

ANGELA D. KENT

*University of Illinois at Urbana-Champaign
Natural Resources and Environmental Sciences
1102 S. Goodwin Avenue, Urbana, IL*

*Telephone: 217-333-4216
Fax: 217-244-3219
E-mail: akent@uiuc.edu*

EDUCATION

Ph.D., Bacteriology **December, 2000**

University of Wisconsin-Madison

Dissertation: "Manipulating rhizosphere microbial community structure using antibiotic-producing bacteria."

Advisor: Eric Triplett

M.S., Bacteriology **August, 1996**

University of Wisconsin-Madison

B.A., Biology **May, 1992**

Grinnell College

EXPERIENCE

Assistant Professor, Dept. of Natural Resources and Environmental Sciences 2005-present
University of Illinois at Urbana-Champaign

Research Associate, Civil and Environmental Engineering December 2003 - 2005
University of Wisconsin-Madison

Research Associate, Center for Limnology 2001-2005
University of Wisconsin-Madison

Research Assistant, Department of Bacteriology 1996-2000
University of Wisconsin-Madison

Research Assistant, Department of Medical Microbiology and Immunology 1992-1996
University of Wisconsin-Madison

RESEARCH EXPERIENCE

Postdoctoral Research: North Temperate Lakes Microbial Observatory, Center for Limnology, University of Wisconsin-Madison, 2001- present. Research advisors: Eric Triplett and Katherine McMahon

- Characterization of spatial and temporal variability in microbial community structure in temperate aquatic ecosystems
- Investigation of biogeochemical, physical and biological mechanisms that influence microbial community structure in aquatic systems
- Experimental manipulation of aquatic microbial food webs to examine the effect of trophic interactions on the composition and dynamics of microbial populations
- Characterization of microbial communities associated with mercury methylation activity in hypolimnetic waters
- Development of bioinformatics tools to aid microbial ecologists' ability to derive phylogenetic information from DNA fragment analyses ("community fingerprints")

Doctoral Research: Department of Bacteriology, University of Wisconsin-Madison, 1996- 2000.
Research advisor: Eric Triplett

- Microbial ecology of the plant rhizosphere
- Ecological impact of antibiotic production by rhizosphere microorganisms, in particular rhizobial and biocontrol inoculants
- Impact of phytopathogen colonization on the structure of rhizosphere microbial communities
- Improvement of the competitiveness and yield-increasing capacity of commercial rhizobial inoculants

Masters Research: Department of Medical Microbiology and Immunology, University of Wisconsin-Madison, 1992- 1996. Research advisor: Rodney Welch

- Investigation of the structure and function of the hemolysin (HlyA) protein of uropathogenic *E. coli*, with particular attention to the region containing the glycine-rich repeated amino acid sequences that are the signature motif for the RTX family of cytolytic toxins
- Development of a structural model of the carboxy-terminal region of the hemolysin protein containing the RTX motif
- Investigation of the role of Ca²⁺ binding in stabilization of the HlyA protein structure

PUBLICATIONS

- Kent, A.D.,** A.C. Yannarell, J.A. Rusak, E.W. Triplett, and K.D. McMahon. 2007. Synchrony in aquatic microbial community dynamics. *The ISME Journal* 1:(in press).
- Yannarell, A.C., and **A.D. Kent.** 2008. Bacteria, distribution and community structure. *Encyclopedia of Inland Waters*, Gene Likens (ed.). Oxford: Elsevier (in press).
- Shade, A.L., **A.D. Kent,** S.E. Jones, R.J. Newton, E.W. Triplett, and K.D. McMahon. 2007. Inter-annual dynamics and phenology of bacterial communities in a eutrophic lake. *Limnology and Oceanography* 52: 487-494.
- Jones, S.E., A.L. Shade, K.D. McMahon, **A.D. Kent.** 2007. Comparison of primer sets for use in automated ribosomal intergenic spacer analysis (ARISA) of aquatic bacterial communities: an ecological perspective. *Applied and Environmental Microbiology* 73:659-662.
- Kent, A.D.,** S.E. Jones, G.H. Lauster, J.M. Graham, R.J. Newton, and K.D. McMahon. 2006. Experimental manipulations of microbial food web interactions in a humic lake: shifting biological drivers of bacterial community structure. *Environmental Microbiology* 8:1448-1459.
- Newton, R. J., **A. D. Kent,** E. W. Triplett, and K. D. McMahon. 2006. Microbial community dynamics in a humic lake: differential persistence of common freshwater phylotypes. *Environmental Microbiology* 8:956-970.
- Balser, T., K. McMahon, D. Bart, D. Bronson, D.R. Coyle, N. Craig, M. Flores-Mangual, K. Forshay, S. Jones, **A. Kent,** A. Shade. 2006. Bridging the gap between micro- and macro-scale perspectives on the role of microbial communities in global change ecology. *Plant and Soil* 289:59-70.

- Watras, C.J., K.A. Morrison, **A.D. Kent**, N. Price, O. Regnell, C. Eckley, H. Hintelmann, and T. Hubacher. 2005. Sources of methylmercury to a wetland-dominated lake in northern Wisconsin. *Environmental Science and Technology* 39:4747-4758.
- Eckley, C., C. Watras, H. Hintelmann, **A.D. Kent**, and O. Regnell. 2005. Mercury methylation in the hypolimnetic waters of lakes with and without connection to wetlands in northern Wisconsin. *Canadian Journal of Fisheries and Aquatic Science* 62:400-411.
- Jacob, C., **A.D. Kent**, B.J. Benson, R.J. Newton, and K.D. McMahon. 2005. Biological databases for linking large microbial and environmental datasets. *Proc. 9th World Multiconference on Systematics, Cybernetics and Informatics* Vol VII: Informatics Systems Development II, July 14-18, 2002, Orlando, FL.
- Kent, A.D.**, S.E. Jones, A.C. Yannarell, J.M. Graham, G.H. Lauster, T.K. Kratz, and E.W. Triplett. 2004. Annual patterns in bacterioplankton community variability in a humic lake. *Microbial Ecology* 48(4):550-560.
- Graham, J.G., **A.D. Kent**, G.H. Lauster, A.C. Yannarell, L.E. Graham, T.K. Kratz, and E.W. Triplett. 2004. Seasonal dynamics of phytoplankton and protoplankton communities in a northern temperate humic lake: diversity in a dinoflagellate dominated system. *Microbial Ecology* 48(4):528-540.
- Iniguez, A.L., E.A. Robleto, **A.D. Kent**, and E.W. Triplett. 2004. Significant yield increase in *Phaseolus vulgaris* obtained by inoculation with a trifoliotoxin-producing, Hup⁺ strain of *Rhizobium leguminosarum* bv. phaseoli. *Crop Management*. Online: <http://www.plantmanagementnetwork.org/sub/cm/review/2004/yield/>
- Kent, A.D.**, D.J. Smith, B.J. Benson, and E.W. Triplett. 2003. A web-based phylogenetic assignment tool for analysis of terminal restriction length polymorphism profiles of microbial communities. *Applied and Environmental Microbiology* 69:6768-6776.
- Yannarell, A.C., **A.D. Kent**, G.H. Lauster, T.K. Kratz, and E.W. Triplett. 2003. Temporal patterns in bacterial communities in three temperate lakes of different trophic status. *Microbial Ecology* 46:391-405.
- Kent, A.D.** and E.W. Triplett. 2002. Microbial communities and their interactions in soil and rhizosphere ecosystems. *Annual Review of Microbiology* 56:211-236.
- Kent, A.D.**, M.L. Wojtasiak, E.A. Robleto, and E.W. Triplett. 1998. A transposable partitioning locus used to stabilize plasmid-borne hydrogen oxidation and trifoliotoxin production genes in a *Sinorhizobium* strain. *Applied and Environmental Microbiology* 64:1657-1662.
- Welch R.A., M.E. Bauer, **A.D. Kent**, J.A. Leeds, M. Moayeri, L.B. Regassa, and D.L. Swenson. 1995. Battling against host phagocytes: the wherefore of the RTX family of toxins? *Infectious Agents and Disease* 4:254-272.

INVITED PRESENTATIONS

Kent, A.D., A.C. Yannarell, J.A. Rusak, E.W. Triplett, K.D. McMahon. Synchrony in aquatic microbial community dynamics. Invited colloquium presentation at the 107th General Meeting of the American Society for Microbiology, in Toronto, Ontario. May 21-25, 2007.

Kent, A.D. Comparing microbial community composition in natural and managed aquatic ecosystems. Invited presentation, Managing Cetaceans for Optimal Health workshop, Shedd Aquarium, Chicago, Illinois, May 17-18, 2007.

Kent, A.D. Opening the “black box” of microbial ecology: examining drivers of microbial community dynamics in aquatic ecosystems. Program in Ecology & Evolutionary Biology, University of Illinois at Urbana-Champaign. December 6, 2006.

Kent, A.D. Using the tools of informatics for planning collaborative research. Gamma Sigma Delta Graduate Fellowship Recognition Reception, University of Illinois at Urbana-Champaign. November 2, 2006.

Kent, A.D. Battle of the bog beasts: microbial ecology of humic lakes. Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign. October 14, 2005.

Kent, A.D. Two microbial tales: bacterial dynamics and mercury methylation in Wisconsin waters. Institute of Marine Sciences, University of North Carolina at Chapel Hill, May 20, 2005.

Kent, A.D., K.D. McMahon, L. Torrey. Integrating the three pillars: drawing upon the DELTA learning community to design, implement, and assess an interactive "virtual lab" to support a variety of learning styles. University of Wisconsin-Madison, April 27, 2005.

Kent, A.D. Dissecting the “black box”: examining drivers of microbial community variability in aquatic ecosystems. Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign. December 9, 2004.

Kent, A.D. Microbial ecology of wetlands. Lecture to NRES students at University of Illinois at Urbana-Champaign. December 10, 2004.

Kent, A.D. Dissecting the “black box”: examining drivers of microbial community variability in aquatic ecosystems. University of Florida, Gainesville, FL. December 1, 2004.

Kent, A.D. Dissecting the “black box”: examining drivers of microbial community variability in aquatic ecosystems. University of Richmond, Richmond, VA. November 15, 2004.

Kent, A.D. Biogeochemical cycles in aquatic systems. Lecture to Biology students at University of Richmond, Richmond, VA. November 16, 2004.

Kent, A.D. Aquatic Microbial Ecology lecture to Environmental Engineering students at UW-Madison. November 1, 2004.

Kent, A.D. Aquatic Microbial Ecology lecture to Conservation of Aquatic Resources students at UW-Madison. October 14, 2004.

Kent, A.D., C. Jacob, A.C. Yannarell, R.J. Newton, B.J. Benson, E.W. Triplett, and K.D. McMahon. Linking fingerprints, phylogeny and environmental data at the North Temperate

Lakes Microbial Observatory. Oral presentation at the 3rd Annual Microbial Observatories PI Workshop, Big Sky, MT. September 12-14, 2004.

Kent, A.D. Temporal variability in bacterial community composition in Crystal Bog. Oral presentation at the North Temperate Lakes LTER meeting, Madison, WI. March 12, 2003.

PRESENTATIONS

Kent, A.D., A.C. Yannarell, J.R. Rusak, E.W. Triplett, and K.D. McMahon. Synchrony and temporal concordance in microbial community succession in a suite of north temperate humic lakes. Oral presentation at the 11th International Symposium on Microbial Ecology, Vienna, Austria. August 20-25, 2006.

Kent, A.D., C.J. Watras, C. Eckley, O. Regnell, K.D. McMahon, H. Hintelmann. Microbial community structure is correlated with mercury methylation in northern Wisconsin lakes. Oral presentation at the Mercury 2006 meeting, Madison, WI. August 6-11, 2006.

Kent, A.D., E.W. Triplett, K.D. McMahon. Synchrony and temporal concordance in phytoplankton and bacterioplankton community succession in a suite of north temperate humic lakes. Presented at the 2006 ASLO Summer Meeting, Victoria, British Columbia. June 4-9, 2006.

Kent, A.D., C.J. Watras, C. Eckley, O. Regnell, K.D. McMahon, H. Hintelmann. Microbial community composition and mercury methylation in the anoxic hypolimnia of stratified Wisconsin lakes. Presented at the 18th Annual Cell and Molecular Biology/Molecular Biophysics Research Symposium, University of Illinois at Urbana Champaign, October 14, 2005.

Kent, A.D., C.J. Watras, C. Eckley, O. Regnell, K.D. McMahon, H. Hintelmann. Microbial community composition and mercury methylation in the anoxic hypolimnia of stratified Wisconsin lakes. Oral presentation at the 2005 ASLO Summer Meeting, Santiago de Compostela, Spain. June 19-24, 2005.

Kent, A.D., C.J. Watras, C. Eckley, O. Regnell, K.D. McMahon, H. Hintelmann. Microbial community composition and mercury methylation in the anoxic hypolimnia of stratified Wisconsin lakes. Oral presentation at the 2005 Annual Meeting of the International Association for Great Lakes Research, Ann Arbor, MI. May 23-27, 2005.

Kent, A.D., C.J. Watras, O. Regnell, C. Eckley, K.D. McMahon, H. Hintelmann. Microbial community structure is correlated with mercury methylation in northern Wisconsin lakes. Presented at the 2005 ASLO Aquatic Sciences Meeting, Salt Lake City, UT. February 20-25, 2005.

Shade, A.L., **A. D. Kent**, E. W. Triplett, K. D. McMahon. Freshwater bacterioplankton communities exhibit interannual patterns in composition in a eutrophic temperate lake. Poster presentation at the 105th General Meeting of the American Society for Microbiology, in Atlanta, GA, June 5-9, 2005.

Kent, A.D., E.W. Triplett, K.D. McMahon. Examination of synchrony in phytoplankton and bacterioplankton populations in humic lakes. Poster presented at the 105th General Meeting of the American Society for Microbiology, in Atlanta, GA, June 5-9, 2005.

Kent, A.D., and K.D. McMahon. Microbial foodweb interactions. Oral presentation at the Science in the Northwoods meeting, Boulder Junction, WI. September 16-17, 2004.

Kent, A.D., S.E. Jones, G.H. Lauster, A.C. Yannarell, J.M. Graham, T.K. Kratz, E.W. Triplett, and K.D. McMahon. 2004. Examination of microbial food web interactions in relation to annual patterns of bacterioplankton community variability in a humic lake. Presented at the 10th International Symposium on Microbial Ecology, Cancun, Mexico. August 22-27, 2004.

R.J. Newton, **A.D. Kent**, A.C. Yannarell, E.W. Triplett, and K.D. McMahon. 2004. Inside Crystal Bog: a glimpse at the temporally dynamic composition of freshwater bacterial communities. Presented at the 10th International Symposium on Microbial Ecology, Cancun, Mexico. August 22-27, 2004.

Kent, A.D., A.C. Yannarell, E. Kim, G.H. Lauster, S.E. Jones, R.J. Newton, J.M. Graham, B.J. Benson, D.E. Armstrong, K.D. McMahon, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2003. Describing microbial communities, their drivers, and their dynamics in Wisconsin temperate lakes. Presented at the 2nd Annual Microbial Observatories PI Workshop, Alexandria, VA. September 14-16, 2003.

Kent, A.D., A.C. Yannarell, G.H. Lauster, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2002. A Microbial Observatory for the North Temperate Lakes LTER. Presented at the Microbial Observatory/LEExEn PI Workshop, Alexandria, VA. September 23-25, 2002.

Yannarell, A.C., **A.D. Kent**, G.H. Lauster, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2002. Factors influencing bacterial community composition and dynamics in three temperate lakes of diverse trophic status. Presented at the 102nd General Meeting of the American Society of Microbiology.

Kent, A.D., A.C. Yannarell, G.H. Lauster, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2001. Seasonal variation in bacterial communities from four temperate lakes of diverse trophic status. Oral presentation at the 9th International Symposium on Microbial Ecology, Amsterdam, The Netherlands. August 26-31, 2001.

Kent, A.D., G.H. Lauster, A.C. Yannarell, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2001. Analysis of microbial community dynamics in response to annual fluctuations in nutrient availability in a temperate oligotrophic lake. Presented at the 9th International Symposium on Microbial Ecology, Amsterdam, The Netherlands. August 26-31, 2001.

Lauster, G.H., **A.D. Kent**, A.C. Yannarell, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2001. Changes in bacterial community composition over time in a humic lake compared to changes in several limnological parameters. Presented at the 9th International Symposium on Microbial Ecology, Amsterdam, The Netherlands. August 26-31, 2001.

Yannarell, A.C., G.H. Lauster, **A.D. Kent**, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2001. Bacterial community composition over time in a eutrophic lake linked to the dynamics of the algal community. Presented at the 9th International Symposium on Microbial Ecology, Amsterdam, The Netherlands. August 26-31, 2001.

Yannarell, A.C., **A.D. Kent**, G.H. Lauster, J.M. Graham, D.E. Armstrong, L.K. Graham, T.K. Kratz, S.R. Carpenter, and E.W. Triplett. 2001. Seasonal variation in bacterioplankton community composition in three temperate lakes of diverse trophic condition. Presented at the 86th Annual Meeting of the Ecological Society of America, Madison, Wisconsin. August 5-10, 2001.

Iniguez, A.L., E.A. Robleto, **A.D. Kent**, P.J. Riggs, and E.W. Triplett. 2001. Significant yield increase in *Phaseolus vulgaris* obtained by inoculation with a trifolixin-producing, Hup⁺ strain of *Rhizobium leguminosarum* bv. phaseoli. Presented at the 13th International Conference on Nitrogen Fixation, Hamilton, Ontario, Canada. July 2-7, 2001.

Kent, A.D. and E.W. Triplett. 2000. Effects of *Burkholderia vietnamiensis* AMMDR1 on the microbial ecology of the pea rhizosphere. Presented at the 92nd Annual Meeting of the American Phytopathological Society, New Orleans, Louisiana. August 12-16, 2000.

Kent, A.D., J.L. Parke, and E.W. Triplett. 1998. Role of antibiotic production in biocontrol by *Burkholderia vietnamiensis* AMMDR1. Presented at the 8th International Symposium on Microbial Ecology, Halifax, Canada. August 9-14, 1998.

Kent, A.D., M.L. Wojtasiak, E.A. Robleto, and E.W. Triplett. 1998. A stably-maintained broad host range plasmid that confers uptake hydrogenase activity and increased nodulation competitiveness in *Rhizobium* and *Sinorhizobium*. Presented at the 16th North American Symbiotic Nitrogen Fixation Conference, Cancún, Mexico. Feb. 1-6, 1998.

Kent, A.D., M.L. Wojtasiak, and E.W. Triplett. 1997. A transposable element containing genes for increased nodulation competitiveness and a plasmid partitioning locus for stabilization of large *hup*-containing cosmids in *Rhizobium* and *Sinorhizobium*. Presented at the 11th International Congress on Nitrogen Fixation. Institute Pasteur, Paris, France. July 20-25, 1997.