Igor B. Jouline

Department of Microbiology, The Ohio State University
318 W 12th Avenue, Columbus, OH 43210
Email: jouline.1@osu.edu

POSITIONS AND EMPLOYMENT

2018 - present	*Rod Sharp Professor*, Department of Microbiology, The Ohio State University, Columbus, OH
2020-2021	*Interim Chair*, Department of Microbiology, The Ohio State University, Columbus, OH
2009-2018	*Distinguished R&D Staff Member*, Computing and Computational Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN
2009-2018	*Joint Faculty Professor*, Department of Microbiology, University of Tennessee, Knoxville, TN
2005-2009	*Senior R&D Staff Member*, Computing and Computational Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN
2005-2009	*Joint Faculty Associate Professor*, Department of Microbiology, University of Tennessee, Knoxville, TN
2000-2005	*Assistant Professor*, School of Biology, Georgia Institute of Technology, Atlanta, GA
1996-2000	*Research Assistant Professor*, Department of Microbiology and Molecular Genetics, Loma Linda University School of Medicine, Loma Linda, CA
1988-1989	*Interim Academic Secretary*, Institute of Biochemistry & Physiology of Plants & Microorganisms, Russian Academy of Sciences, Saratov, Russia

EDUCATION AND TRAINING

1992-1996	*Postdoctoral Fellow*, Department of Microbiology and Molecular Genetics, Loma Linda University School of Medicine, Loma Linda, CA
1990-1991	*Postdoctoral Fellow*, Department of Biochemistry, University of Oxford, Oxford, United Kingdom
1989-1990	*Research Associate*, Laboratory of Biochemistry, Institute of Biochemistry & Physiology of Plants & Microorganisms, Russian Academy of Sciences, Saratov, Russia
1988	*Doctor of Philosophy* in Microbiology, Saint Petersburg State University, Saint Petersburg, Russia
1983	*Bachelor of Science/Master of Science* (*Magna Cum Laude*) in Biochemistry and Biophysics, Saratov State University, Saratov, Russia

HONORS AND AWARDS

2019	*Elected Fellow*, American Association for the Advancement of Science
2018	*Rod Sharp Endowed Professor*, The Ohio State University
2017	*Elected Fellow*, American Academy of Microbiology
2011	*Outstanding Service Certificate*, International Board of the American Society for Microbiology
2007	*Outstanding Academic Service Award*, IEEE Systems, Man & Cybernetics Society
1996	*NATO Research Fellowship*
1990	*Fellowship for Young European Investigators*, Wellcome Trust, London, U.K.

PROFESSIONAL SERVICE

Grant review panels

2021	*Chair*, National Institutes of Health Panel "*Harnessing Data Science for Health Discovery and Innovation in Africa - Open Data Science Platform and Coordinating Center*"
2021	*Chair*, National Institutes of Health and Centers for Disease Control and Prevention Small Business Innovation Research (SBIR) contract panel
2020	*Lead Reviewer*, German National Research Data Infrastructure panel, DFG
2020	*Member*, National Institutes of Health Panel "*Shared Instrumentation: Topics in Computational Biosciences*"
2020	*Member*, National Institutes of Health Panel "Maximizing Opportunities for Scientific and Academic Independent Careers (K99/R00) Applications"
2014 - 2019	*Chair*, International Odysseus Jury, FWO - Belgian Research Foundation
2019	*Chair*, National Institutes of Health/NIAID Panel "*Bioinformatics Resource Centers (BRCs) for Infectious Diseases*"
2019	*International Evaluator*, "Polish Roadmap for Research Infrastructure", Polish Ministry of Science and Higher Education, Warsaw, Poland
2019	*Member*, National Institutes of Health Panel "*NIGMS K99/R00 Applications*"
2018	*Member*, National Institutes of Health Panel "*Shared Instrumentation: Topics in Computational Biosciences*"

2018 *Reviewer*, American Association for the Advancement of Science Panel "*University of North Carolina Inter-institutional Planning Grants*"

2018 *Member*, National Institutes of Health Panel "*Early Career Investigator - Maximizing Investigators' Research Award*"

2017 *Member*, National Institutes of Health Panel "*Academic Research Enhancement in Genetics and Molecular Mechanisms*"

2016 *Ad hoc member*, National Institutes of Health Study Section *"Modeling and Analysis of Biological Systems",*

2015 *Chair*, National Institutes of Health Panel "*Member Conflicts: Bioengineering Sciences*"

2015 *Chair*, National Institutes of Health Panel "*Mechanisms of Antibiotic Resistance*"

2015 *Member*, National Institutes of Health Panel "*Synthetic Genome Analysis*"

2015 *Member*, National Institutes of Health Panel "*Maximizing Investigators' Research Award (MIRA)*"

2012-2014 *Chair*, National Institutes of Health Panel "*Shared Instrument Review: Bioengineering Sciences*"

2011-2014 *Standing member*, National Institutes of Health Study Section "*Prokaryotic Cell and Molecular Biology*"

2014 *Chair*, National Institutes of Health Panel "*Program Project: Biomedical Research Technology Center*"

2014 *Chair*, National Institutes of Health Panel "*Targeting Co-dependent Molecular Pathways in Oral Cancer*"

2011-2013 *Member*, International Odyssey Jury, Belgian Research Foundation (FWO),

2013 *Ad hoc member*, National Advisory Council for Human Genome Research

2013 *Chair*, National Institutes of Health Panel *"Multi-Omics Data in Understanding the Human Microbiome's Role in Health and Disease"*

2013 *Member*, National Institutes of Health Panel "*Centers of Excellence for Translational Research*"

2013 *Member*, National Institutes of Health Panel "*Bacterial Transcription and Regulation*"

2013 *Member*, National Institutes of Health Panel "*Genomic Resources*"

2011 *Member*, National Institutes of Health Administrative Review Panel "*Human Microbiome Project*"

2010 *Chair*, National Institutes of Health Panel "*Computational Tools for Human Microbiome Project*"

2005-2009 *Standing member*, National Institutes of Health Study Section "*Biodata Management and Analysis*"

2008 *Member*, National Institutes of Health Panel "*Human Microbiome Project References*"

2007-2009 *Chair*, National Institutes of Health Panel "*Small Business: Bioinformatics & Software Development*"

2005 *Member*, NSF-USDA Microbial Genome Sequencing Program Panel

Meeting Organizer/Session Chair

2019 *Session Chair*, Molecular Genetics of Bacteria and Phages Meeting, Madison, WI

2018 *Chair*, Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2016 *Vice-Chair*, Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2016 *Session Chair*, International Symposium "Systems Biology and Bioinformatics", St. Petersburg, Russia

2014 *Discussion Leader*, Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2011 *Session Chair*, 4th International Conference BioMicroWorld, Malaga, Spain

2010 *Discussion Leader*, Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2009 *Keynote Address*, Swiss Institute for Bioinformatics Annual Meeting, Switzerland

2007 *Member*, Meeting Review Committee, BLAST IX International Conference on Bacterial Locomotion and Signal Transduction, Laughlin, NV

2005 *Co-Organizer*, 5th International bioinformatics conference "In Silico Biology", Atlanta, GA

2004 *Member*, National Institutes of Health Panel "*Biodefense Proteomics Research Programs*"

2003 *Co-Organizer*, 4th International bioinformatics conference "In Silico Biology", Atlanta, GA

2001 *Co-Organizer*, 3rd International bioinformatics conference "In Silico Biology", Atlanta, GA

Editorial boards

2017 - present *Editor*, mBio

2016 - present *Editor*, Current Opinion in Microbiology

2008 - 2018 *Editor*, Journal of Bacteriology

2004 - 2008 *Member*, Editorial Board, Journal of Bacteriology

2005 - present *Member*, Editorial Board, Biology Direct

Journal reviewer

Biochemical Society Transactions, Bioinformatics, Biology Direct, BMC Evolutionary Biology, BMC Genomics, BMC Medical Genomics, Cell Reports, eLife, Environmental Microbiology, FEBS Journal, FEMS Microbiology Reviews, Genome Biology and Evolution, Human Mutation, International Journal of Molecular Sciences, Journal of Bacteriology, Journal of Biological Chemistry, Journal of Clinical Microbiology, Journal of Molecular Biology, Journal of Proteome Research, Microbiology. Microbiology and Molecular Biology Reviews. Molecular Biology and Evolution, Molecular and Cellular Biology, Molecular Microbiology, Nature Communications, Nature Reviews Microbiology, Nucleic Acids Research, PLoS Biology, PLoS Computational Biology, PLoS Genetics, Proceedings of the National Academy of Sciences of the USA, Science Signaling, Scientific Reports, Structure, Trends in Biochemical Sciences, Trends in Genetics, Trends in Microbiology

Professional Society Memberships

2002 - present American Association for the Advancement of Science

1996 - present American Society for Microbiology

Professional Society Service

2021 *Referee*, Early Career Researcher Reviewer Program, American Academy of Microbiology

2017 Editors-in-Chief Workshop, American Society of Microbiology Journals

2016 Colloquium “Promoting Responsible Scientific Research”, American Academy of

Microbiology

2006 – 2009 Morison Rogosa Award Committee, American Society for Microbiology

2008 DOE Subcommittee, FASEB Federal Funding Recommendations

ADMINISTRATIVE SERVICE

Departmental

The Ohio State University

2021 – present *Member*, Awards Committee

2021 – present *Member*, Promotion and Tenure Committee

2020 - 2021 *Interim Chair*, Department of Microbiology

2019 – 2020 *Chair*, Faculty Search Committee

2018 - 2020 *Member*, Promotion and Tenure Committee

2018 - 2020 *Member*, Graduate Studies Committee

University of Tennessee

2010 – 2011 *Member*, Microbiology Faculty Search Committee

2008 – 2018 *Member,* Division of Biology Committee on Computing

2006 – 2018 *Member*, Microbiology Graduate Curriculum Committee

Georgia Institute of Technology

2005 *Member*, Endowed Chair in Computational Biology Search Committee,

2004 *Member*, Environmental Bioinformatics and Nanotechnology Faculty Search Committee,

2002 – 2004 *Member*, Bioinformatics Faculty Search Committee

2002 – 2003 *Member*, Microbiology Faculty Search Committee

2001 – 2002 *Member*, Endowed Chair in Bioinformatics Search Committee

College and University

The Ohio State University

2021 *Faculty Representative*, College of Arts and Sciences Faculty Senate

2021 *Lead*, "Systems Biology and Disease Modeling" team, Office of Research Planning Committee for the Interdisciplinary Research Facility (IRF) building

2021 *Member*, Search Committee, The Ohio State University Vice-President and Chief Information Officer

2020 - present *Member*, The Ohio State University "Big Idea for Jobs Ohio" Academic Team, Office of Research

2019 - present *Member*, Advisory Board, Research Cyberinfrastructure and Advanced Computing Advisory Council (RCAC), Office of Research

2020 *Internal Reviewer*, Alfred P. Sloan Foundation Call for Ideas, The Ohio State University Foundation

2019 – 2020 *Co-Director*, Computational Health and Life Sciences, Translational Data Analytics Institute

2019 *Member*, Pink team review panel for NIH/NIAID P01 proposal, Office of Research

University of Tennessee – Oak Ridge National Laboratory

2017 – 2018 *Member*, Program Committee, Interdisciplinary Graduate Minor in Computational Science

2015 – 2016 *Member*, Leadership Team, Joint Institute for Personalized Health Initiative

2012 – 2018 *Advisor*, Director's Discretionary Fund for Computing Time Allocation, National Center for Computational Sciences,

2010 – 2015 *Member*, Executive Committee, Joint Institute for Computational Sciences

2013 *Member*, Faculty Search Committee, College of Agricultural Sciences

2007 *Member*, Governor's Chair in Biological Sciences Search Committee

2007 *Co-Chair*, Joint Directed Research & Development Review Panel, Science Alliance

2006 – 2016 *Member*, Laboratory Directed Research & Development Review Panel

2006 *Member*, Joint Institute for Biological Sciences Director Search, Committee

Georgia Institute of Technology

2002 - 2005 *Member*, Georgia Tech/Georgia Center for Security of Agriculture and Environment

2000 - 2005 *Founding member*, Georgia Tech Interdisciplinary Graduate Program in Bioinformatics

2000 - 2005 *Founding member*, Georgia Tech Center for Bioinformatics and Computational Biology

PUBLICATIONS (last name transliteration in publications – Zhulin; *corresponding author)

118. V.M. Gumerov, E.P. Andrianova, M.A. Matilla, A.C. Dolphin, T. Krell, and **I.B. Zhulin***. 2022. Amino acid sensor conserved from bacteria to humans. *Proceedings of the National Academy of Sciences of the USA* 119: e2110415119.

117. Popp, P.F., V.M. Gumerov, E.P. Andrianova, L. Bewersdorf, T. Mascher, **I.B. Zhulin***, and D. Wolf*. 2021. Phyletic distribution and diversification of the Phage Shock Protein stress response system in bacteria and archaea. *bioRxiv* **doi:** https://doi.org/10.1101/2021.02.15.431232.

116. Lee, B.H., R. Wang, I.M. Moberg, S.H. Reeder, P. Amom, M.H. Tan, K. Amstutz, P. Chandna, A. Helton, E.P. Andrianova, **I.B. Zhulin**, and A.A. Dobritsa*. 2021. A species-specific functional module controls formation of pollen apertures. *Nature Plants* 7: 966-978.

115. Gumerov, V.M., E.P. Andrianova, and **I.B. Zhulin***. 2021. Diversity of bacterial chemosensory systems. *Current Opinion in Microbiology* 61: 42-50.

114. Elgamoudi, B.A., E.P. Andrianova, L.K. Shewell, C.J. Day, R.M. King, Taha, H. Rahman, L.E. Hartley-Tassell, **I.B. Zhulin** and V. Korolik*. 2021. The *Campylobacter jejuni* chemoreceptor Tlp10 has a bimodal ligand-binding domain and specificity for multiple classes of chemoeffectors. *Science Signaling* 14: eabc8521.

113. Wang, B., V.M. Gumerov, E.P. Andrianova, **I.B. Zhulin*** and I. Artsimovitch*. 2020. Origins and molecular evolution of the NusG paralog RfaH. *mBio* 11: e02717-20.

112. Bug, D.S., I.M. Barkhatov, Y.V. Gudozhnikova, A.V. Tishkov, **I.B. Zhulin*** and N.V. Petukhova*. 2020. Identification and characterization of a novel *CLCN7* variant associated with osteopetrosis. *Genes (Basel)* 11: 1242

111. Gumerov*, V.M. and **I.B. Zhulin**. 2020. TREND: a platform for exploring protein function in prokaryotes based on phylogenetic, domain architecture, and gene neighborhood analyses. *Nucleic Acids Research* 48: W72-W76.

110. Gavira, J.A., V.M. Gumerov, M. Rico-Jimenez, M.G. Petukh, A.A. Upadhuyay, A. Ortega, M.A. Matilla, **I.B. Zhulin***, and T. Krell*. 2019. How bacterial chemoreceptors evolve novel ligand specificities. *mBio* 11: e03066-19.

109. Gumerov, V.M., D.R. Ortega, O. Adebali, L.E. Ulrich, and **I.B. Zhulin***. 2020. MiST 3.0: an updated microbial signal transduction database with an emphasis on chemosensory systems. *Nucleic Acids Research* 48 (D1): D459-D464.

108. Muok, A. R., Y. Deng, V. M. Gumerov, J. E. Chong, J. R. DeRossa, K. Kurniyati, R. Coleman, K. M. Lancaster, C. Li, **I. B. Zhulin**, and B. R. Crane*. 2019. A di-iron protein recruited as an Fe[II] and oxygen sensor for bacterial chemotaxis functions by stabilizing an iron-peroxy species. *Proceedings of the National Academy of Sciences of the USA* 116: 14955-14960.

107. Hong, Y., Z. Huang, L. Guo, B. Ni, C.Y. Jiang, Y.J. Hou, W.S. Yang, D. C. Wang, **I. B. Zhulin**, S.-J. Liu, D.F. Li*. 2019. Trimeric structure of the ligand-binding domain suggests a mode of communication in bacterial chemoreceptors. *Molecular Microbiology* 112: 906-917.

106. Huang, Z., Y.-H. Wang, H.-Z. Zhu, E. P. Andrianova, C.-Y. Jiang, D. Li, L. Ma, J. Feng, Z.-P. Liu, H. Xiang, **I. B. Zhulin***, and S.-J. Liu*. 2019. Crosstalk between chemosensory pathways that modulate chemotaxis and biofilm formation. *mBio* 10: e02876-18.

105. Liu, J., T. Murali, C. Liu, T. Yu, T. A. Sivakumaran, H. N. B. Moseley, **I. B. Zhulin**, H. L. Weis, E. B. Durbin, S. R. Ellingson, J. Liu, B. J. Hallahan, C. M. Horbinski, N. L. Vanderford, D. W. Fardo, C. Wang, an22d S. M. Arnold*. 2019. Characterization of squamous cell lung cancers from Appalachian Kentucky. *Cancer Epidemiology, Biomarkers & Prevention* 28: 348-356.

104. Petukh*, M. G. and **I. B. Zhulin**. 2018. Comparative study of the effect of disease causing and benign mutations in position Q92 on cholesterol binding by the NPC1 N-terminal domain. *Proteins* 86: 1165-1175.

103. Melesse, M., J. N. Bembenek, and **I. B. Zhulin***. 2018. Conservation of the separase regulatory domain. *Biology Direct* 13: 7.

102. Cross, K. L., P. Chirania, W. Xiong, C. J. Beall, J, G. Elkins, R, J. Giannone, A, L. Griffen, A. M. Guss, R. L. Hettich, S. S. Joshi, E. M. Morkzan, R. K. Martin, **I. B. Zhulin**, E. J. Leys, and M, Podar*. 2018. Insights into the evolution of host association through the isolation and characterization of a human periodontal pathobiont, *Desulfobulbus oralis. mBio* 9: e02061-17.

101. Ortega*, D. R. and **I. B. Zhulin***. 2018. Phylogenetic and protein sequence analysis of bacterial chemoreceptors. *Methods in Molecular Biology* 1729: 373-385.

100. Lu*, J. G., J. Bishop, S. Cheyette, **I. B. Zhulin**, S. Guo*, N. Sobreira, and S. E. Brenner. 2018. A novel PRRT2 pathogenic variant in a family with Paroxysmal Kinesigenic Dyskinesia and Benign Familial Infantile Seizures. *Cold Spring Harbor Molecular Case Studies* 4: a002287.

99. Ortega, D. R., A. D. Fleetwood, T. Krell, C. S. Harwood, G. J. Jensen, and **I. B. Zhulin***. 2017. Assigning chemoreceptors to chemosensory pathways in *Pseudomonas aeruginosa. Proceedings of the National Academy of Sciences of the USA* 114: 12809-12814.

98. Ortega, A., **I. B. Zhulin***, and T. Krell*. 2017. Sensory repertoire of bacterial chemoreceptors. *Microbiology and Molecular Biology Reviews* 81: e00033-17.

97. Adebali, O., M. G. Petukh, A. O. Reznik, A. V. Tishkov, A. Upadhyay and **I. B. Zhulin***. 2017 Class III histidine kinases: a recently accessorized kinase domain in putative modulators of type IV pili based motility. *Journal of Bacteriology* 199: e00218-17.

96. Stock, A. M. and **I. B. Zhulin**. 2017. Two-Component Signal Transduction: a Special Issue in the Journal of Bacteriology. *Journal of Bacteriology* 199: e00443-17.

95. Armitage, J. P., A. Becker, P. J. Christie, P. A. J. de Boer, V. J. DiRita, R. L. Gourse, T. M. Henkin, W. Margolin, W. W. Metcalf, C. W. Mullineaux, G. A. O'Toole, J. S. Parkinson, O. Schneewind, T. J. Silhavy, A. M. Stock, and **I. B. Zhulin**. 2017. Classic Spotlights: Selected highlights from the first 100 years of the Journal of Bacteriology. *Journal of Bacteriology* 199: e00062-17.

94. **Zhulin, I. B.** 2017. By staying together, two genes keep the motor running. *Structure* 25: 214-215.

93. Adebali*, O. and **I. B. Zhulin**. 2017. Aquerium: a web application for comparative exploration of domain-based protein occurrences on the taxonomically clustered genome tree. *Proteins* 85: 72-77.

92. **Zhulin, I.B.** 2016. Classic spotlight: Genetics of *E. coli* chemotaxis. *Journal of Bacteriology* 198: 3041.

91. Day, C. J., R. M. King, L. K. Shewell, G. Tram, T. Najnin, L. E. Hartley-Tassell, J. C. Wilson, A. D. Fleetwood, **I. B. Zhulin** and V. Korolik*. 2016. A direct-sensing galactose chemoreceptor recently evolved in invasive strains of *Campylobacter jejuni*. *Nature Communications* 7: 13206.

90. **Zhulin, I. B**. 2016. Classic spotlight: 16S rRNA redefines microbiology. *Journal of Bacteriology* 198: 2764-2765.

89. Adebali, O., A.O. Reznik, D.S. Ory, and **I.B. Zhulin*.** 2016. Establishing precise evolutionary history of a gene improves predicting disease causing missense mutations. *Genetics in Medicine* 18: 1029-1036.

88. Upadhyay, A., A.D. Fleetwood, O. Adebali, R.D. Finn, and **I.B. Zhulin***. 2016. Cache domains that are homologous to, but different from PAS domains comprise the largest superfamily of extracellular sensors in prokaryotes. *PLoS Computational Biology* 12: e1004862.

87. Buensuceso. R., Y. Nguyen, K. Zhang, M. Daniel-Ivad, S. Sugiman-Marangos, A. D. Fleetwood, **I. B. Zhulin**, M. S. Junop, P. L. Howell, and L. L. Burrows*. 2016. The conserved TPR-containing C-terminal domain of *Pseudomonas aeruginosa* FimV is required for its cAMP-dependent and independent functions. *Journal of Bacteriology* 198: 2263-2274.

86. Ortega, D.R. and **I.B. Zhulin***. 2016. Evolutionary genomics suggests that CheV is an additional adaptor for accommodating specific chemoreceptors within the chemotaxis signaling complex. *PLoS Computational Biology* 12: e1004723.

85. Wang, X., A.K. Pandey, M K. Mulligan, E.G. Williams, K. Mozhui, Z. Li, V. Jovaisaite, L.D. Quarles, Z. Xiao, J. Huang, J.A. Capra, Z. Chen, W.L. Taylor, L. Bastarache, X. Niu, K.S. Pollard, D.C. Ciobanu, A.O. Reznik, A.V. Tishkov, **I.B. Zhulin**, J. Peng, S.F. Nelson, J.C. Denny, J. Auwerx, L. Lu, and R.W. Williams*. 2016. Joint mouse-human phenome-wide association to test gene function and disease risk. *Nature Communications* 7: 10464.

84. Adebali, O., D.R. Ortega, and **I.B. Zhulin*.** 2015. CDvist: a webserver for identification and

visualization of conserved domains in protein sequences. *Bioinformatics* 31: 1475-1477.

83. **Zhulin, I.B**. 2015. Databases for microbiologists. *Journal of Bacteriology* 197: 2458-2467.

82. Wisniewski-Dye, F., B. Drogue, S. Borland, C. Prigent-Combaret, K. Borziak, **I.B. Zhulin**, L. Lozano,V. Gonzalez, and P. Mavingui*. 2015. Core and accessory genomes of the diazotroph *Azospirillum*. In: *Biological Nitrogen Fixation*, volume 1, First Edition. Frans J. de Brujn (ed.), John Wiley & Sons, Inc.

81. Ulrich*, L.E., and **I.B. Zhulin**. 2014. SeqDepot: a streamlined database of protein sequences and precomputed features. *Bioinformatics* 30: 295-297.

80. Krishnan, B., S.E. Thomas, H. Yamada, R. Yan, **I.B. Zhulin**, and B.D. McKee*. 2014. Sisters Unbound is required for meiotic centromeric cohesion in *Drosophila melanogaster*. *Genetics* 198: 947-965.

79. Ortega, D.R., C. Yang, P. Ames, J. Baudry, J.S. Parkinson, and **I.B. Zhulin***. 2013. A phenylalanine rotameric switch for signal-state control in bacterial chemoreceptors. *Nature Communications* 4: 2881.

78. van Kessel, J.C., L.E. Ulrich, **I.B. Zhulin**, and B.L. Bassler*. 2013. Analysis of activator and repressor functions reveals the requirements for transcriptional control by LuxR, the master regulator of quorum sensing in *Vibrio harveyi*. *mBio* 4: 00378-13.

77. Borziak, K., A.D. Fleetwood, and **I.B. Zhulin***. 2013. Chemoreceptor gene loss and acquisition via horizontal gene transfer in *Escherichia coli*. *Journal of Bacteriology* 195: 3596-3602.

76. Ortega, D.R., G. Mo, K. Lee, H. Zhou, J. Baudry, F.W. Dahlquist, and **I.B. Zhulin***. 2013. Conformational coupling between receptor and kinase binding sites through a conserved salt bridge in a signaling complex scaffold protein. *PLoS Computational Biology* 9: e1003337.

75. Li, X., A.D. Fleetwood, C. Bayas, A.M. Bilwes, D.R. Ortega, J.J. Falke, **I.B. Zhulin***, and B.R. Crane*. 2013. The 3.2 A resolution structure of a Receptor:CheA:CheW signaling complex defines overlapping binding sites and key residue interactions within bacterial chemosensory arrays. *Biochemistry* 52: 3852-3865.

74. Cashman, D., D.R. Ortega, **I.B. Zhulin**, and J. Baudry*. 2013. Homology modeling of the CheW coupling protein of the chemotaxis signaling complex. *PLoS One* 8: e70705.

73. Rekapalli, B., K. Wuichet, G.D. Peterson, and **I.B. Zhulin***. 2012. Dynamics of domain coverage of the protein sequence universe. *BMC Genomics* 13: 634.

72. Sukharnikov, L.O., M. Alahuhta, R. Brunecky, A. Upadhyay, M.E. Himmel, V.L. Lunin*, and **I.B. Zhulin***. 2012. Sequence, structure and evolution of cellulases in the glycosyl hydrolase family 48. *Journal of Biological Chemistry* 287: 41068-41077.

71. Wisniewski-Dyé, F., K. Borziak, G. Khalsa-Moyers, G. Alexandre, L.O. Sukharnikov, K. Wuichet, G.B. Hurst, W.H. McDonald, J.S. Robertson, V. Barbe, A. Calteau, Z. Rouy, S. Mangenot, C. Prigent-Combaret, P. Normand, M. Boyer, P. Siguier, Y. Dessaux, C. Elmerich, G. Condemine, G. Krishnen, I. Kennedy, A.H. Paterson, V. González, P. Mavingui and **I.B. Zhulin***. 2011 *Azospirillum* genomes reveal transition of bacteria from aquatic to terrestrial environments. *PLoS Genetics* 7: e1002430.

70. Sukharnikov, L.O., B.J. Cantwell, M. Podar and **I.B. Zhulin***. 2011. Cellulases: ambiguous non-homologous enzymes in a genomic perspective. *Trends in Biotechnology* 29: 473-479.

69. Wuichet, K., B.J. Cantwell and **I.B. Zhulin***. 2010. Evolution and phyletic distribution of two component signal transduction systems. *Current Opinion in Microbiology* 13: 219-225.

68. Wuichet, K. and **I.B. Zhulin***. 2010. Origins and diversification of a complex signal transduction system in prokaryotes. *Science Signaling* 3: ra50.

67. Xie, Z., L.E. Ulrich, **I.B. Zhulin** and G. Alexandre*. 2010. A PAS-domain containing chemoreceptor couples dynamic changes in metabolism with chemotaxis. *Proceedings of the National Academy of Sciences of the USA* 107: 2235-2240.

66. Ulrich, L.E. and **I.B. Zhulin***. 2010. The MiST2 database: a comprehensive genomics resource on microbial signal transduction. *Nucleic Acids Research* 38: D401-D407.

65. Anderson, I., L. Dharmarajan, J. Rodriguez, I. Porat, L. E. Ulrich, J. G. Elkins, K. Mavromatis, H. Sun, M. Land, A. Lapidus, S. Lucas, A. Copeland, H. Huber, **I. B. Zhulin**, W. Whitman, B. Mukhopadhyay, and N. Kyrpides*. 2009. The complete genome sequence of *Staphylothermus marinus* reveals differences in sulfur metabolism among heterotrophic Crenarchaeota. *BMC Genomics* 10: 145.

64. **Zhulin, I. B**. 2009. It is computation time for bacteriology! *Journal of Bacteriology* 191: 20-22.

63. Rekapalli*, B., C. Halloy, and **I. B. Zhulin**. 2009. HSP-HMMER: a tool for protein domain identification on a large scale. *Proceedings of the 24th ACM Symposium on Applied Computing*, *Honolulu, Hawaii*: 766-770.

62. Elliott, K. T., **I. B. Zhulin**, J. A. Stuckey, and V. J. DiRita*. 2009. Conserved residues in the HAMP domain define a new family of proposed bipartite energy taxis receptors. *Journal of Bacteriology* 191: 375-387.

61. Briegel, A., D. R. Ortega, E. I. Tocheva, K. Wuichet, Z. Li, S. Chen, A. Mueller, C. Iancu, G. Murphy, M. Dobro, **I.B. Zhulin** and G. J. Jensen*. 2009. Universal architecture of bacterial chemoreceptor arrays. *Proceedings of the National Academy of Sciences of the USA* 106: 17181-17186.

60. Anderson, I., J. Rodriguez, D. Susanti, I. Porat, C. Reich, L. E. Ulrich, J. Elkins, K. Mavromatis, A. Lykidis, E. Kim, L.S. Thompson, M. Nolan, M. Land, A. Copeland, A. Lapidus, S. Lucas, C. Detter, P. Richardson, **I. B. Zhulin**, W. Whitman, B. Mukhopadhyav, C. Woese and N. Kyrpides*. 2008. Genome sequence of the Crenarchaeal hyperthermophile *Thermofilum pendens* reveals an unprecedented loss of

biosynthetic pathways in a free-living organism. *Journal of Bacteriology* 190: 2957-2965.

59. Fredrickson*, J. K., M.F. Romine, A. S. Beliaev, J. M. Auchtung, M. E. Driscoll, T. S. Gardner, K. H. Nealson, A. L. Osterman, G. Pinchuk, J. L. Reed, D. A. Rodionov, J. L. Rodrigues, D. A. Saffarini, M. H. Serres, A. M Spormann, **I. B. Zhulin**, and J. M. Tiedje*. 2008. Towards environmental systems biology of *Shewanella. Nature Reviews Microbiology* 6: 592-603.

58. Belas*, R., **I. B. Zhulin** and Z. Yang. 2008. Bacterial sensing and motility: sure bets. *Journal of Bacteriology* 190: 1849-1856.

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55. Alexander, R.P. and **I.B. Zhulin***. 2007. Evolutionary genomics reveals conserved structural determinants of signaling and adaptation in microbial chemoreceptors. *Proceedings of the National Academy of Sciences of the USA* 104: 2885-2890.

54. Ulrich, L.E and **I.B. Zhulin***. 2007. MiST: a Microbial Signal Transduction database. *Nucleic Acids Research* 35: D386-D390.

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52. Chain, P.S.G., V.J. Denef, K. Konstantinidis, L.M.Vergez, L. Agullo, V.L.Reyes, L. Hauser, M. Cordova, L. Gomez, M. Gonzalez, M. Land, V. Lao, F. Larimer, J.J. LiPuma, E. Mahenthiralingam, S.A. Malfatti, C.J. Marx, J.J. Parnell, A. Ramette, P. Richardson, M. Seeger, D. Smith, T. Spilker, W.J. Sul, T.V. Tsoi, L.E. Ulrich, **I.B. Zhulin**, and J.M. Tiedje*. 2006. *Burkholderia xenovorans* LB400 harbors a multi-replicon, 9.73 M bp genome shaped for versatility. *Proceedings of the National Academy of Sciences of the USA* 103: 15280-15287.

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histidine kinase superfamily. *Journal of Bacteriology* 186: 267-269.

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42. Shu, C.J., L.E. Ulrich and **I.B. Zhulin***. 2003. The NIT domain: a predicted nitrate responsive module in bacterial sensory receptors. *Trends in Biochemical Sciences* 28: 121-124.

41. Alexandre, G. and **I. B. Zhulin***. 2003. Different evolutionary constraints on CheW and CheY proteins revealed by heterologous expression studies and protein sequence analysis. *Journal of Bacteriology* 185: 544-552.

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36. Sun, X., **I. Zhulin** and R. M. Wartell*. 2002. Predicted structure and phyletic distribution of the RNA binding protein Hfq. *Nucleic Acids Research* 30: 3662-3671.

35. Perelygin, A.A., S.V. Scherbik, **I.B. Zhulin**, B.M. Stockman, Y. Li and M.A. Brinton. 2002. Positioning cloning of the murine flavivirus resistance gene. *Proceedings of the National Academy of Sciences of the USA* 99: 9322-9327.

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32. Alexandre, G. and **I. B. Zhulin***. 2001. More than one way to sense chemicals. *Journal of Bacteriology* 183: 4681-4686.

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30. Kirby, J. R., C. J. Kristich, M. M. Saulmon, L. F. Garrity, **I. B. Zhulin**, and G. W. Ordal*. 2001. CheC is related to the family of flagellar switch proteins and acts independently from CheD to control chemotaxis in *Bacillus subtilis*. *Molecular Microbiology* 42: 573-585.

29. Mougel, C. and **I. B. Zhulin***. 2001. CHASE: an extracellular sensing domain common to transmembrane receptors from prokaryotes, lower eukaryotes and plants. *Trends in Biochemical Sciences* 26: 582-584.

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27. Alexandre, G., S. E. Greer, and **I. B. Zhulin***. 2000. Energy taxis is the dominant behavior in *Azospirillum brasilense. Journal of Bacteriology* 182: 6042-6048.

26. **Zhulin, I. B**. 2000. A novel phototaxis receptor hidden in the cyanobacterial genome. *Journal of Molecular Microbiology and Biotechnology* 2: 491-493.

25. Alexandre, G., and **I. B. Zhulin***. 2000. Laccases are widespread in bacteria. *Trends in Biotechnology* 18: 41-42.

24. Alexandre, G., R. Bally, B. L. Taylor and **I. B. Zhulin***. 1999. Loss of cytochrome *c* oxidase activity and acquisition of resistance to exogenous quinones in a laccase-positive variant of *Azospirillum lipoferum*. *Journal of Bacteriology* 181:6730-6738.

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22. Taylor*, B. L., and **I. B. Zhulin**. 1999. PAS domains: internal sensors of oxygen, redox potential and light. *Microbiology and Molecular Biology Reviews* 63:479-506.

21. **Zhulin*, I. B**., and B. L. Taylor. 1998. Correlation of PAS domains with electron transport associated proteins in completely sequenced microbial genomes. *Molecular Microbiology* 29:1522-1523.

20. Taylor*, B. L., and **I. B. Zhulin**. 1998. In search of a higher energy: metabolism-dependent behavioral responses in bacteria. *Molecular Microbiology* 28: 683-690.

19. Reinhold-Hurek, B., and **I. B. Zhulin***. 1997. Terminal oxidases of *Azoarcus* sp. BH72, a strictly respiratory diazotroph*. FEBS Letters* 404:143-147.

18. **Zhulin, I. B**., Rowsell, E. H., Johnson, M. S., and B. L. Taylor*. 1997. Glycerol elicits energy taxis in *Escherichia coli* and *Salmonella typhimurium. Journal of Bacteriology* 179:3196-3201.

17. Johnson, M. S., **I. B. Zhulin**, E. Gapuzan, and B. L. Taylor*. 1997. Oxygen dependent growth of the obligate anaerobe *Desulfovibrio vulgaris* Hildenborough. *Journal of Bacteriology* 179:5598-5601.

16. Rebbapragada, A., M. S. Johnson, G. P. Harding, A. J. Zuccarelli, H. M. Fletcher, **I. B. Zhulin**, and B. L. Taylor*. 1997. The Aer protein and the serine chemoreceptor Tsr independently sense intracellular energy levels and transduce oxygen, redox, and energy signals for *Escherichia coli* behavior. *Proceedings of the National Academy of Sciences of the USA* 94:10541-10546.

15. **Zhulin*, I. B**., Johnson, M. S., and B. L. Taylor. 1997. How do bacteria avoid high oxygen concentrations? *Bioscience Reports* 17:335-342.

14. **Zhulin, I. B**., B. L. Taylor*, and R. Dixon. 1997. PAS domain S-boxes in Archaea, Bacteria and sensors for oxygen and redox. *Trends in Biochemical Sciences* 22:331-333.

13 **Zhulin*, I. B**., Bespalov, V. A., M. S. Johnson, and B. L. Taylor. 1996. Oxygen taxis and proton motive force in *Azospirillum brasilense*. *Journal of Bacteriology* 178:5199-5204.

12. Bespalov, V. A., **I. B. Zhulin***, and B. L. Taylor. 1996. Behavioral responses of *Escherichia coli* to changes in redox potential. *Proceedings of the National Academy of Sciences of the USA* 93:10084-10089.

11. Wong, L. S., M. S. Johnson, **I. B. Zhulin**, and B. L. Taylor*. 1995. Role of methylation in *Bacillus subtilis* aerotaxis. *Journal of Bacteriology* 177: 3985-3991.

10. **Zhulin, I. B**., A. F. Lois, and B. L. Taylor*. 1995. Behavior of *Rhizobium meliloti* in oxygen gradients. *FEBS Letters* 367: 180-182.

9. **Zhulin*, I. B**., L. E. Sarmiento, and B. L. Taylor. 1995. Changes in membrane potential upon chemotactic stimulation of *Azospirillum brasilense,* p.299-305. *In* I. Fendrik, M. Del Gallo, J.Vanderleyden and M. de Zamaroczy (Ed.), *Azospirillum* VI and Related Microorganisms: Genetics, Physiology, Ecology. NATO ASI Series, Vol. G 37. Springer-Verlag, Berlin.

8. **Zhulin*, I. B**., and B. L. Taylor. 1995. Chemotaxis in plant-associated bacteria: the search for the ecological niche*,* p.451-459. *In* I. Fendrik, M. Del Gallo, J. Vanderleyden and M. de Zamaroczy (Ed.), *Azospirillum* VI and Related Microorganisms: Genetics, Physiology, Ecology. NATO ASI Series, Vol. G 37. Springer-Verlag, Berlin.

7. **Zhulin, I. B**., and J. P. Armitage*. 1993. Motility, chemokinesis, and methylation-independent chemotaxis in *Azospirillum brasilense*. *Journal of Bacteriology* 175: 952-958.

6. **Zhulin*, I. B**., and J. P. Armitage. 1992. The role of taxis in the ecology of *Azospirillum*. *Symbiosis*

13: 199-206.

5. **Zhulin*, I. B**., I. B. Gibel, and V. V. Ignatov. 1991. A rapid method for the measurement of bacterial chemotaxis. *Current Microbiology* 22: 307-309.

4. Grishanin, R. N., I. I. Chalmina, and **I. B. Zhulin***. 1991. Behaviour of *Azospirillum brasilense* in a spatial gradient of oxygen and a "redox" gradient of an artificial electron acceptor. *Journal of General Microbiology* 137: 2781-2785.

3. Shchyogolev*, S. Yu. and **I. B. Zhulin**. 1990. Effective method of cell agglutination analysis by lectins, p. 405-409. *In* J. Kocourek and D. L. J. Freed (Ed.), Lectins - Biology, Biochemistry, Clinical Biochemistry, Vol. 7, Sigma Chemical Co, St. Louis, Mo.

2. **Zhulin, I. B**., S. E. Tretyakova, and V. V. Ignatov. 1988. Chemotaxis of *Azospirillum brasilense* towards compounds typical of plant roots exudates. *Folia Microbiologica* 33: 277-280.

1. **Zhulin IB**, V. I. Panasenko, S.K. Stupnikova, and S. Y. Shchegolev*. 1984. Study of agglutination of microbes in suspension by a spectro-turbidimetric method *Biophysics (Moscow)*. 29: 935-940.

PRESENTATIONS

Invited talks at scientific meetings

2021	Receptor Fest 23d Annual Meeting, virtual
2020	Worldwide Conference of the Russian-speaking Academic Scientists Association (RASA-Global), virtual
2020	*Keynote Speaker*, International Symposium on Health Informatics and Bioinformatics (HITBIT 2020), virtual
2020	*Keynote Speaker*, International Conference "Plants and Microorganisms: The Future of Biotechnology", (PLAMIC2020), virtual
2020	Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA
2019	Molecular Genetics of Bacteria and Phages Meeting, Madison, WI
2019	ASM Microbe, San Francisco, CA
2017	Receptor Fest 20th Annual Meeting, Salt Lake City, UT
2016	Pacific Symposium on Biocomputing (PCB 2016), Kohala Coast, HI
2016	Receptor Fest 19th Annual Meeting, Boulder, CO
2016	UT-KBRIN Bioinformatics Summit, Cadiz, KY

2016 SolBio International Conference "Bioinformatics & Computational Biology for Innovative Genomics", Riviera Maya, Mexico

2016 International Symposium "Systems Biology and Bioinformatics", St. Petersburg, Russia,

2015 115th General Meeting of the American Society for Microbiology, New Orleans, LA

2015 Moscow Conference on Computational Molecular Biology, Moscow, Russia

2015 ReceptorFest 18th Annual Meeting, Boulder, CO

2014 Gordon Research Conference on Human Single Nucleotide Polymorphisms and Disease, Easton

2013 *Plenary speaker*, 21st International Symposium "Nanostructures: Physics and Technology", St. Petersburg, Russia

2013 3rd International Symposium "The Bacterial Cell Envelope: Structure, Function, and Infection Interface", Kaufbeuren, Germany

2012 Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2012 Workshop on the Skolkovo Tech Research Center, Ioffe Institute for Physics and Technology, St. Petersburg, Russia

2011 Moscow Conference on Computational Molecular Biology, Moscow, Russia

2011 Perspectives in Biology Symposium, Wake Forest University, NC

2010 12th International Symposium on Biological Nitrogen Fixation, Buzios, Brazil

2009 3d International conference BioMicroWorld 2009, Lisbon, Portugal

2009 7th International conference on Bioinformatics "In Silico Biology", Atlanta, GA

2009 DOE International Workshop on Exascale Computing in Biology, Chicago, IL

2009 *Keynote speaker*, Swiss Institute for Bioinformatics Annual "Scientific Days", Fribourg, Switzerland

2008 DOE Genomics:GTL meeting on *Shewanella*, Washington, D.C., 2008

2008 Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA

2007 IEEE 7th International Symposium on Bioinformatics & Bioengineering, Cambridge, MA

2007 15th International Congress on Nitrogen Fixation, Cape Town, South Africa, 2007

2007 BLAST IX International Conference on Bacterial Locomotion and Signal Transduction, Laughlin, NV

2006	*Plenary speaker*, Systems Biology & Bioinformatics Symposium of The Biomedical Engineering Society Annual Meeting (BMES 2006), Chicago, IL, 2006
2006	Gordon Research Conference on Sensory Transduction in Microogranisms, Ventura, CA
2006	106th General meeting of the American Society for Microbiology, Orlando, FL
2006	93d Boehringer-Ingelholm Fonds International Conference "Mechanisms of Chemotaxis", Titisee, Germany
2005	DOE Genomics:GTL meeting on *Geobacter*, University of Massachusetts, Amherst, MA
2005	Joint meeting of the International Union of Microbiological Societies, San Francisco, CA
2004	104th General meeting of the American Society for Microbiology, New Orleans, LA
2004	Isle of Palms Bioinformatics Symposium, Charleston, SC, 2004
2004	Gordon Research conference on Sensory Transduction in Microorganisms, Ventura, CA
2003	7th International meeting on Bacterial Locomotion and Signal Transduction, Cuernavaca, Mexico
2002	University System of Georgia Annual Research Symposium "Applying Bioinformatics: From Genes to Systems", Atlanta, GA
2002	5th European Conference on Nitrogen Fixation, Norwich, UK
2001	3d International conference on Bioinformatics "In Silico Biology", Atlanta, GA
2001	13th International Congress on Nitrogen Fixation, Hamilton, Canada
2001	Oak Ridge Associated Universities Workshop on Genomics, Durham, NC
2001	6th International meeting on Bacterial Locomotion and Signal Transduction, Cuernavaca, Mexico
2001	8th International Symposium on Nitrogen Fixation, Sydney, Australia
2000	Gordon Research Conference on Sensory Transduction in Microorganisms, Ventura, CA
1998	6th ASM Meeting "Small Genomes", Arrowhead, CA
1997	11th International Congress on Nitrogen Fixation, Paris, France
1996	NATO Advanced Research Workshop on Nitrogen Fixation, Poznan, Poland
1995	3th International meeting on Bacterial Locomotion and Signal Transduction, Cuernavaca, Mexico

1994 NATO Advanced Research Workshop "*Azospirillum* VI", Sarvar, Hungary

1994 1st European Nitrogen Fixation Conference, Szeged, Hungary

External invited seminars

2020 Department of Microbiology and Molecular Genetics, Michigan State University

2019 Department of Biochemistry and Biophysics, Texas A&M University

2019 Fulgent Genetics, Los Angeles, CA,

2019 Department of Microbiology and Immunology, Dartmouth Geisel School of Medicine

2019 Department of Microbiology, St. Petersburg State Medical University, Russia

2018 University of Chinese Academy of Sciences, Beijing, China

2018 Institute of Microbiology, Chinese Academy of Sciences, Beijing, China

2018 Department of Microbiology and Immunology, Medical College of Wisconsin

2017 Department of Microbiology, Ohio State University

2016 Max-Planck-Institute for Terrestrial Microbiology, Marburg, Germany

2015 Center for Clinical & Translational Studies, University of Kentucky

2015 Department of Physics and Astronomy, Clemson University

2015 Department of Structural and Molecular Biology, University College London, U.K.

2014 Health Science Center, University of Tennessee-Memphis

2014 St. Petersburg State Medical University, Russia

2014 Institut Pasteur, France

2013 Ioffe Institute for Physics and Technology, St. Petersburg, Russia

2013 Department of Biology, Ludwig-Maximilian-University, Munich, Germany

2012 Department of Microbiology, St. Petersburg State Medical University, Russia

2012 *Distinguished seminar series*, Center for Bioinformatics and Computational Biology, University of Maryland, College Park

2012 Department of Biology, University of Utah

2012 *Graduate students' invitation*. Joint Seminars in Molecular Biology, University of California, Davis

2011 Center for Plant and Microbial Genomics, Katholieke Universiteit Leuven, Belgium

2010 Department of Molecular Biology, Princeton University

2009 Department of Biology, Morehouse College, Atlanta

2009 The Samuel Roberts Noble Foundation

2009 Department of Biostatistics, Bioinformatics & Epidemiology, Medical University of South Carolina

2009 Department of Microbiology, University of Iowa

2009 Department of Mathematical Sciences, Middle Tennessee State University

2009 Biozentrum, University of Basel, Switzerland

2009 Laboratory of Microbial Ecology, Clause Bernard University, Lyon, France

2008 Department of Microbiology, Georgetown University School of Medicine, Washington

2007 Department of Computer Science, University of North Carolina at Charlotte

2007 Department of Bioengineering and Bioinformatics, Moscow State University, Russia

2007 Department of Microbiology and Molecular Genetics, University of Texas, Houston

2007 Department of Microbiology, University of Georgia

2007 Department of Biological Sciences, University of Idaho

2006 Department of Biology, University of Arkansas

2006 DOE Joint Genome Institute

2006 Pacific Northwest National Laboratory

2006 Division of Biological Sciences, University of California, San Diego

2005 Department of Biology, Texas A&M University

2004 Center for Biomedical Sciences, University of Ulster, United Kingdom

2004 Department of Microbiology, University of Tennessee, Knoxville

2004 Computational Biology Institute, Oak Ridge National Laboratory

2003 Department of Microbiology, University of Massachusetts, Amherst

2003 Laboratory of Microbial Ecology, Claude Bernard University, Lyon, France

2003 Institut Pasteur, Paris, France

2003 Institute for Plant-Microbe Interactions, CNRS-INRA, Castanet-Tolosan, France

2002 Department of Microbiology, University of Hawaii, Honolulu

2002 Computational Biology Unit, Argonne National Laboratory, Chicago

2001 Department of Microbiology and Immunology, Emory University School of Medicine

2001 Center for Microbial and Plant Genomics, Katholieke Universiteit Leuven, Belgium

2000 School of Biology, Georgia Institute of Technology

2000 Center for Marine Biotechnology, Baltimore

2000 Integrated Genomics, Chicago

2000 Department of Cell Biology and Molecular Genetics, University of Maryland, College Park

1999 Department of Biology, University of California, San Diego

1999 National Institute for Agricultural Research, Dijon, France

1999 Laboratory of Microbial Ecology, Claude Bernard University, Lyon, France

1998 Department of Plant Pathology, University of California, Riverside

1998 National Center for Biotechnology Information, NIH

1997 Department of Biology, Moscow State University, Russia

1996 Department of Plant Pathology, University of Arizona

RESEARCH GRANTS AND CONTRACTS

Current

2019-2024 Computational Genomics of Signal Transduction, R35 GM131760, National Institutes of Health, $1,908,250, Principal Investigator.

Past

2015-2020 Computational Genomics of Signal Transduction, R01 GM072285, National Institutes of Health, $1,121,535, Principal Investigator.

2014-2019 Culturing the Uncultured: Reverse Genomics and Multispecies Consortia in Oral Microbiome, R01 DE024463, National Institutes of Health, $8,256,314, Principal Investigator (multiple PIs).

2017-2018 Sensory Transduction in Microorganisms Gordon Research Conference & Gordon Research Seminar, R13AI136460, National Institutes of Health, $8,000, Principal Investigator.

2010-2015 Computational Genomics of Signal Transduction, R01 GM072285, National Institutes of Health, $1,136,227, Principal Investigator.

2012-2013 Large-scale Molecular Dynamics Simulation of a Microbial Chemoreceptor, National Institutes of Health/National Resource for Biomedical Computing, Time allocation on Anton supercomputer, Co-Principal Investigator (PI: J. Baudry).

2009-2012 Collaborative Research: An EPSCoR Desktop to TeraGrid Ecosystem, National Science Foundation, $3,324,669, Lead Investigator (PI: J. Bottum).

2009-2011 Computational Biology Toolbox for Ultrascale Computing, LDRD, US Department of Energy, $600,000, Principal Investigator.

2007-2012 DOE Bioenergy Research Center, US Department of Energy, $125,000,000, Key Investigator (PI: M. Keller).

2007-2009 Improved Genetic Selection of Plant Growth Promoting Bacteria for Rice and Wheat, DP0771664, Australian Research Council, $1,222,818, Co-Principal Investigator, (PI: I. Kennedy).

2006-2009 Integrated Genome-Based Studies of *Shewanella* Ecophysiology, US Department of Energy, $13,500,000, Co-Principal Investigator, (PI: J. Fredrickson).

2004-2009 Computational Genomics of Signal Transduction, R01 GM072285, National Institutes of Health, $1,253,670, Principal Investigator.

2004-2007 Genome Sequencing of Plant-Associated *Azospirillum brasilense*, EF-0412186, National Science Foundation, $791,217, Principal Investigator.

2002-2003 Comparative Genomics of Signal Transduction in Prokaryotes, EIA-0219079, National Science Foundation, $142,000, Principal Investigator.

2001-2002 Comparative and Functional Genomic Analyses of Hemicellulose Biosynthesis in Xylem Cells, Institute of Paper Science and Technology, $40,000, Principal Investigator.

1999-2001 Motility Genes and their Products in a Bacterium with Mixed Flagellation, LST.CLG 975040, NATO, BEF 450,000, Principal Investigator.

1998-1999 Molecular Mechanism of Taxis in *Azospirillum brasilense,* 0315-8845-20, National Medical Technology TestBed, $9,650, Principal Investigator.

1996-1998 Behavioral Responses of *Azospirillum brasilense* Involved in Nitrogen Fixation, 96-35305-3795, US Department of Agriculture, $106,694, Principal Investigator.

TEACHING

The Ohio State University

2019 - present *Introduction to Computational Genomics* (MICROBIO 5161, 3 credit hours, 100%)
2019 - present *Colloquium in Microbiology* (MICROBIO 7899, 1 credit hour, 100%)

University of Tennessee

2006 - 2018 *Bioinformatics and Genomics* (Micro480/Micro540/LifeSci507, 3 credit hours, 100%)
2007 - 2008 *Advances in Computational Biology* (LifeSci517, 3 credit hours, 100%)
2006 - 2007 *Bioinformatics Journal Club* (LifeSci504, 1 credit hour, 100%)

Georgia Institute of Technology

2002 - 2005 *Bioinformatics and Genomics* (BIOL8803, 3 credit hours, 100%)
2001 - 2004 *Introductory Microbiology* (BIOL3310, 4 credit hours, 50%)
2002 *Microbiology Project Laboratory* (3 credit hours, 30%)

Loma Linda University School of Medicine

2000 *Bioinformatics and Genomics* (MICRO545, 3 credit hours, 100%)
1999 *Colloquium in Microbiology* (MICRO510, 1 credit hour, 100%)

Other universities (guest lecturer)

2012 Honors Program, St. Petersburg State Medical University, Russia
2008 Frontiers in Genomics, National Program, UNAM, Mexico
2007 3d Annual BIOMAPS Summer School, Rutgers-Princeton-IBM
2005 Advanced Bacterial Genetics Course, Cold Spring Harbor Laboratory

STUDENTS AND TRAINEES

Doctoral Students (dissertation advisor)

2020 - present	Komla Gnona	Biophysics Graduate Program
2020 - present	Marissa Berry	Department of Microbiology
2020 - present	Patricia Ross	Department of Microbiology

2020 - present	Jiawei Xing	Department of Microbiology
2011 - 2016	Ogun Adebali	Assistant Professor, Sabanci University, Turkey
2010 - 2015	Amit Upadhyay	Research Assistant Professor, Emory University
2008 - 2014	Aaron Fleetwood	Physician (MD, PhD), US Air Force
2007 - 2012	Kirill Borziak	Bioinformatics Program Manager, Icahn School of Medicine at Mount Sinai
2006 - 2012	Davi Ortega	Research Associate, California Institute of Technology
2002 - 2007	Kristin Wuichet	Project Manager, Vanderbilt University
2003 - 2007	Roger Alexander	Senior Staff Scientist, Pacific Northwest Research Institute
2001 - 2007	Lance Miller	Program Manager, AAAS
2001 - 2006	Luke Ulrich	CEO & Owner, Ulritech, LLC
1997 - 2001	Suzanne Greer-Phillips	Professor and Chair, Department of Earth and Biological Sciences, Loma Linda University

Doctoral Students (external examiner)

2019	Alan Collins	Dartmouth Geisel School of Medicine

Masters Students (dissertation advisor)

2006 - 2008	Harold Shanafield	Research Specialist, Oak Ridge National Laboratory
2003 - 2005	Kunmi Ayanbule	Engineering Manager, Robinhood, CA
2002 - 2004	William Black	MD, Assistant Professor, University of Mississippi Medical Center
2002 - 2004	Siddharth Joshi	Lecturer, Georgia Military College
2001 - 2003	Omar Alexander	MD, Internal Medicine, Greenville SC
1999 - 2000	Enid McKinley	Senior Scientist, Elanco, IN
1997 - 1999	Sean A. Bulloch	Senior Manager, Medica Information, AbbVie, CA

Postdoctoral Associates and Research Scientists

2017 - present Ekaterina Andrianova

2017 - present	Vadim Gumerov	
2015 - 2018	Marharyta Petukh	Assistant Professor, Presbyterian College
2014 – 2016	Aaron Fleetwood	Physician (MD, PhD), US Air Force
2010 – 2011	Sangita Choudhury	Staff Scientist, Harvard Medical School
2010 – 2011	Se-Ran Jun	Assistant Professor, University of Arkansas for Medical Sciences
2009 – 2012	Leonid Sukharnikov	Senior Software Engineer, LTN Global Communications
2008 – 2011	Bhanu Rekapalli	Principal Investigator, BioTeam, Inc.
2008 – 2010	Brian Cantwell	Research Scientist, American Type Culture Collection
2000 – 2001	Christophe Mougel	Charge de recherché, INRA-CMSE, Dijon, France
1999 – 2001	Gladys Alexandre	Professor and Head, Department of Biochemistry, Cell and Molecular Biology, University of Tennessee
1998 – 1999	Subrata K. Das	Professor, Institute of Life Sciences, Bhubaneswar, India

Undergraduate Students

2021 - present	Divleen Singh	Microbiology and Epidemiology
2020 - present	Carli Werner	Molecular Genetics and Data Analytics
2020 - present	Ilayda Sen	Neuroscience
2020 - present	Gage Ford	Chemistry
2018 - 2021	Matt Schuetz	Microbiology
2017	Erin Sweeny	Microbiology
2016	Sarah Ramsey	Microbiology
2015	Ruth Watson	Microbiology
2014	Fredrick Mccorkie	Microbiology
2013	Jacob Pollack	Microbiology
2010	Alexander Sokolov	Microbiology
2008	Tatiana Perevozchikova	Biochemistry, Cell & Molecular Biology

2006	Kirill Borziak	Biochemistry, Cell & Molecular Biology
2005	Jason Reeves	Biology
2005	Thomas Filip	Computer Science
2004	Amy Alexcovich	Biology
2004	Alice Metzger	Biology
2004	Chinequa Patterson	Biology
2004	Kalpit Patel	Biology
2004	Justin Wilkin	Biology
2003 – 2004	Madhumitha Rajagopal	Biology
2002	Mohammad Massoomi	Biology
2001	Andrea Liatis	Biology
2001 – 2002	Chengyi Shu	Biology

High School Students

2022 – present	Nikhila Achanta	
2008 – 2009	Katherine Xue	Postdoctoral Fellow, Department of Biology, Stanford University
2008 – 2009	Alborz Bejnoon	Computational Scientist, MIT/Harvard Broad Institute

Visiting Students and Scientists

2019	Dmitriy Bug	Research Scientist, St. Petersburg State Medical University, Russia
2019	Ramiro Patino	PhD Student, University of California, San Francisco
2018 – 2019	Philipp Popp	PhD Student, Technical University, Dresden, Germany
2014	Tatiana Chontorozea	Postdoctoral Associate, Biozentrum Basel, Switzerland
2014	Alexander Reznik	Physician-scientist, St. Petersburg State Medical University, Russia

2014, 2019	Artem Tishkov	Associate Professor, St. Petersburg State Medical University, Russia
2010	Florence Wisniewski-Dye	Assistant Professor, Claude Bernard University, France
2010	Patrick Mavingui	Assistant Professor, Claude Bernard University, France
2008	Ariane Briegel	Postdoctoral Associate, California Institute of Technology
2008	Samantha Braiman	Undergraduate Student, Columbia University
2006	Masaru Kojima	PhD student, Nagoya University, Japan
2005	Ivan Kennedy	Director, Centre for Nitrogen Fixation, University of Sydney, Australia
2004	Laurent Philippot	Group leader, INRA, Dijon, France
2000	Daisuke Shiomi	PhD Student, Nagoya University, Japan
1998	Dieter Hauwaerts	PhD Student, KU Leuven, Belgium

Trainee Awards

2020	Matt Schuetz	Undergraduate Research Scholarship, ASC Honors
2012	Bhanu Rekepalli	Best poster award, 1st conference on Extreme Science and Engineering Discovery Environment, XSEDE 12, Chicago, IL
2009	Katherine Xue and Alborz Bejnoon,	2nd place in Microbiology team competition, Intel International Science and Engineering Fair, Reno, NV
2008	Katherine Xue and Alorz Bejnoon	Finalists of the regional (Southwest) Siemens Science Competition
2005	Luke Ulrich	Georgia Tech College of Science Outstanding Graduate student award
2005	Roger Alexander	Bob Macnab Best Poster Award, BLAST VIII Meeting
2004	Jason Reeves	Georgia Tech President's Undergraduate Research award
2003	Luke Ulrich	National Science Foundation IGERT fellowship
2001	Andrea Liatis	Georgia Tech President's Undergraduate Research award

Outreach

2013	Lecturer	Social Studies class, Cedar Bluff Middle School, Knoxville
2010	Lecturer	Science AP class, Farragut High School, Knoxville
2008 – 2009	Project Supervisor	Katherine Xie and Albortz Bejnood, Oak Ridge High School
2008	Keynote speaker	Tennessee Junior Sciences and Humanities Symposium
2008	Award presenter	Tennessee Science Olympiad State Competition
2007	Lecturer	Mathematics class, Oak Ridge High School
2007	Lecturer	Pre-Game Faculty Showcase, University of Tennessee Football