

DAVID ALLAN STAHL

University of Washington
Civil and Environmental Engineering
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Education

University of Washington, Seattle; BS magna cum laude, 1971; Microbiology
University of Illinois, Urbana; MS, 1975; Microbiology
University of Illinois, Urbana; PhD, 1978; Microbiology

Research and Professional Experience

- 2000-Present Professor, Department of Civil and Environmental Engineering, Adjunct Professor, Department of Microbiology, University of Washington
- 2007-08 Visiting Professor, Department of Microbial Ecology, University of Vienna, Austria
- 1998-99 Scientist in Residence, DuPont CR&D, Wilmington, DE
- 1996-00 Professor, Department of Civil Engineering, Northwestern University
- 1994-96 Associate Professor, Department of Civil Engineering and Interdepartmental Biology Program (IBIS) Faculty, Northwestern University
- 1984-94 Associate and Assistant Professor, Department of Veterinary Pathobiology, Joint and Adjunct Appointments, Department of Civil Engineering & Department of Microbiology University of Illinois, Champaign-Urbana
- 1980-84 Senior Research Associate, National Jewish Hospital and Research Center, Denver.
- 1978-80 NIH Postdoctoral Fellow with Norman Pace. National Jewish Hospital and Research Center, Denver. Research: Nucleic acid structure and ribosomal RNA processing
- 1974-77 Graduate studies in microbiology with Carl R. Woese, University of Illinois, Urbana. Research: Structure and evolution of the 23S ribosomal RNA
- 1973-74 Teaching assistant in microbiology and biology, University of Illinois School of Life Sciences. Research: Molecular phylogeny
- 1971-73 University of Illinois predoctoral fellowship: Department of Microbiology

Professional Interests

General Microbial Ecology: Microbially catalyzed sulfur and nitrogen cycling, competition and syntrophy among anaerobes.

Applied Microbial Ecology: Bioremediation, anaerobic microbial transformation of aromatic and chlorinated pollutants, nitrification, structure and activity of biofilms.

Microbial Evolution and Systematics: Phylogeny inference, comparative sequencing, and comparative physiology.

Educational Activities

Current teaching: Microbiology Process Fundamentals, Environmental Genetics

University of Minnesota Malcolm Moos Visiting Professorship. Applications of molecular techniques to studies of microbial ecology (1987-1989, 1992)

Visiting Professor, University of Vienna (2007-2008). Instructed class entitled "Frontiers in Microbial Ecology"

Current and Recent University Service

Astrobiology Program Steering Committee

Molecular Engineering Working Group for College of Engineering

Council on Educational Policy, College of Engineering

Faculty Senate

Service and Honors

Member of Department of Energy Biological and Environmental Research Advisory Committee (BERAC), 2013-

Member National Academy of Engineering 2012

Member Washington State Academy of Sciences 2012

2006 Procter & Gamble Award in Applied and Environmental Microbiology.

1999 Bergey Award

Fellow American Academy of Microbiology, Elected 1996.

Organizing Committee for 2010 Biannual Meeting of the International Society for Microbial Ecology.

Bryant Memorial Lecturer. Gut Function Meeting, Chicago, IL April 20-21, 2008

Grant Proposal Review Panel for Ireland Science Foundation, Dublin, Ireland, March 20-27, 2008

Committee for external review of University of British Columbia Department of Microbiology, January 22-23, 2009.

University of Pennsylvania Graduate Committee Service, Final PhD Defense, Philadelphia, September 17, 2008.

External Opponent, PhD Defense, University of Helsinki, Finland, June 11, 2008.

External Opponent, PhD Defense, University of Bergen, Norway, May 8, 2008.

External Advisory Board Member. December 2008. Thermal Biology Institute.

NSF Panelist. Microbial Genomics. 2005 - 2007

Co-organizer of Symposium entitled "Archaeal Ammonia Oxidation – Occurrence and Significance" for the 2007 General Meeting of the American Society for Microbiology. Toronto.

External evaluator for review of the Department of Microbiology and Molecular Biology, College of Agriculture, Brigham Young University, Provo Utah. February 9-10, 2006.

Pacific Northwest National Laboratory Biomolecular Systems Initiative Advisory Board 2005-2007

Invited Lecture. Annual Spiegelman Lecture, University of Illinois, Department of Microbiology "The Natural History of Microorganisms." Urbana, IL, April 27, 2004

Board of Governors, American Academy of Microbiology. 2001-2004, re-elected in 2004 for a second term.

Board Member of the International Society for Microbial Ecology. Elected 2001.

Committee on the Origins and Evolution of Life. National Research Council. 2000-2002

James N. and Margie M. Krebs Professor (Northwestern University)

National Research Council Task Group on Forward Contamination of Europa. 1999-2000.

Orton K. Stark Distinguished Lecturer, Miami University, April 1998.

NASA, Mars Curation and Receiving Oversight Panel. 1997-1998

USFCC/J. Roger Porter Award Committee. 1998-1999, 2002-

ASM Foundation for Microbiology Lecturer, 1997-1999.

Smith Kline Beecham Award for Research Excellence, 1992.

University of Illinois Beckman Research Award Recipient, 1992

Chair-elect of Division R (Systematic and Evolutionary Microbiology). American Society for Microbiology, one-year term beginning July 1, 1990.

University of Minnesota Malcolm Moos Visiting Professorship. Instruction of workshops (July 1987-1989, 1992) at the Gray Freshwater Biological Institute on the applications of molecular techniques to studies of microbial ecology.

Invited Division I Lecturer (General Microbiology) Annual Meeting of the American Society for Microbiology, Dallas, May 5-9, 1991.

Membership on the Biotechnology Science Advisory Committee for the U.S. Environmental Protection Agency, 1986-1989.

NSF/USDA Panel Service for Microbial Genome Sequencing Program 2005 & 2007

Editorial Posts

Founding Co-Editor: Environmental Microbiology, 1998 - 2012

Editor: Molecular and Microbiological Reviews, 1998 - 2003

Editor: Biodegradation, 1997 - 2003

Editor: FEMS Microbiology Letters, 1990 - 1996

Editorial Board: Journal of Bacteriology 1991 - 1999

Editorial Board: Systematic and Applied Microbiology, 1992 - present

Editorial Board: Microbial Ecology, 1993 - 2006

Editorial Board: Molecular Ecology, 1995 - 1999

Societies and Professional Organizations

Fellow American Academy of Microbiology

American Society for Microbiology

Sigma Xi

Phi Beta Kappa

Patents

Means for qualitative and quantitative analysis of microbial populations potentially present in a sample. Patent No: 6808879 Issued October 26, 2004. Inventors: Flax, Jodi (Chicago, IL), Guillot, Emmanuelle (Le Pecq, FR), Manem, Jacques (Le Buisson de Cadouin, FR), Rittmann, Bruce E. (Evanston, IL), Stahl, David A. (Evanston, IL), Urbain, Vincent (Le Vesinet, FR), Wagner, Michael (Munich, DE). Assignee: Northwestern University (Evanston, IL)

Publications

1. Doolittle, W.F., C.R. Woese, M.L. Sogin, L. Bonen, and D. Stahl. Sequence studies on 16S ribosomal RNA from a blue-green alga. *J. Mol. Evol.* **4**: 307-315 (1975).
2. Woese, C.R., G.E. Fox, L. Zablen, T. Uchida, L. Bonen, K. Pechman, B.J. Lewis, and D. Stahl. Conservation of primary structure in 16S ribosomal RNA. *Nature* **254**: 83-86 (1975).
3. Magrum, L., L. Zablen, D. Stahl, and C. Woese. Corrections in the catalogue of oligonucleotides produced by digestion of *Escherichia coli* 16S rRNA with T1 RNase. *Nature* **257**: 423-426 (1975).
4. Woese, C., M. Sogin, D. Stahl, B.J. Lewis, and L. Bonen. A comparison of the 16S ribosomal RNAs from mesophilic and thermophilic bacilli: Some modifications in the Sanger method for RNA sequencing. *J. Mol. Evol.* **7**: 197-213 (1976).
5. Stahl, D.A. Structure and evolution of the prokaryotic 23S ribosomal RNA. PhD Thesis, University of Illinois (1978).
6. Stahl, D.A., T.A. Walker, B. Meyhack, and N.R. Pace. Precursor-specific nucleotide sequences can govern RNA folding. *Cell* **18**: 1133-1143 (1979).
7. Woese, C.R., L.J. Magrum, R. Gupta, R.B. Siegel, D.A. Stahl, J. Kop, N. Crawford, J. Brosius, R. Gutell, J. J. Hogan, and H. F. Noller. Secondary structure model for bacterial 16S ribosomal RNA: Phylogenetic, enzymatic, and chemical evidence. *Nucleic Acids Res.* **8**: 2275-2293 (1980).
8. Fox, G.E., E. Stackebrandt, R.B. Hespell, J. Gibson, J. Maniloff, T.A. Dyer, R.S. Wolfe, W.E. Balch, R.S. Tanner, L.J. Magrum, L.B. Zablen, R. Blakemore, R. Gupta, L. Bonen, B.J. Lewis, D.A. Stahl, K.R. Leuhrsens, K.N. Chen, and C.R. Woese. The phylogeny of prokaryotes. *Science* **209**: 457-463 (1980).
9. Stahl, D.A., B. Meyhack, and N.R. Pace. Recognition of local nucleotide conformation in contrast to sequence by a rRNA processing endonuclease. *Proc. Natl. Acad. Sci. USA* **77**: 5644-5648 (1980).
10. Stahl, D.A., K.R. Luehrsens, C.R. Woese, and N.R. Pace. An unusual 5S rRNA from *Sulfolobus acidocaldarius* and its implications for a general 5S rRNA structure. *Nucleic Acids Res.* **9**: 6129-2137 (1981).
11. Noller, H.F., J. Kop, V. Wheaton, J. Brosius, R.R. Gutell, A.M. Kopylov, F. Dohme, W. Herr, D.A. Stahl, R. Gupta, and C.R. Woese. Secondary structure model for 23S ribosomal RNA. *Nucleic Acids Res.* **9**: 6167-6189 (1981).
12. Pace, N.R., K. Gardiner, B. Meyhack, B. Pace, M.L. Sogin, and D.A. Stahl. Processing *In: Bacillus subtilis*. In: *Microbiology 1982*, Schlessinger, D. (ed.), American Society for Microbiology, Washington, D.C. (1982).
13. Stahl, D.A., B. Pace, T. Marsh, and N.R. Pace. The ribonucleoprotein substrate for a ribosomal RNA processing nuclease. *J. Biol. Chem.* **259**: 11448-11453 (1984).
14. Pace, B., D.A. Stahl, and N.R. Pace. The catalytic element of a ribosomal RNA processing complex. *J. Biol. Chem.* **259**: 11454-11458 (1984).

15. Stahl, D.A., D.J. Lane, G.J. Olsen, and N.R. Pace. Analysis of hydrothermal vent-associated symbionts by ribosomal RNA sequences. *Science* **224**: 409-411 (1984).
16. Rogers, M.J., J. Simmons, R.T. Walker, W.G. Weisburg, C.R. Woese, R.S. Tanner, I.M. Robinson, D.A. Stahl, G. Olsen, R.H. Leach, and J. Maniloff. Construction of the mycoplasma evolutionary tree from 5S rRNA sequence data. *Proc. Natl. Acad. Sci. USA* **82**: 1160-1164 (1985).
17. Pace, N.R., D.A. Stahl, D.J. Lane, and G.J. Olsen. Analyzing of natural microbial populations by RNA sequences. *ASM News* **51**: 4-12 (1985).
18. Lane, D.J., D.A. Stahl, G.J. Olsen, and N.R. Pace. Analysis of hydrothermal vent-associated symbionts by ribosomal RNA sequences. *Bulletin of the Biological Society of Washington*, No. **6**: 389-400 (1985).
19. Stahl, D.A., D.J. Lane, G.J. Olsen, and N.R. Pace. Characterization of a Yellowstone hot spring microbial community by 5S rRNA sequences. *Appl. Environ. Microbiol.* **49**: 1379-1384 (1985).
20. Lane, D.J., D.A. Stahl, G.J. Olsen, D. Heller, and N.R. Pace. Phylogenetic analysis of the genus *Thiobacillus* and *Thiomicrospira* by 5S rRNA sequences. *J. Bacteriol.* **163**: 75- 81 (1985).
21. Pierson, B.K., S.J. Giovannoni, D.A. Stahl, and R.W. Castenholz. *Heliothrix oregonensis*, gen. nov., sp. nov., a phototrophic filamentous gliding bacterium containing bacteriochlorophyll a. *Arch. Microbiol.* **142**: 164-167 (1985).
22. Lane, D.J., B. Pace, G.J. Olsen, D.A. Stahl, M.L. Sogin, and N.R. Pace. Rapid determination of 16S ribosomal RNA sequences for phylogenetic analyses. *Proc. Natl. Acad. Sci. USA* **82**: 6955-6959 (1985).
23. Stahl, D.A. Evolution, ecology and diagnosis: Unity in variety. *Nature Bio/Technology* **4**: 623-628 (1986).
24. Pace, N.R., D.A. Stahl, D.J. Lane, G.J. Olsen. The analysis of natural microbial populations by ribosomal RNA sequences. *Adv. Microbial Ecol.*, Vol. 9, K. C. Marshall (ed.), Plenum Press, pp. 1-55 (1986).
25. Olsen, G.J., D.J. Lane, S.J. Giovannoni, N.R. Pace, and D.A. Stahl. Microbial ecology and evolution: A ribosomal RNA approach. *Ann. Rev. Microbiol.* **40**: 337-365 (1986).
26. Pace, N.R., D.J. Lane, G.J. Olsen, and D.A. Stahl. Phylogenetic analysis of organisms and populations using ribosomal RNA sequences. In: Megusar and Guntar (Eds.) *Perspectives in Microbial Ecology*. (1986).
27. Stahl, D.A., D.J. Lane, G.J. Olsen, D.J. Heller, T.M. Schmidt, and N.R. Pace. A phylogenetic analysis of certain sulfide-oxidizing and related morphologically conspicuous bacteria by 5S ribosomal RNA sequence. *Int. J. Syst. Bacteriol.* **37**: 116-122 (1987).
28. Romaniuk, P.J., B. Zoltowska, T.J. Trust, D.J. Lane, G.J. Olsen, N.R. Pace, and D.A. Stahl. *Campylobacter pyloridis*: The spiral bacterium associated with human gastritis is not a true *Campylobacter*. *J. Bacteriol.* **169**: 2137-2141 (1987).

29. Allison, M.J., H.M. Cook, and D.A. Stahl. Characterization of rumen bacteria that degrade dihydroxypyridine compounds produced from mimosine. In: Rose, M. (Ed.) *Herbivores Nutrition Research*. Australian Society for Animal Protection, Brisbane, Australia, pp. 55-56 (1987).
30. Stahl, D.A., B. Flesher, H.R. Mansfield, and L. Montgomery. The use of phylogenetically based hybridization probes for studies of ruminal microbial ecology. *Appl. Environ. Microbiol.* **54**: 1079-1084 (1988).
31. Stahl, D.A. Phylogenetically-based studies of microbial ecosystem perturbations. In: Hedin, P., J.J. Menn, and R.M. Hollingworth (Eds.) *American Chemical Society Symposium Volume: Biotechnology for Crop Protection*, American Chemical Society, Washington, D.C., pp. 373-390 (1988).
32. Distell, D.L., D.J. Lane, G.J. Olsen, S.J. Giovannoni, B. Pace, N.R. Pace, D.A. Stahl, and H. Felbeck. Sulfur-oxidizing bacterial endosymbionts: Analysis of phylogeny and specificity by 16S rRNA sequences. *J. Bacteriol.* **170**: 2506-2510 (1988).
33. Montgomery, L., B. Flesher, H.R. Mansfield, and D.A. Stahl. Transfer of *Bacteroides succinogenes* to *Fibrobacter* gen. nov. as *Fibrobacter succinogenes* comb. nov. and *Fibrobacter intestinalis* sp. nov. *Int. J. Syst. Bacteriol.* **38**: 430-435 (1988).
34. Hofle, M.G., D.A. Stahl, G. Sayler, R.M. Atlas, G.F. Barry, G. Muyzer, R.J. Steffan, and D.E. Stewart-Tull. Detection methods including sequencing and probes. In: Sussman, N., C.H Collins, F.A., Skinner, and D.E. Stewart-Tull (Eds.) *The Release of Genetically Engineered Microorganisms*, Academic Press, London, pp. 207-230 (1988).
35. Stahl, D.A., G. Krupp, and E. Stackebrandt. RNA sequencing. In: *Practical approach series nucleic acids sequencing*. Howe, C.J., and E.S. Ward (eds), IRL Press, Oxford, Washington, D.C., pp. 137-183 (1989).
36. Breen, A., D.A. Stahl, B. Flesher, and G. Sayler. Characterization of *Pseudomonas geomorphus*: A Novel Groundwater Bacterium. *Microbial Ecology* **18**: 221-233 (1989).
37. Devereux, R., M. Delaney, and D.A. Stahl. Natural relationships among sulfate-reducing bacteria. *J. Bacteriol.* **171**: 6689-6695 (1989).
38. Stahl, D.A., R. Devereux, R.I. Amann, B. Flesher, C. Lin, and J. Stromley. Ribosomal RNA based studies of natural microbial diversity and ecology. In: *Recent Advances in Microbial Ecology*. Hattoir, Y., Y. Ishida, Y. Maruyama, R.Y. Morita, and A. Uchida (eds.), *Proceedings of the 5th International Symposium on Microbial Ecology*, pp. 669-673 (1989).
39. Walch, M, W.A. Hamilton, P.S. Handley, N.C. Holm, J.G. Kuenen, N.P. Revsbech, M.A. Rubio, D.A. Stahl, O. Wanner, D.M. Ward, P.A. Wilder, and J.W.T. Wimpenny. Spatial distribution of biotic and abiotic components in the biofilm. In: *Structure and Function of Biofilms*. Characklis, W.G., and P.A. Wilderer (eds.), John Wiley and Sons, pp. 165-190 (1989).
40. Stahl, D.A., and J.W. Urbance. The division between fast- and slow-growing species corresponds to natural relationships among the mycobacteria. *J. Bacteriol.* **172**: 116-124 (1990).
41. Rittmann, B.E., B.F. Smets, and D.A. Stahl. The role of genes in biological processes. Part I. *Environ. Sci. Technol.* **24**: 23-29 (1990).

42. Smets, B.F., B.E. Rittmann, and D.A. Stahl. The role of genes in biological processes. Part II. *Environ. Sci. Technol.* **24**: 162-169 (1990).
43. Amann, R., L. Krumholz, and D.A. Stahl. Fluorescent DNA probing of whole cells for determinative, phylogenetic and environmental studies in microbiology. *J. Bacteriol.* **172**: 762-770 (1990).
44. Devereux, R., S-H He, C.L. Doyle, S. Orkland, D.A. Stahl, J. LeGall, and W.B. Whitman. Diversity and origin of *Desulfovibrio* species: Phylogenetic definition of a family. *J. Bacteriol.* **172**: 3609-3619 (1990).
45. Amann, R.I., B. Binder, S.W. Chisholm, R. Olsen, R. Devereux, and D.A. Stahl. Combination of phylogenetically based fluorescent hybridization probes and flow cytometry. *Appl. Environ. Microbiol.* **56**: 1619-1625 (1990).
46. Stahl, D.A. and R. Amann. Development and application of nucleic acid probes in bacterial systematics. *In: Sequencing and Hybridization Techniques in Bacterial Systematics.* Stackebrandt, E., and M. Goodfellow (eds.), John Wiley and Sons, Chichester, England, pp. 205-248 (1991).
47. Dore, J., and D. A. Stahl. Phylogeny of anaerobic rumen Chytridiomycetes inferred from small subunit ribosomal RNA sequence comparisons. *Can. J. Bot.* **69**: 1964-1971 (1991).
48. Lane, D.J., A.P. Harrison, Jr., D.A. Stahl, B. Pace, S.J. Giovannoni, G.J. Olsen, and N.R. Pace. Evolutionary relationships among sulfur- and iron-oxidizing eubacteria. *J. Bacteriol.* **174**: 269-278 (1992).
49. Amann, R.I., Devereux, R., Stromley, J., Key, R., and Stahl, D.A. Molecular and microscopic identification of sulfate-reducing bacteria in multispecies biofilms. *Appl. Environ. Microbiol.* **58**: 614-623 (1992).
50. Amann, T.I., C. Lin, R. Key, L. Montgomery, and D.A. Stahl. Diversity among *Fibrobacter* isolates: Towards a phylogenetic classification. *Syst. Appl. Microbiol.* **15**: 23-31 (1992).
51. Stahl, D.A., R. Key, B. Flesher, and J. Smit. The phylogeny of marine and freshwater caulobacters reflects their habitat. *J. Bacteriol.* **174**: 2193-2198 (1992).
52. Hicks, R.E., R.I. Amann, and D.A. Stahl. Dual staining of natural bacterioplankton with DAPI and fluorescent oligonucleotide probes targeting kingdom-level 16S rRNA sequences. *Appl. Environ. Microbiol.* **58**: 2158-2163 (1992).
53. Stahl, D.A., M. Kane, R. Amann, L. Raskin, R. Key, and J. Stromley. Molecular studies of the population ecology of methanogens and sulfate-reducing bacteria in natural and laboratory systems. *Aust. Microbiologist* **13**: 95-97 (1992).
54. Stahl, D.A., and M.D. Kane. Methods of Microbial Identification, Tracking and Monitoring of Function. *Current Opinion in Biotechnology* **3**: 244-252 (1992).
55. Amann, R.I., B. Zarda, D.A. Stahl, and K-H. Schleifer. Identification of individual prokaryotic cells with enzyme-labeled, rRNA-targeted oligonucleotide probes. *Appl. Environ. Microbiol.* **58**: 3007-3011 (1992).

56. Devereux, R., J. Winfrey, M. Kane, and D. A. Stahl. 16S rRNA hybridization probes to describe natural communities of sulfate-reducing bacteria. *Syst. Appl. Microbiol.* **15**: 601-609 (1993).
57. Allison M.J., W.R. Mayberry, C.S. McSweeney, and D.A. Stahl. *Synergistes jonesii* gen. nov., sp. nov.: A rumen bacteria that degrades pyridinediols. *Syst. Appl. Microbiol.* **15**: 522-529 (1993).
58. Kane, M.D., L.K. Poulsen, and D.A. Stahl. Monitoring the enrichment and isolation of sulfate-reducing bacteria by using oligonucleotide probes designed from environmentally-derived 16S rRNA sequences. *Appl. Environ. Microbiol.* **59**: 682-686 (1993).
59. Krumholz, L.R., M.P. Bryant, W.J. Brulla, J.L. Vicini, J.H. Clark, and D.A. Stahl. Proposal of *Quinella ovalis* gen. nov., sp. nov., based on phylogenetic analysis. *Int. J. Syst. Bacteriol.* **43**: 293-296 (1993).
60. Poulsen, L.K., G. Ballard, and D.A. Stahl. Use of rRNA fluorescence in situ hybridization for measuring the activity of single cells in early and established biofilms. *Appl. Environ. Microbiol.* **59**: 1354-1360 (1993).
61. Devereux, D. and Stahl, D.A. Phylogeny of sulfate-reducing bacteria and a perspective for analyzing their natural communities. In: *Sulfate-reducing bacteria: A contemporary perspective*. R. Singleton Jr. and J.M. Odom, (Eds.), Springer-Verlag, New York and Sci Tech, Madison, pp. 131-160 (1993).
62. McSweeney, C.S., R.I. Mackie, A.A. Odenyo, and D.A. Stahl. Development of an oligonucleotide probe targeting 16S rRNA and its application for detection and quantitation of the ruminal bacterium *Synergistes jonesii* in a mixed-population chemostat. *Appl. Environ. Microbiol.* **59**: 1607-1612 (1993).
63. Stahl, D.A. Comparison of nucleic acids from microorganisms: Sequencing approaches. *In* *Molecular evolution: Producing the biochemical data*. Volume 224 of *Methods in Enzymology*. Zimmer, E.A., T.J. White, R.L. Cann and A.C. Wilson (eds.). Academic Press, Inc., Orlando, Florida (1993).
64. Davey, M.E., W.A. Wood, R. Key, K. Nakamura, and D.A. Stahl. *Geotoga* and *Petrotoga*: Two new genera representing a new lineage in the bacterial line of descent. distantly related to the *Thermotogales*. *Syst. Appl. Microbiol.* **16**: 191-200 (1993).
65. Smets, B.F., B.E. Rittmann, and D.A. Stahl. The specific growth rate of *Pseudomonas putida* PAW1 influences the conjugal transfer rate of the TOL plasmid. *Appl. Environ. Microbiol.* **59**: 3430-3437 (1993).
66. Stahl, D.A. The natural history of microorganisms. *ASM News.* **59**: 609-613 (1993)
67. Cornick, N.A., N.S. Jensen, D.A. Stahl, P.A. Hartman, and M.J. Allison. *Lachnospira pectinoschiza* sp. nov.: An anaerobic pectinophile from the pig intestine. *Int. J. Syst. Bacteriol.* **44**: 87-93 (1994).
68. Raskin, L., J.M. Stromley, B.E. Rittmann, and D.A. Stahl. Group-specific 16S rRNA hybridization probes to describe natural communities of methanogens. *Appl. Environ. Microbiol.* **60**: 1232-1240 (1994).

69. Raskin, L., L.K. Poulsen, D.R. Noguera, B.E. Rittmann, and D.A. Stahl. Quantification of methanogenic groups in anaerobic biological reactors using oligonucleotide probe hybridizations. *Appl. Environ. Microbiol.* **60**: 1241-1248 (1994).
70. Korhring, L.L, D.B Ringelberg, R. Devereux, D.A. Stahl, M. Mittelman, and D.C. White. Comparison of phylogenetic relationships based on phospholipid fatty acid profiles and ribosomal RNA sequence similarities among dissimilatory sulfate-reducing bacteria. *FEMS Micro. Lett.* **119**: 303-308 (1994)
71. Rittmann, B.E., J.M. Regan, and D.A. Stahl. Nitrification as a source of soluble organic substrate in biological treatment. *Water Sci. Technol.* **30**: 1-8 (1994).
72. Lin, C., B. Flesher, W.C. Capman, R.I. Amann, and D.A. Stahl. Taxon specific hybridization probes for fiber-digesting bacteria suggest novel gut-associated *Fibrobacter*. *Syst. Appl. Microbiol.* **17**: 418-424 (1994).
73. Risatti, J.B., W.C. Capman, and D.A. Stahl. Community structure of a microbial mat: The phylogenetic dimension. *Proc. Natl. Acad. Sci. USA* **91**: 10173-10177 (1994).
74. Teske, A., E. Alm, J.M. Regan. S. Toze, B.E. Rittmann, and D.A. Stahl. Evolutionary relationships among ammonia- and nitrite-oxidizing bacteria. *J. Bacteriol.* **176**: 6623-6630 (1994).
75. Odenyo, A.A., R.I Mackie, D.A. Stahl, and B.A. White. The use of 16S ribosomal RNA targeted oligonucleotide probes to study competition between ruminal fibrolytic bacteria: Development of probes for *Ruminococcus* species and evidence for bacteriocin production. *Appl. Environ. Microbiol.* **60**: 3688-3696 (1994).
76. Odenyo, A.A., R.I Mackie, D.A. Stahl, and B.A. White. The use of 16S ribosomal RNA targeted probes to study competition between ruminal fibrolytic bacteria: Pure culture studies with cellulose and alkaline peroxide treated wheat straw. *Appl. Environ. Microbiol.* **60**: 3697-3703 (1994).
77. Lin, C., J.W. Urbance, and D.A. Stahl. *Acetivibrio cellulolyticus* and *Bacteroides cellulosolvens* are members of the greater clostridial assemblage. *FEMS Microbiol. Lett.* **124**: 151-155 (1994).
78. Smets, B.F., B.E. Rittmann, and D.A. Stahl. Stability and conjugal transfer kinetics of a TOL plasmid in *Pseudomonas aeruginosa* PAO 1162. *FEMS Microbiol. Ecol.* **15**: 337-350 (1994).
79. Stahl, D.A., R.I. Amann, L.K. Poulsen, L. Raskin, and W.C. Capman. The use of fluorescent probes for determinative microscopy. pp. 111-121. In: *Archaea: A laboratory manual*. F.T. Robb, K.R. Sowers, S. DasSarma, A.R. Place, H.J. Schreier, and E.M. Fleischmann (Eds.) Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y. (1995).
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81. Lin, C. and D.A. Stahl. Taxon-specific probes for the cellulolytic genus *Fibrobacter* reveal novel and abundant equine-associated populations. *Appl. Environ. Microbiol.* **61**: 1348-1351. (1995)
82. Rittmann, B.F. Smets, J.A. MacDonald, and D.A. Stahl. Plasmid transfer for enhancing degradation capabilities. *Environment Health Perspectives* **103**, Supplement 5: 113-115 (1995).

83. Raskin, L., R.I. Amann, L.K. Poulsen, B.E. Rittmann, and D.A. Stahl. Use of ribosomal RNA-based molecular probes for characterization of complex microbial communities in anaerobic biofilms. *Water. Sci. Technol.* **31**: 261-272 (1995).
84. Lin, C. and D.A. Stahl. Comparative analyses reveal a highly conserved endoglucanase in the cellulolytic genus *Fibrobacter*. *J. Bacteriol.* **177**: 2543-2549 (1995).
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Official Reports

Carr, M.H. D.J. McCleese, J.L. Bada, D.D. Bogard, B.C. Clark, D. DeVincenzi, M.J. Drake, K.H. Nealson, J.J. Papike, M.S. Race, and D. Stahl. Mars Sample Handling and Requirements Panel (MSHARP) Final Report. National Aeronautics and Space Administration and Jet Propulsion Laboratory Report TM-1999-209145 (1999).

Esposito, L.W., A.F. Cheng, B.C. Clark, M. Daly, E.I. Friedmann, B.M. Jakosky, R.Y. Morita, A.-L. Reysenbach, D.A. Stahl, and D.A. Smith. NRC Space Studies Board Task Group Report on the Forward Contamination of Europa.

Stahl, D.A. and J.M. Tiedje. Microbial Ecology and Genomics: A Crossroads of Opportunity. A Report of the American Academy of Microbiology. (2002).

Recent News and Special Coverage

Science Magazine Editors' Choice. The Worth of Coppers (referencing the Walker *et al. Proc. Natl. Acad. Sci. U.S.A.* **2010** and Martens-Habbena *et al. Nature* 2010 papers on the lifestyle of the marine archeon *Nitrosopumilus maritimus*). *Volume 328, Number 5980, Issue of 14 May 2010*

Research Highlight. Our paper (Pelve *et al.* 2011) published in collaboration with Professor Rolf Bernander (University of Uppsala, Sweden) was selected for a research highlight commentary in the December 2011 issue of *Nature Reviews Microbiology*. NY times September 4, 2012. J.M. Foster. Solving the Ocean Methane Paradox. From *Green* (a blog about energy and the Environment). Commentary on our recent *Science* paper conducted in collaboration with University of Illinois investigators William Metcalf and Wilfred van der Donk.

Articles of Significant Interest Selected by the Editors of Applied and Environmental Microbiology. Nakagawa, T. and D.A. Stahl. 2013. *Environ. Microbiol.* 79: 6911-6916. Transcriptional Response of Marine Ammonia-Oxidizing Archaea at Low NH₃ Concentrations. Competition for ammonia among marine microorganisms is intense because ammonia is generally at extremely low (nanomolar-range) concentrations in the open ocean. However, the generally high numbers of ammonia-oxidizing archaea in these same environments indicate that they are not limited by these ammonia concentrations. Using a simple dialysis bag system, Nakagawa and Stahl (p.6911– 6916) demonstrated that transcriptional activities of an archaeal ammonia oxidizer at nanomolar concentrations of ammonia were consistent with recent environmental metatranscriptomic analyses, including an oxygen minimum zone of the ocean, a deep-sea hydrothermal plume, and an estuarine bacterioplankton assemblage.

Invited Seminars, selected from past 10 years

Invited Seminar. University of Pennsylvania Department of Biology Seminar Series, October 20, 2005

Invited Seminar. Michigan State University. Department of Microbiology and Molecular Genetics, April 11, 2006.

Invited Seminar. University of California, Berkeley. Department of Plant & Microbial Biology, Microbial Biology Seminar Series, May 3, 2006.

Invited Lecture. Philip Hauge Abelson Advancing Science Seminar Series. AAAS Auditorium, Washington DC. October 26, 2006.

Invited Seminar. Cornell University. Department of Microbiology. March 15, 2007.

Invited Seminar. University of Aberdeen, Scotland. April 28, 2008

Invited Seminar. University of Hamburg, Germany. April 30, 2008

Invited Seminar. University of Bergen, Norway. May 9, 2008.

Invited Seminar. University of Helsinki, Finland. June 10, 2008

Invited Seminar. Southern Illinois University. February 27, 2009

Invited Seminar. University of Washington, Dept. Genome Sciences. February 10, 2010

Invited Seminar. Oregon Health and Science University. February 19, 2010

Invited Seminar. University of Oklahoma. February 26, 2010

Invited Seminar. Montana State University. April 19, 2010

Invited Seminar, U of Washington, Dept. of Civil & Environmental Engineering, Nov 18, 2010

Guest lecturer, Marine Biological Laboratory Microbial Diversity Course, Woods Hole, MA June 22-23, 2012.

Invited Seminar. University of Southern California, December 13, 2012.

Invited Seminar. University of Tennessee, September 2013.

Invited Seminar. University of Washington, Dept. Microbiology. April 2014.

Invited or Organizing Participant, selected from past 5 years

Invited Speaker for Division Symposium on Multispecies Biofilms in Nature, “Microbial Mats and the Evolution of Biogeochemical Cycles.” Annual Meeting of the American Society for Microbiology, New Orleans May 23-27, 2004

Invited Speaker. 10th Meeting of the International Society for Microbial Ecology. “Adaptive Radiation of Sulfate-reducing Prokaryotes.” Cancun, MX, August 22-27, 2004.

Invited Speaker. First International Symposium on Syntrophic Microbiology. University of California at Los Angeles, December 2-4, 2005.

Invited Participant. NASA Planetary Protection Workshop. CalTech, Pasadena, CA. February 28 – March 1, 2006.

Invited Lecture. General Meeting of the American Society of Microbiology. Procter and Gamble Award Presentation. May 21-25, 2006.

Invited Lecture. Gordon Research Conference on Environmental Bioinorganic Chemistry. Procter Academy. June 18-23, 2006.

Invited Lecture. Joint Genome Institute User Meeting. Walnut Creek, CA. March 28-30, 2007.

Invited Lecture. Gordon Research Conference on *Archaea*: Ecology, Metabolism & Molecular Biology. Proctor Academy. August 19-24, 2007.

Invited Lecture. Society for General Microbiology Irish Branch Meeting. Belfast, Ireland August 30-31, 2007.

Invited Lecture. J. Craig Venter Institute Conference on Genomes, Medicine, and the Environment. San Diego, CA. October 8-10, 2007

Invited Participant. NATO Workshop on Environmental Metabolomics, Mallorca, Spain May 16-17, 2008.

Invited Participant. NIH Workshop on Host-Microbe Interaction, Bethesda, Maryland, September 13-14, 2008.

Invited Participant. American Academy of Microbiology Colloquium on Large-scale Sequencing, Washington, D.C., September 19-20, 2008.

Co-convended with Dr. C. Schadt a symposium entitled " Model Microbial Communities - A Tractable and Manipulatable Bridge between Organismal and Ecological Studies" for the 109th General Meeting of the American Society for Microbiology. Philadelphia, PA May 17-21, 2009. The symposium highlighted selected research of the VIMSS/ESPP2 project.

Organized and co-convended with Dr. Michael Wagner a symposium entitled "*Crenarchaeota*: Reevaluation of the evolution, physiology, and cell biology of an archaeal kingdom" for the 110th General Meeting of the American Society for Microbiology. San Diego, CA May 23-27, 2010.

Co-convended with Dr. William Metcalf, and presented in, a symposium entitled "Life of the outliers: Exploration of novel microbial physiologies" for the 110th General Meeting of the American Society for Microbiology. San Diego, CA May 23-27, 2010.

Invited presenter. Gordon Research Conference on Microbial Stress Response. July 18-23, 2010, Mount Holyoke College, South Hadley, MA.

Organized DARPA sponsored workshop on Culturing the Uncultured. Seattle, Washington, June 15, 2010.

Invited presenter, Annual West Coast Bacterial Physiology Meeting, Asilomar Conference Center, Pacific Grove, CA December 10-12, 2010.

Invited Participant. Keystone Symposium on Microbial Communities as Drivers of Ecosystem Complexity. Beaver Run Resort, Breckenridge, Colorado. March 25-30, 2011.

Invited Keynote Speaker. ASM Northwest Branch Meeting. Seattle. Washington. November 18-19, 2011.

Invited speaker. Department of Energy Genomic Science Meeting. Washington, DC. Feb 26 – 29, 2012.

Steering Committee Member. American Academy of Microbiology Colloquium on Microbiology of Built Water Distribution Systems. Boulder, Colorado. April 11 -13, 2012.

Invited speaker. EMBO Workshop on Microbial Sulfur Metabolism. Noordwijkerhout, the Netherlands. April 15-18, 2012.

Co-organizer of symposium on Frontiers in Experimental Evolution. Annual Meeting of the American Society for Microbiology. San Francisco, CA. June 16-19, 2012.

Invited Division N Lecturer for 2013 for Annual Meeting of the American Society for Microbiology. Denver May 18- 23. Division N encompasses the ecology of natural microbial assemblages and laboratory approaches that help us understand microorganisms in natural environments, such as water, soils and in higher organisms.