

Kristen M. DeAngelis

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EDUCATION and PROFESSIONAL EXPERIENCE

Seaborg Postdoctoral Fellow, Lawrence Berkeley National Lab, October 1, 2007 to present

Research in the Earth Sciences Projects in collaboration with

- Drs. Whendee Silver (UC Berkeley) & Terry Hazen (LBNL): tropical forest soils decomposition; tropical forest microorganisms as reservoir for new enzyme activity
- Drs. Gary Andersen (LBNL) & Nian Wang (U Florida): xylem microbial ecology and investigation of putative pathogen for citrus greening disease
- Drs. Mark Waldrop (USGS) & Janet Janssen (LBNL): effect of global climate change, warming and flooding, on permafrost microbial community composition and activity

Theoretical & Practical Course on Molecular Approaches for *in situ* Biodegradation, May 24 - Jun 7, 2009

Sponsored by The United States - European Commission Task Force on Biotechnology Research, and directed by Drs. Joseph Suflita and Kathleen Duncan, at University of Oklahoma, Norman OK.

Woods Hole Summer Course in Microbial Diversity, Teaching Assistant, June 4 - Aug 3, 2007

Mentoring the molecular biology labs and teaching DNA extraction techniques, phylogenetic identification and classification, use of arb and other database tool as well as other phylogenetic tools, tree-building techniques, and batch eukaryotic fermentation reactions.

Postdoctoral researcher at the University of California, Berkeley, Jan 1 – June 10, 2006

With Drs. Whendee Silver and Mary Firestone, investigation into the role of fluctuating reduction-oxidation cycles to control microbial community structure and function, with emphasis on iron cycling and methanogenesis.

University of California, Berkeley, PhD Microbiology, December 19 2006

Advisors: Mary Firestone and Steven Lindow. Advanced to Candidacy May 2002.

Coursework

- General Microbiology, Soil Microbiology, Environmental Microbiology
- Analysis of Environmental Data, Perl for Bioinformatics
- Biogeochemistry, Nitrogen Stable Isotopes, Microbial Ecology

Doctoral Dissertation

Title: "Microbial community ecology and bacterial quorum sensing and as control points in rhizosphere nitrogen cycling."

Download: http://nature.berkeley.edu/~kristen/KMD_PhD_2006.pdf

Woods Hole Summer Course in Microbial Diversity, student, June 12-August 1, 2003

Isolation, characterization, and identification of bacteria and archaea in the environment, with emphasis on metabolic adaptability, environmental effects, and community interactions.

Harvard University, B.A. Biology, 1997

Coursework included molecular and cellular biology, evolutionary and organismic biology, organic chemistry, philosophy of biology, psychobiology, and multivariable calculus

HONORS AND AWARDS

Best Student Paper Soil Ecology Section, Ecological Society of America Meeting, August 2006

Raymond W. Sarber Award, American Society of Microbiology, May 2006

Outstanding Contribution, Roche Scientific Diagnostics, 1998

Faculty of Arts and Science Scholar, Harvard University, 1994

GRANTS AND FELLOWSHIPS

JGI CSP, "Metagenomics of Permafrost Soil Microbiota - Implications for Climate Change", 2009

Glenn T. Seaborg Postdoctoral Fellowship, Lawrence Berkeley National Lab, 2007

National Science Foundation Doctoral Dissertation Improvement Grant, 2004

Environmental Protection Agency Science-to-Achieve-Results (EPA STAR) Fellowship, 2003

Sigma Xi Grants-in-Aid Research Award, 2002

UC Berkeley Department of Plant and Microbial Biology Travel Grant, 2002

PROFESSIONAL SERVICE

Peer Review of Academic Publications

International Society for Microbial Ecology Journal – since 2008

FEMS Microbiology Ecology – since 2007

Soil Biology and Biochemistry – since 2007

Functional Ecology Journal – since 2007

Peer Review of Grant Award Competitions

Biotechnology and Biological Sciences Research Council UK, January 2009

National Science Foundation Annual Merit Review, October 2008

U.S. Civilian Research & Development Foundation, July 2008

Swiss National Science Foundation, June 2008

NSF/USDA Microbial Genome Sequencing Program, March 2008

Berkeley Science Review Journal – sciencereview.berkeley.edu

2004-2006 Contributor

2003-2004 Editor and Contributor

UC Berkeley Microbiology Student Group – pmb.berkeley.edu/~bacteria

2000-2006. Annual Microbiology Interdepartmental Student Symposium Committee

2000-2006. Microbiology Student Group: Chair (2002); Vice-Chair (2003)

RESEARCH EXPERIENCE

Postdoctoral Researcher, Lawrence Berkeley National Lab, October 2007 – present

Postdoctoral Researcher, UC Berkeley, January – June 2007

Graduate Student, UC Berkeley, Aug 2000 – present

Research Technician, James Berger Lab, UC Berkeley, Oct 1998 – Jun 2000

Research Technician, Children's Hospital Boston, Clinical Chemistry, Jun 1997 – Aug 1998
Research Assistant, Harvard Medical School, Devel. & Molecular Neurobiol., May – Sept 1996

PROFESSIONAL SOCIETIES

Society for Industrial Microbiology, since 2009
American Association for the Advancement of Science, since 2006
Ecological Society of America, since 2002
International Society for Microbial Ecology, since 2002
American Society for Microbiology, since 2000

TEACHING

2009 Summer. LBNL Mentor, Center for Science and Education (CSEE) Berkeley Lab Undergraduate Research Summer Internship Program (BLUR)

2008 Spring. Guest Lecturer, Microbial communications in nature. ESPM 131, Soil Microbial Ecology with Prof. Dr. Celine Palud

2008 Spring. Guest Lectures, Soil microbial ecology. Part 1: What are soils, Part 2: Microbial ecology of soils. ESPM 112, Microbial Ecology with Prof. Dr. Rodrigo Almeida

2007 Summer. Teaching assistant at Microbial Diversity Course, Woods Hole. Directors Tom Schmidt (Michigan State U) and Bill Metcalf (U Illinois). Guest lectures including "Rhizosphere microbiology and microbial ecology," and "Multivariate statistical methods in microbial community analyses."

Mentor to undergraduate and honors thesis research

2006 Summer & Fall: Hieu Pham, "Community dynamics of archaea in mesophilic rhizosphere soil."

2004-05 Academic year: Cynthia C. Cox, "Seasonal and plant-variation in phyllosphere bacterial communities."

2002 Summer: Helen Ha, "Rhizosphere microbial community analysis by culturing."

2006 Spring. Guest Lecturer, Microbial communications in nature. ESPM 131, Soil Microbial Ecology with Profs. Mary K. Firestone and Tom Bruns

2005 August to December. Advisor for undergraduate honors thesis research, Cynthia Cox. Topic: Comparative analysis of leaf-surface microbial communities using T-RFLP 16S rRNA fingerprinting method of directly extracted versus cultured bacteria

2003 Fall. Reader for MCB 112 (cross-listed in PMB): General Microbiology

2003 Spring. Guest Lecturer, Overview of genetics and physiology of Bacteria. Industrial Design "Biomimicry" at the California College of Arts and Crafts, San Francisco, CA with Professor Sue Redding.

2002 Fall. Graduate Student Instructor, MCB 112 (cross-listed in PMB): General Microbiology

2002 Fall. Guest Lecturer. The Nitrogen Cycle: Dissimilatory and Assimilatory Processes. MCB 112, General Microbiology with Professor Antje Hofmeister

2001 Fall. Graduate Student Instructor, Biology 1B: Evolution, Ecology and Plant Biology with Professors Glenys Thomson, Todd Dawson, and Carla D'Antonio

PUBLICATIONS in PRESS

PUBLICATIONS

- Sagaram, US, **KM DeAngelis**, P Trivedi, GL Andersen, S Lu, N Wang. 2009. Bacterial diversity analysis of citrus leaves from HLB pathogen infected citrus groves using PhyloChips and 16S rDNA clone library sequencing. *Applied and Environmental Microbiology*, 75(6): 1566-1574.
- DeAngelis KM**, EL Brodie, TZ DeSantis, GL Andersen, Lindow SE and Firestone MK. 2009. Selective, progressive response of soil microbial community to wild oat roots. *ISME Journal* (3):168-178.
- Templer P, Pett-Ridge J, **DeAngelis KM**, Firestone MK, Silver W. 2008. Plant and microbial controls on nitrogen retention and loss in Puerto Rican forest soils. *Ecology*, 89(11): 3030-3040.
- DeAngelis KM**, Lindow SE and Firestone MK. 2008. Bacterial quorum sensing and nitrogen cycling in rhizosphere soil. *FEMS Microbiology Ecology*, v66:197-207.
- Hawkes CV, **DeAngelis KM**, and Firestone MK. 2007. Root Interactions with Microbial Communities and Processes. *In The Rhizosphere: an Ecological Perspective*. Julie L. Whitbeck and Zoe Cardon, eds. Academic Press, Inc., San Diego CA.
- DeAngelis KM**, Firestone MK and Lindow SE. 2007. Sensitive whole-cell biosensor suitable for detecting a variety of N-acyl homoserine lactones in intact rhizosphere microbial communities. *Applied and Environmental Microbiology*, v73(11): 3724-3727.
- DeAngelis KM**, Ji P, Firestone MK, Lindow SE. 2005. Construction of a Novel Bacterial Sensor for the Detection of Nitrate Availability in the Rhizosphere. *Applied and Environmental Microbiology*, vol 71 (12): 8537-8547
- Liu JY, Smith CL, DeRyckere D, **DeAngelis K**, Martin GS, Berger JM. 2000. Structure and function of Cdc6/Cdc18: Implications for origin recognition and checkpoint control. *Molecular Cell*, v 6(3): 637-648.
- Nichols MN, **DeAngelis K**, Keck J, Berger JM. 1999. Structure and function of an Archaeal Topoisomerase VI subunit with homology to the meiotic recombination factor Spo11. *The EMBO Journal*, v. 18, n.21 6177-6188.
- Rifai N, Iannotti E, **DeAngelis K**, Law T. 1998. Analytical and clinical performance of a homogeneous enzymatic LDL-Cholesterol assay compared with the Ultracentrifugation-Dextran Sulfate-Mg⁺⁺ method. *Clinical Chemistry* 44:6, 1242-1250.
- Law T, Arslanian S, Iannotti E, **DeAngelis K**, Rifai N. 1998. Departments of Laboratory Medicine and Pathology, Children's Hospital and Harvard Medical School, Boston MA. Analytical Performance of the Roche Direct HDL-Cholesterol Assay compared with the Ultracentrifugation-Dextran Sulfate-Mg⁺⁺Method. *Clinical Chemistry Suppl* 44:6, A77

PUBLICATIONS in PREP

- DeAngelis KM**, W Silver, AW Thompson, MK Firestone. Specific microbial populations thrive under fluctuating redox conditions in tropical soils.
- DeAngelis KM**, JL Fortney, TC Hazen. Isolation of novel lignocellulose-degrading organisms from Puerto Rican rainforest soils.

DeAngelis KM, TC Hazen, WL Silver, Below-ground decomposing microbial communities

RESEARCH PRESENTATIONS and POSTERS

DeAngelis, KM, J Fortney, WL Silver, TC Hazen. "Identification and characterization of lignocellulolytic microbes in Puerto Rican tropical forest soils." Society for Industrial Biology and Biotechnology Annual Meeting, Toronto, Canada July 2009.

DeAngelis, KM, J Fortney, WL Silver, TC Hazen. "Investigation of novel lignocellulolytic organisms and enzymes from wet tropical forest soils in Puerto Rico." American Society for Microbiology poster, Philadelphia, PA, May 2009.

Knierim*, B., L. Prak, S. Singh, D. Jorgens, M. Zemla, **K.M. DeAngelis**, A. P. Reddy, J. VanderGheynst, T. C. Hazen, B. M. Holmes, R. Sapra, B. A. Simmons, P. D. Adams, and M. Auer. Contributed. Electron Microscopic Imaging at JBEI. May 2009, San Francisco, CA. 31st Symposium on Biotechnology for Fuels and Chemicals, Society for Industrial Microbiology.

DeAngelis, K. M., W. L. Silver, J. Fortney, and T. C. Hazen. Invited. Discovery and Optimization of Lignocellulolytic Bacteria from Puerto Rican Rainforest Soils. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009

Knierim*, B., L. Prak, S. Singh, D. Jorgens, M. Zemla, **K.M. DeAngelis**, A. Reddy, J. VanderGheynst, T. C. Hazen, B. Holmes, R. Sapra, B. Simmons, P. Adams, and M. Auer. Invited. Electron Microscopic Imaging a JBEI. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.

Hazen, T. C., P. Hugenholtz, S. Singer, J. VanderGheynst, P. M. D'haeseleer, M. P. Thelen, **K. M. DeAngelis**, A. Reddy, M. Allgaier, J. Fortney, G. Andersen, T. DeSantis, E. Brodie, C. Wu, D. Goodheart, M. Firestone, W. Silver, and B. Simmons. Invited. JBEI Microbial Communities Deconstruction Research Activities. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.

Allgaier, M., A. Reddy, J. VanderGheynst, A. Copeland, V. Kunin, P. D'haeseleer, **K. M. DeAngelis**, J. Fortney, D. Chivian, P. S. Dehal, B. Simmons, T. C. Hazen, and P. Hugenholtz. Invited. Metagenomic Characterization of Compost and Rain Forest Soil Microbial Communities. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.

Waldrop, MP, K Wickland, C Rychel, **KM DeAngelis**, J Janssen, JW Harden. Is the temperature sensitivity of decomposition affected by the number of active microorganisms in northern frozen soils? AGU Poster, December 2008 San Francisco, CA.

DeAngelis, KM, Silver WS, Thompson AW, Firestone MK. "Specific microbial populations thrive under fluctuating redox conditions in tropical soils." AGU poster, December 2008 San Francisco, CA.

Silver, Whendee L., **Kristen M. DeAngelis**, Wendy Yang, and Andrew W. Thompson. "Biogeochemical cycling in the critical zone: From pattern to process and back again." 2008 Goldschmidt Conference, Vancouver, CA

DeAngelis, KM, Silver WS, Thompson AW, Firestone MK. "Specific microbial populations thrive under fluctuating redox conditions in tropical soils." American Society for Microbiology poster, Boston MA 2008.

- Silver, Whendee L., **DeAngelis, Kristen M.**, Thompson, Andrew W., Firestone, Mary K. "Temporal and spatial dynamics of redox-sensitive biogeochemistry in tropical forests: Implications for C, N, P, and Fe cycling." Joint Meeting of the 92nd Ecological-Society-of-American/Society-for-Ecological-Restoration, August 05 -10, 2007 San Jose, CA, USA
- Oldenburg, CM, MS Torn, **KM DeAngelis**, JB Ajo-Franklin, RG Amundson, CJ Bernacchi, GM Bond, EL Brodie, M Carerra, JN Christensen, AB Cunningham, B Fouke, TC Hazen, AK Jain, M Kleber, KG Knauss, S Nakagawa, KL O'Hara, WJ Parton, WL Silver, JW Six, WI Stringfellow, TK Tokunaga, T Xu, and D Zilberman. 2008. Biologically Enhanced Carbon Sequestration: Research Needs and Opportunities. Report on the Energy Biosciences Institute Workshop on Biologically Enhanced Carbon Sequestration, October 29, 2007, Berkeley, CA.
- DeAngelis KM**, Lindow SE and Firestone MK. "The Rhizosphere: Microbial community structure and function as control points for nitrogen cycling." ESA talk in Organized Oral Session Carbon, Nitrogen and Water fluxes in the Rhizosphere, Aug 2006.
- DeAngelis KM**, Lindow SE and Firestone MK. "The Rhizosphere: Microbial community structure and function as control points for nitrogen cycling." ISME poster, Vienna, Austria, Aug 2006.
- DeAngelis KM**, Firestone MK, and Lindow SE. "Quorum sensing as a control point in rhizosphere nitrogen transformations." ASM poster, Orlando FL, May 2006.
- DeAngelis K**, Firestone MK, Lindow SE. Quorum sensing in the rhizosphere: quantitative and qualitative effects on bacterial community. Poster, International Society of Microbial Ecology, Cancun Mexico, Aug 2004
- DeAngelis K**, Firestone MK. Effects of Soil Microbial Community Composition on Nitrogen Cycling Dynamics in Rhizosphere Soil. Invited symposium: "Emerging Perspectives on the Feedbacks between Plant and Soil Communities" at Ecological Society of America, Tucson, Arizona, Aug 2002.
- DeAngelis K**. Quorum sensing in the Rhizosphere: Effects on Nitrogen Mineralization and Plant Nitrogen Availability. UC Berkeley Biogeochemistry Seminar Series Apr 2002.
- DeAngelis K**, Schwartz E, Firestone MK, Wan J, Tokunaga T, Joyner D, and Hazen T. Microbial Community Composition and Chromium Transport in Clay Sediment. Poster at UC Berkeley Annual Microbiology Symposium 2001.
- DeAngelis K**, Nichols MN, Keck J, Berger JM. Structure and function of an Archaeal Topoisomerase VI subunit with homology to the meiotic recombination factor Spo11. Poster presented at UC Berkeley Biochemistry and Molecular Biology Meeting 2000.

Last updated August 19, 2009