome Data". Poster presented at NASA Astrobiology Institute General Meeting, Tempe, AZ, February 10-12, 2003. **One of the 12 finalists for the Best Student Poster Presentation Award.**
- Posters presented at the Annual Meeting of the Canadian Institute for Advanced Research Evolutionary Biology Program at Harrison Hot Springs Resort, BC, Canada September 28th - October 2nd, 2002:
 - ***O. Zhaxybayeva** and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*"
 - ***O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Mosaicism in Genes and Genomes*"
- Posters presented at the 14th Annual Molecular and Cell Biology Retreat, September 7, 2002, Crandall Lodge, Tolland, CT:
 - ***O. Zhaxybayeva** and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*"
 - ***O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Mosaicism in Genes and Genomes*"
- **O. Zhaxybayeva** and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*", Gordon Research Conference on Genomics and Structural/Evolutionary Bioinformatics, Mount Holyoke College, South Hadley, MA, July 28 - August 2, 2002
- **O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Mosaicism in Genes and Genomes*", 10th ISSOL Meeting in Oaxaca, Mexico, June 30 - July 5, 2002
- **O. Zhaxybayeva** and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*", 10th ISSOL Meeting in Oaxaca, Mexico, June 30 - July 5, 2002
- Robert E. Blankenship, Jason R. Raymond, **Olga Zhaxybayeva**, and J. Peter Gogarten: "*Whole Genome Analyses of Photosynthetic Bacteria and the Evolution of Photosynthesis*", Discussion Meeting: Comparative functional genomics of chloroplasts, mitochondria and their bacterial homologues - new perspectives on symbiosis in cell evolution, The Royal Society of London, Wednesday 26th and Thursday 27th June 2002.
- J. R. Raymond, **O. Zhaxybayeva**, J. P. Gogarten, and R. E. Blankenship: "*Whole Genome Analyses of Photosynthetic Bacteria and the Evolution of Photosynthesis*", Gordon Research Conference on Photosynthesis, June 16-21, 2002, Roger Williams University, Bristol, RI.
- **O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*". Poster at the 2nd Astrobiology Science Conference at NASA's Ames Research Center April 7-11, 2002. A one page summary was published in "International Journal of Astrobiology"
- J. R. Raymond, R. E. Blankenship, **O. Zhaxybayeva**, and J. P. Gogarten: "*Whole Genome Analyses of Photosynthetic Bacteria and the Evolution of Photosynthesis*", Poster presented at the Second Astrobiology Science Conference, NASA AMES Research Center, April 7 - 11, 2002. A one page summary was published in "International Journal of Astrobiology". **Winner of the Student Poster Competition (2nd place).**
- Posters presented at the 2002 Gordon Research Conference on the Origin of Life in Ventura (CA):
 - * **O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Mosaicism in ribosomal RNA genes*."
 - * **O. Zhaxybayeva**, L. Olendzenski and J.P. Gogarten: "*Bootstrap, Bayesian Probability and Maximum Likelihood Mapping: Exploring New Tools for Comparative Genome analyses*."
- **O. Zhaxybayeva**, L. Olendzenski and J. P. Gogarten: "*Maximum Likelihood Mapping as Tool for Comparative Genome Analyses*". 3rd Georgia Tech - Emory International Conference on Bioinformatics: *In silico* Biology: Bioinformatics after Human Genome, Atlanta, GA, November 15-18, 2001
- New England Molecular Biologists Meeting (NEMEB) 2001, Smith College, MA, Nov. 3, 2001
 - * **O. Zhaxybayeva**, L. Olendzenski, J. P. Gogarten: "*Mosaicism in 16S rRNA genes*"
 - * **O. Zhaxybayeva** and J. P. Gogarten: "*Maximum Likelihood Mapping as Tool for Comparative Genome*"

Analyses

- * J. Draghi, **O. Zhaxybayeva** and J. P. Gogarten: *Resistor and Diode Networks as a Tool to Study Genome Evolution*
- 2001 meeting of the NASA Astrobiology Institute at the Carnegie Institution of Washington, Washington DC, April 10-12, 2001:
 - * **O. Zhaxybayeva**, L. Olendzenski, J. P. Gogarten: *Mosaicism in 16S rRNA genes*
 - * L. Olendzenski, **O. Zhaxybayeva**, J. P. Gogarten: *How Much Did Horizontal Gene Transfer Contribute to Early Evolution?: Quantifying Archaeal Genes in Two Bacterial Lineages*
 - * **O. Zhaxybayeva** and J. P. Gogarten: *Maximum Likelihood Mapping as Tool for Comparative Genome Analyses*
- International Conference on Complex Systems (ICCS) May 21-26, 2000 in Nashua, NH; **O. Zhaxybayeva**, L. Olendzenski, P. Gogarten, D.-G. Shin, L. Liu. *Comparative Analysis Of The Deinococcus Genome Indicates Infrequent Horizontal Transfer Between The Three Domains Of Life.*
- L. Olendzenski, **O. Zhaxybayeva**, J.P. Gogarten, D.-G. Shin, L. Liu. *Comparative Analysis Of The Deinococcus Genome Indicates Infrequent Horizontal Transfer Between The Three Domains Of Life.* First Astrobiology Science Conference meeting at NASA Ames, April 2nd to April 5th, 2000
- **O. Zhaxybayeva**, L. Olendzenski, J.P. Gogarten, L. Liu. *Comparative Analysis Of The Deinococcus Genome Indicates Infrequent Horizontal Transfer Between The Three Domains Of Life.* Presented at the 1999 meeting of the New England Molecular Evolutionary Biologists at SUNY Albany (Nov. 6)
- **O. Zhaxybayeva**, L. Olendzenski, J.P. Gogarten, L. Liu. *Comparative Analysis Of The Deinococcus Genome Indicates Infrequent Horizontal Transfer Between The Three Domains Of Life.* 12-th. Intern. Conference on the Origins of Life-Book of Abstracts. July 11-16, 1999, San Diego, CA, USA.
- **O. Zhaxybayeva** and P. Gogarten. *The Effects of Among Site Rate Variation on Phylogenetic Reconstruction from Amino Acid Sequences.* Poster presented at the First Internet-Extended Bioinformatics Conference, April 14 to April 24, 1998.
- J. P. Gogarten and **O. Zhaxybayeva**. *The Effects of Among Site Rate Variation on Phylogenetic Reconstruction from Amino Acid Sequences.* IXth Symposium on Chemical Evolution and the Origin and Evolution of Life at the NASA Ames Research Center meeting at NASA Ames, November 17-20, 1997 and at the NEMEB'97 meeting at Yale University (Nov. 2nd).
- **O. Zhaxybayeva**, T. P. Tourova. *Search For Specific Motifs In Nucleotide Sequences For Reconstruction Of Evolutionary History Of Organisms.* Gordon Research Conference on Origins of Life, Henniker, NH, July 27-August 1, 1997.
- **O. Zhaxybayeva**. *On Estimation of formal regularities of the Universal Genetic Code.* 1st Congress of Mathematicians of Kazakstan, Shymkent, September 11-15, 1996.
- **O. Zhaxybayeva**. *Statistical Estimation of Rumer's Transformation of the Universal Genetic Code.* 11-th. Intern. Conference on the Origins of Life-Book of Abstracts. Orléans, France July 7-12, 1996.

C. TEACHING

COURSES TAUGHT

- Spring 2017 Dartmouth College, Biology 47 (cross listed as Biology/EEES/QBS 147), *Genomics: from Data to Analysis*
- Winter 2017 Dartmouth College, Biology 15, *Genetic Variation and Evolution*
- Winter 2016 Dartmouth College, Biology 15, *Genetic Variation and Evolution*

- Spring 2015 Dartmouth College, Biology 47 (cross listed as Biology/QBS 147), *Genomics: from Data to Analysis*
- Spring 2015 Dartmouth College, Biology/Genetics/QBS 270, *Journal Club in Computational Biology*
- Winter 2015 Dartmouth College, Biology 15, *Genetic Variation and Evolution*
- Spring 2014 Dartmouth College, Biology 47, *Genomics: from Data to Analysis*
- Spring 2014 Dartmouth College, Biology/Genetics/QBS 270, *Journal Club in Computational Biology*
- Winter 2014 Dartmouth College, Biology 15, *Genetic Variation and Evolution*
- Spring 2013 Dartmouth College, Biology/Genetics/QBS 270, *Journal Club in Computational Biology*
- Winter 2013 Dartmouth College, Biology 15, *Genetic Variation and Evolution*
- Spring 2012 West Virginia University, Biology 493B/593K, *Bioinformatics*
- Winter 2010 Mount Allison University, *Introduction to Bioinformatics and Molecular Evolution*.
- Fall 2009,
- Winter 2010 *Microbial Ecology Reading Group*, Biology and Chemistry&Biochemistry Departments, Mount Allison University.
- 1999-2004 *Teaching Assistant* (Dept. of Molecular Biology and Evolution, Univ. of Connecticut; various courses)
- 2000-2002 *Instructor* (Dept. of Molecular Biology and Evolution, Univ. of Connecticut): MCB 396 (Computer Applications in Genomics)

UNDERGRADUATE, GRADUATE AND POST-DOCTORAL SCHOLARS' MENTORING

Current Lab Personnel: 1 postdoctoral fellow, 1 EEES graduate student, 1 undergraduate student.

Postdoctoral fellows:

September 2016 - present: Shannon Soucy (Ph.D., University of Connecticut)

March 2015-January 2017: Xin Chen (Ph.D., SUNY)

September 2013-August 2016: Migun Shakya (Ph.D., University of Tennessee)

Graduate students:

- **Fall 2016-present:** Anne Farrell (EEES graduate student)
- **Fall 2016:** Joshua Kerkaert (MCB rotation student)
- **Spring 2016:** Georgia Doing (MCB rotation student)
- **Summer 2013- Summer 2015:** Timothy Straub (Awarded M.Sc. from the MCB graduate program)
- **Fall 2014:** Jennifer Franks (QBS graduate program, rotation)
- **Summer 2013:** Diana Chernikova (M.D./Ph.D. graduate program, rotation)

Undergraduate and high-school students

- **Fall 2017:** Emma Esterman'20, undergraduate research assistant
- **Summer 2017:** Marya Poterek, NSF REU fellow
- **Summer 2016:** Camille Hankel, undergraduate research assistant

- **Fall 2014-Spring 2016:** Taylor Neely'16 (2015 Presidential Scholar, Bio 095 independent research and CS thesis research)
- **Winter, Spring, Fall 2014, Spring 2015:** Irene L. Feng'17 (WISP intern and Sophomore Science Scholar)
- **Summer 2014:** Daniel Birnbaum'14 (Undergraduate research assistant)
- **Winter, Spring, Summer 2013:** Milo Johnson'13 (Bio 095 independent research project and Research assistant).
- **Fall 2012:** Biology co-sponsor of Ryan Collins'13 (Bio 095 independent research project).
- **Spring 2012:** Advisor of Biology honor student (Victoria Hartley, West Virginia University)
- **Fall 2011:** Supervising high school student (Tim DiFazio, Morgantown, WV)
- **Summer 2011:** Co-advisor of Lucas Henry (Bard College; NSF-REU summer research fellow at Biology Department, West Virginia University)
- **Fall 2009-Winter 2010:** Co-advisor of Biochemistry honors student (Katrina DeZeeuw, Mount Allison University)
- **Fall 2003-Fall 2004:** Supervision of undergraduate students (Lina Pezzella and Hasan Khalil, University of Connecticut)
- **Summer 2003:** Supervision of high school student, Jan F. Gogarten (Mansfield, CT)

D. SERVICE

SERVICE TO THE PROFESSION

Of national and international scope

07/2015-06/2018 *Member of Editorial Board, mSystems journal (ASM press)*

2013-2015 *Member of Proposal Review Panels* for Department of Energy Joint Genome Institute Community Sequencing Program, National Science Foundation and NASA Postdoctoral Fellowships Program

01/2009-12/2013 *Member of Advisory Board* for NSF's Assembling the Tree of Life Program-funded project on "Horizontal gene transfer and among phyla relationships" (PI: J. Peter Gogarten, University of Connecticut.)

07/2007 *Meeting Reporter*, CIFAR Evolutionary Program Meeting, Halifax, NS, June 28-29, 2007.

Membership in Scientific Societies

- Associate Member of International Society for the Study of the Origin of Life (ISSOL) since 1996.
- Member of American Association for the Advancement of Science since 2009.

Ad hoc reviewer for the following peer-reviewed journals

Antonie van Leeuwenhoek, Archaea, BioSystems, Biology and Philosophy, BMC Evolutionary Biology, BMC Genomics, BMC Microbiology, Cell Systems, Current Biology, Environmental Microbiology, eLife, Extremophiles, Frontiers in Ecology and Evolution, F1000Research, Genome, Genome Biology, Genome Biology and Evolution, Geobiology, International Journal of Medical Microbiology, Journal of Bacteriology, Life, Molecular Biology and Evolution, Molecular Ecology, Molecular Phylogenetics and Evolution, Molecular

Systems Biology, Nature, Nucleic Acids Research, Photosynthesis Research, PLoS Computational Biology, PLoS Genetics, PLoS One, Proceedings of the National Academy of Sciences USA, Protist, Theory in Biosciences, Trends in Genetics, Trends in Microbiology

Ad hoc reviewer for the following funding agencies

Canadian Institutes of Health Research, Israel Science Foundation, National Science Foundation (USA), Natural Sciences and Engineering Research Council of Canada, New Hampshire Network of Biomedical Research Excellence, The National Aeronautics and Space Administration (USA), Simons Foundation, US-Israel Binational Science Foundation (BSF)

SERVICE TO UNIVERSITY

2017-present High Performance Computing Advisory Committee, Dartmouth College
2016-2019 Council on Computing, Dartmouth College
2016 Microbial Ecology Search Committee, Biological Sciences Department, Dartmouth College
2012-2016 Undergraduate Committee, Biological Sciences Department, Dartmouth College
2012-2013 Co-organizer of Ecology and Evolutionary Biology Graduate Program Recruitment Weekend
2011-2012 Biology Department Graduate Committee, West Virginia University
2011-2012 Biology Department Technology Committee, West Virginia University

SERVICE TO THE COMMUNITY AND EDUCATIONAL OUTREACH

May 2016 Presentation on music and microbes at "Music and Space", Annual New Music Festival, Dartmouth College
2016 Collaboration with Amy Zhang'17 (Stamps Fellow) on artistic rendition of gene transfer agents from cryoEM and TEM images
2013-2014 Collaboration with the Hopkins Center for the Arts on music inspired by microbiology
11/2011 Presentation on Computational Biology at Beta Beta Beta, the WVU Biology Honor Society
01/2011 Evening Talk at Point Marion Rotary Club (Point Marion, PA), January 27, 2011

This CV was last modified on September 21, 2017