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A. Education

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Regensburg, Regensburg, Germany	Ph.D.	2006	Microbiology
Montana State University, Bozeman	M.S.	1999	Environ. Microbiology
Montana State University, Bozeman	B.S.	1995	Microbiology

B. Professional activities

Positions and employment

2007- R&D Associate, Oak Ridge National Lab, Biosciences Division, BioEnergy Science Center
2006-07 Postdoctoral Researcher, University of California, San Diego, Systems Biology Group
2002-06 Graduate Fellow, University of Regensburg/Diversa Corporation, Advisor: Dr. Karl O. Stetter
2001-02 Associate Staff Scientist, Microbiology, Diversa Corporation, San Diego, CA
1999-01 Sr. Research Associate, Microbiology, Diversa Corporation, San Diego, CA
1996-99 Graduate Res. Asst., Center for Biofilm Engineering, Montana State University, Bozeman, MT

Teaching and mentoring

2009- Undergraduate mentor for SULI students Angela Pack and Vincent Alessi
2008- Graduate student mentor for Adriane Lochner
2008- Postdoctoral mentor for Scott Hamilton-Brehm and Rishi Jain
2000 Supervised three direct reports, Diversa Corporation, San Diego, CA.
2000 Lecturer and Lab TA, International Training Workshop on Advances in Molecular Techniques to Assess Microbial Biodiversity, Bogor, Indonesia
1997 NSF Research Experience for Undergraduates Mentor (2 students)

Honors

Achievement Award, Biosciences Division, Oak Ridge National Laboratory
Summa Cum Laude, University of Regensburg, Regensburg, Germany
Service Award, Diversa Corporation, San Diego, CA
Graduate Fellowship, co-sponsored by the Univ. of Regensburg and Diversa Corp.
Graduate Research Assistantship, Center for Biofilm Engineering
First Place award, Undergraduate Scholars Conference, Montana State University
Montanans on a New Track for Science (MONTS) scholarship

Service and memberships

American Society for Microbiology
ORNL Invention Disclosure Review Committee
Reviewer for USDA SBIR proposals
Reviewer for ORNL Lab Directed Research and Development proposals

Current research support

BioEnergy Science Center (BESC), DOE-GTL, $125,000,000, 10/07-10/12, Task Leader.

Development of Novel Biocatalysts for the Production of Fuels and Chemicals from Synthesis Gas, ORNL-LDRD, $781,000, 10/08-10/10, Principle Investigator.

Targeted Genomic Characterization of Uncultured Bacteria from the Human Microbiota, NIH, $1,200,000, 9/09-8/12, Co-Investigator.

Functional sorting of microbial cells from complex microbiota, NIH, $473,491, 9/09-9/11, Co-Investigator.

C. Peer-reviewed publications

1. Hamilton-Brehm, S. D, J. J. Mosher, T. Vishnivetskaya, M. Podar, S. Carroll, S. Allman, T. J. Phelps, M. Keller, and J. G. Elkins. *Caldicellulosiruptor obsidiansis* sp. nov., an anaerobic, extremely thermophilic, cellulolytic bacterium isolated from Obsidian Pool, Yellowstone National Park. *Appl. Environ. Microbiol*. 76:1014-1020.
2. Vishnivetskaya T. A., T. J. Phelps, M. Podar, and J. G. Elkins. Cellulolytic Microorganisms from Thermal Environments. "Extremophiles: Microbiology and Biotechnology". Horizon Press – Submitted.
3. Anderson I.J., Dharmarajan L., Rodriguez J., Hooper S., Porat I., Ulrich L. E., Elkins J. G., Mavromatis K., Sun H., Land M., Lapidus A., Lucas S., Barry K., Huber H., Zhulin I. B., Whitman W. B., Mukhopadhyay B., Woese C., Bristow J., and N. Kyrpides. 2009. The complete genome sequence of *Staphylothermus marinus* reveals differences in sulfur metabolism among heterotrophic Crenarchaeota. *BMC Genomics* 10:l 45.
4. Podar M., I. Anderson, K. S. Makarova, J. G. Elkins, N. Ivanova, M. W. Wall, A. Lykidis, K. Mavromatis, H. Sun, M. E. Hudson, W. Chen, C. Deciu, D. Hutchison, J. R. Eads, A. Anderson, F. Fernandes, E. Szeto, A. Lapidus, N. C. Kyrpides, M. H. Saier Jr, P. M. Richardson, R. Rachel, H. Huber, J. A. Eisen, E. V. Koonin, M. Keller, and K. O. Stetter. 2008. A genomic analysis of the archaeal system *Ignicoccus hospitalis-Nanoarchaeum equitans*. *Genome Biol*. 9:R158. Epub 2008 Nov 10.
5. Elkins, J. G., M. Podar, D. E. Graham, K. S. Makarova, Y. Wolf, L. Randau, B. P. Hedlund, C. Brochier, V. Kunin, I. Anderson, A. Lapidus, E. Goltsman, K. Berry, E. V. Koonin, P. Hugenholtz, N. Kyrpides, G. Wanner, P. Richardson, M. Keller, and K. O. Stetter. 2008. A korarchaeal genome reveals new insights into the evolution of the Archaea. *Proc. Natl. Acad. Sci. USA.* 105:8102-8107.
6. Anderson I., J. Rodriguez, D. Susanti, I. Porat, C. Reich, L. E. Ulrich, J. G. Elkins, K. Mavromatis, A. Lykidis, E. Kim, L. S. Thompson, M. Nolan, M. Land, A. Copeland, A. Lapidus, S. Lucas, C. Detter, I. B. Zhulin, G. J. Olsen, W. Whitman, B. Mukhopadhyay, J. Bristow, and N. Kyrpides. 2008. Genome sequence of *Thermofilum pendens* reveals an exceptional loss of biosynthetic pathways without genome reduction. *J. Bacteriol.* 190:2957-2965.
7. Koonin, E. V., K. S. Makarova, and J. G. Elkins. 2007. Orthologs of the small RPB8 subunit of the eukaryotic RNA polymerases are conserved in hyperthermophilic Crenarchaeota and “Korarchaeota”. *Biol. Direct.* 2:38.
8. Zengler, K., Toledo, G., Rappé, M., Elkins, J., Mathur, E. J., Short, J. M., and M. Keller. 2002. Culturing the uncultured. *Proc. Natl. Acad. Sci*. *USA* 99:15681-15686.
9. Frederick, J. R., J. G. Elkins, N. Bollinger, D. J. Hassett, and T. R. McDermott. 2001. Factors affecting catalase expression in *Pseudomonas aeruginosa* biofilms and planktonic cells. *Appl. Environ. Microbiol*. 67:1375-9.
10. Deng, S., J. G. Elkins, L. H. Da, L. M. Botero, and T. R. McDermott. 2001. Cloning and characterization of a second acid phosphatase from *Sinorhizobium meliloti* strain 104A14. *Arch. Microbiol.* 176:255-63.
11. Stewart, P. S., F. Roe, J. Rayner, J. G. Elkins, Z. Lewandowski, U. A. Ochsner, and D. J. Hassett. 2000. Effect of catalase on hydrogen peroxide penetration into *Pseudomonas aeruginosa* biofilms. *Appl. Environ. Microbiol*. 66:836-8.

12. Hassett, D. J., J. G. Elkins, J. F. Ma, and T. R. McDermott. 1999. *Pseudomonas aeruginosa* biofilm sensitivity to biocides: use of hydrogen peroxide as model antimicrobial agent for examining resistance mechanisms. *Methods Enzymol*. 310:599-608.
13. Hassett, D. J., J. F. Ma, J. G. Elkins, T. R. McDermott, U. A. Ochsner, S. E. West, C. T. Huang, J. Fredericks, S. Burnett, P. S. Stewart, G. McFeters, L. Passador, and B. H. Iglewski. 1999. Quorum sensing in *Pseudomonas aeruginosa* controls expression of catalase and superoxide dismutase genes and mediates biofilm susceptibility to hydrogen peroxide. *Mol. Microbiol.* 34:1082-93.
14. Elkins, J. G., D. J. Hassett, P. S. Stewart, H. P. Schweizer, and T. R. McDermott. 1999. Protective role of catalase in *Pseudomonas aeruginosa* biofilm resistance to hydrogen peroxide. *Appl. Environ. Microbiol*. 65:4594-600.
15. Summers, M. L., J. G. Elkins, B. A. Elliott, and T. R. McDermott. 1998. Expression and regulation of phosphate stress inducible genes in *Sinorhizobium meliloti*. *Mol. Plant Microbe Interact.* 11:1094-101.
16. Al-Niemi, T. S., M. L. Summers, J. G. Elkins, M. L. Kahn, and T. R. McDermott. 1997. Regulation of the phosphate stress response in *Rhizobium meliloti* by PhoB. *Appl. Environ. Microbiol.* 62:4978-4981.

D. Invited lectures

1. Novel extreme thermophiles from Yellowstone National Park for the conversion of lignocellulosic biomass to biofuels. MSU Dept. of Microbiology seminar. Montana State University. Bozeman, MT. 12/09.
2. A closer look at the Korarchaeota. Gordon Research Conference. Archaea: Ecology, Metabolism & Molecular Biology. Waterville Valley, NH. 07/09.
3. Cultivating New Biocatalysts for Enhanced Conversion of Lignocellulosic Biomass. BESC Workshop, Chattanooga, TN. 11/08.
4. Ethanol production from cellulose and the search for better biocatalysts. UT Microbiology Departmental Seminar. Knoxville, TN. 10/09.
5. A complete korarchaeal genome sequence reveals a unique combination of signature genes. Gordon Research Conference. Archaea: Ecology, Metabolism & Molecular Biology. Proctor Academy, NH. 08/07.
6. Ecology, physiology, and genomics of deep-branching hyperthermophilic Archaea. Departmental Microbiology seminar; California State University, Northridge, CA. 2007.
7. Cultivation and genomics of a novel hyperthermophile representing the “Korarchaeota”. Bioscience Day. University of Regensburg, Regensburg, Germany. 01/07.
8. The “Korarchaeota” revealed: Identification, cultivation, and genomics of a novel hyperthermophile inhabiting Obsidian Pool, YNP. Departmental seminar; Montana State University, Bozeman; Thermal Biology Institute; Bozeman, MT. 12/06.
9. First Insights into a “Korarchaeal” genome. Gordon Research Conference. Archaea: Ecology, Metabolism & Molecular Biology. Oxford, UK. 08/05.
10. Enrichment, isolation, and identification of soil microorganisms. International Training Workshop on Advances in Molecular Techniques to Assess Microbial Biodiversity; Bogor, Indonesia. 2000.

E. Poster presentations

1. Giannone, R. J., A. Lochner, P. E. Abraham, L. J. Hauser, M. Keller, J. G. Elkins, and R. L. Hettich. Comparative proteomics of environmental isolate OB47 in regards to its substrate utilization for ethanol production. The American Society for Microbiology 109th General Meeting. Philadelphia, PA. 05/09.
2. Lochner, A., R. J. Giannone, M. Keller, J. G. Elkins, R. L. Hettich. Identification and localization of the cellulose-degrading enzymes from members of the genus *Caldicellulosiruptor* with multidimensional LC-MS/MS. The American Society for Microbiology 109th General Meeting. Philadelphia, PA. 05/09.

3. Vishnivetskaya, T. A., M. Podar, T. J. Phelps, M. Keller, J. G. Elkins. Diversity analysis and cultivation of novel cellulolytic bacteria from Obsidian Pool, Yellowstone National Park. The American Society for Microbiology 109th General Meeting. Philadelphia, PA. 05/09.
4. Giannone, R. J., A. Lochner, A. B. Dykstra, M. Keller, J. G. Elkins, R. L. Hettich. Identification of the extracellular cellulolytic enzymes in thermophilic bacteria that are important for microbial cellulose degradation to bioethanol. American Society for Mass Spectrometry - 57th Annual Meeting. Philadelphia, PA. 05/09.
5. Hamilton-Brehm, S. D., A. Lochner, R. J. Giannone, J. Mosher, R. Hettich, M. Keller, and J. G. Elkins* (*presenter). Physiological characterization of a novel member of the genus *Caldicellulosiruptor* and identification of the extracellular cellulolytic enzymes using multi-dimensional LC-MS/MS. 31st Symposium on Biotechnology for Fuels and Chemicals, San Francisco, CA. 05/08.
6. Elkins, J., S. Hamilton-Brehm, A. Locher, R. Giannone, T. Vishnivetskaya, J. Mosher, M. Podar, J. Morrell-Falvey, S. Allman, D. Klingeman, S. Carroll, M. Land, S. Brown, R. Hettich, T. Phelps, and M. Keller. Isolation of novel biofuel-relevant thermophiles and the identification of extracellular celluloytic enzymes using multi-dimensional LC-MS/MS. DOE-Genomes to Life Workshop. Bethesda, MD. 02/08/09.
7. Castro, H., S. Plecha, D. Hall, S. Tiquia, M. K. Kerley, S. L. Carroll, E. E. Austin, S. Allman, J. G. Elkins, M. Podar, T. Phelps, C. W. Schadt. Screening for novel bacteria able to grow on the bioenergy feedstock switchgrass. 108th General Meeting of the American Society for Microbiology, Boston, MA. 06/08.
8. Elkins, J., T. Vishnivetskaya, M. Podar, T. J. Phelps, and M. Keller. High-throughput isolation of extreme thermophiles that produce ethanol from switchgrass and *Populus*. 30th Symposium on Biotechnology for Fuels and Chemicals; New Orleans, LA. 05/08.
9. Zengler, K., K., Y. Qiu, B-K. Cho, L. Kagan, J. Elkins, D. Lovley and B. Palsson. Towards a transcriptional regulatory network (TRN) in *Geobacter sulfurreducens*. GTL Awardee Workshop VI; Bethesda, MD. 02/08.
10. Summers, Z., K. Nevin, C. Herring, R. Glaven, S. Haveman, J. Elkins, B. Palsson and D. Lovley. Genome-scale analysis of adaptive evolution of *Geobacter* for improved metal reduction and electricity production. GTL Awardee Workshop V; Bethesda, MD. 02/07.
11. Elkins, J.G. et al. Identification and partial characterization of acid phosphatases in *Rhizobium meliloti*. Plant Biology ’98, Annual Meeting of the American Society of Plant Physiologists; Madison, Wisconsin, USA. 1998.

F. Collaborators

Karl O. Stetter, University of Regensburg; Eugene Koonin, National Center for Biotechnology Information, NIH; Joel Kostka, Florida State University; Iain Anderson, The Joint Genome Institute.