

DWAYNE A. ELIAS

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EDUCATION

| | | | |
|------|--------------------------------|-------|--------------|
| 2002 | University of Oklahoma | Ph.D. | Microbiology |
| 1997 | University of Manitoba, Canada | M.S. | Microbiology |
| 1994 | University of Winnipeg, Canada | B.A. | Biology |

PROFESSIONAL POSITIONS

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| 2009 – Present | Staff Scientist, Microbial Ecology and Physiology, Biosciences Division, Oak Ridge National Laboratory |
| 2005 – 2009 | Assistant Research Professor, Department of Biochemistry, University of Missouri-Columbia |
| 2002 – 2005 | Postdoctoral research fellow, Microbial Proteomics, Pacific Northwest National Laboratory |

PROFESSIONAL SERVICE, AFFILIATIONS, AND HONORS

2009 Co-convenor and speaker at 2009 American Society of Microbiology Symposium on Extremophilic Bacteria.
2008 Invited speaker at the American Geophysical Union Chapman Conference on Biogeophysics.
2006 Mentoring of junior high school student Monique Whittman. Monique worked in my lab for her school science project, received top honors locally and at the Missouri State science fair.
2006 Invited speaker Missouri University of Science and Technology.
2004 Invited guest lecturer, University of Missouri at Columbia.
2000 Nominated to the U.S. National Society of Collegiate Scholars.

Ad hoc reviewer for Geophysical Research Letters, Current Microbiology, Environmental Science and Technology, Biotechnology Advances, Chemosphere, Microbial Ecology, Environmental Microbiology, Applied and Environmental Microbiology, Geomicrobiology Journal, International Society of Microbial Ecology Journal

AREAS OF EXPERTISE

Enrichment and isolation of fastidious anaerobic microorganisms from sediments
Continuous cultivation of aerobic, anaerobic and facultative microorganisms
Gas and solute analytical techniques (colorimetric, KPA, ICP, HPLC, GC, LC/MS, and GC/MS)
Aerobic and anaerobic assay techniques for enzyme activity and protein quantitation
Protein purification and characterization (FPLC chromatography, SDS- and Native- PAGE, protein fractionation and precipitation)
Molecular biology (primer design, PCR, gene deletion and tagging, western, northern and southern blots)
Data mining and data integration of MS proteomic and microarray analysis

SELECT RECENT PUBLICATIONS (from 20 peer-reviewed articles, and 1 book chapter)

Elias D.A., A. Mukhopadhyay, M. Joachimiak, A.M. Redding, H.B. Yen, M.W. Fields, T.C. Hazen, A.P. Arkin, J.D. Keasling, and J.D. Wall. 2009. Expression profiling of hypothetical genes in *Desulfovibrio vulgaris* leads to improved functional annotation. Nucl. Acids Res. 37:2926-2939.

- Elias D.A., S.L. Tollaksen, D.W. Kennedy, H.M. Mottaz, C.S. Giometti, J.S. McLean, E.A. Hill, G.E. Pinchuk, M.S. Lipton, J.K. Fredrickson, and Y.A. Gorby. 2008. The influence of cultivation methods on *Shewanella oneidensis* physiology and proteome expression. Arch. Microbiol. 189:313-324.
- Elias D.A., F. Yang, H.M. Mottaz, A.S. Belieav, and M.S. Lipton. 2007. Enrichment of functional redox reactive proteins and identification by mass spectrometry results in several terminal Fe(III)-reducing candidate proteins in *Shewanella oneidensis* MR-1. J. Microbiol. Meth. 68:367-375.
- Shi L., M.U. Mayer, B. Chen, D.A. Elias, Y.A. Gorby, S. Ni, B.H. Lower, M.J. Marshall, E.A. Hill, A.S. Beliaev, J.M. Zachara, J.K. Fredrickson, and T.C. Squier. 2006. Identification and characterization of protein-interaction between OmcA and MtrC: Two decaheme c-type cytochromes of *Shewanella oneidensis* MR-1. J. Bacteriol. 188:4705-4714.
- Elias D.A., M.E. Monroe, R.D. Smith, J.K. Fredrickson, and M.S. Lipton. 2006. Confirmation of the expression of a large set of conserved hypothetical proteins in *Shewanella oneidensis* MR-1. J. Microbiol. Meth. 66:223-233.
- Elias D.A., M.E. Monroe, M.J. Marshall, M.F. Romine, A.S. Belieav, J.K. Fredrickson, G.A. Anderson, R.D. Smith, and M.S. Lipton. 2005. Detection and characterization of hypothetical proteins in *Shewanella oneidensis* MR-1 using LC-MS based proteomics. Proteomics 5:3120-3130.
- Yang F., B. Bogdanov, E.F. Strittmatter, A.N. Vilkov, M.A. Gritsenko, L. Shi, D.A. Elias, S. Ni, M.F. Romine, L. Pasa-Tolic, M.S. Lipton, and R.D. Smith. 2005. Characterization of purified c-type heme-containing peptides and identification of c-type heme-attachment sites in *Shewanella oneidensis* cytochromes using mass spectrometry. J. Proteome Res. 4:846-854.
- Elias D.A., L.R. Krumholz, and J.M. Suflita. 2004. The periplasmic cytochrome c_3 of *Desulfovibrio vulgaris* Hildenborough is directly involved in metal but not sulfate reduction. Appl. Environ. Microbiol. 70:413-420.
- Elias D.A., L.R. Krumholz, D. Wong, P.E. Long, and J.M. Suflita. 2003. Characterization of microbial activities and U-reduction in a shallow aquifer contaminated by uranium mill tailings. Microb. Ecol. 46:83-91.
- Elias D.A., J.M. Senko, and L.R. Krumholz. 2003. A procedure for quantitation of total oxidized uranium for bioremediation studies. J. Microbiol. Meth. 53:343-353.
- Krumholz L.R., D.A. Elias, and J.M. Suflita. 2003. Immobilization of cobalt by sulfate-reducing bacteria in subsurface sediments. Geomicrobiol. J. 20:61-72.

COLLABORATORS AND OTHER AFFILIATIONS

Ph.D. advisors: L.R. Krumholz and J.M. Suflita, University of Oklahoma

Post-doctoral advisor: J.K. Fredrickson, Pacific Northwest National Laboratory

Students: Elliott Drury, Matthew Begemann

Montana State University: Matthew Fields

Lawrence Berkeley National Laboratory: Adam Arkin, Terry Hazen, Katherine Huang, Romy Chakraborty, Manfred Auer, Jay Keasling, Aindrila Mukhopadhyay, Alyssa Redding, Swapnil Chhabra

Oak Ridge National Laboratory: Steven Brown, Anthony Palumbo, Craig Brandt

University of Oklahoma: Lee Krumholz, Joe Suflita

University of Missouri: Judy Wall, Elliott Drury, Grant Zane, Huei-che (Bill) Yen

Pacific Northwest National Laboratory: Jim Fredrickson, John Zachara, Alex Belieav, Matt Marshall, Margie Romine, Mary Lipton

J. Craig Venter Institute: Yuri Gorby, Jeff McLean

Oklahoma State University: Estella Atekwana

Smithsonian Environmental Research Center: Cindy Gilmour