Gary S. Sayler, Ph.D.

Education

Postdoctoral, 1975	Department of Microbiology, University of Maryland.
Ph.D., 1974	Department of Bacteriology and Biochemistry, University of Idaho.
B.S., 1971	Department of Bacteriology, North Dakota State University.
A.A., 1969	Liberal Arts, Bismarck Junior College.

Research Interest

Microbiology, molecular biology genetic engineering for bioremediation of organic chemicals and environmental pollutants. Biotechnical monitoring at the molecular level. Bioluminescence biosensing for organic chemical transformation, process control, chemical and biological warfare agents. Molecular Monitoring (QPCR, Arrays and Probes) in Environmental Microbiology

Professional Experience

2000-	*Distinguished Professor*. The University of Tennessee
1991-Present	*Director*. Waste Management Research and Education Institute, University of Tennessee, Center of Excellence.
1986-Present	*Founding Director*. Center for Environmental Biotechnology, University of Tennessee, Designated Research Center-of-Excellence, 2000
1975-Present	*Assistant to Associate (80) to Full Professor (85)*. Departments of Microbiology and Ecology and Evolutionary Biology. Adjunct, Dept of Environmental Engineering. Faculty member Environmental Toxicology Program and Biotechnology Program., University of Tennessee

Publications

More than 250 journal and symposium publications.

1. Dionisi, H.M., A.C. Layton, G. Harms, I.R. Gregory, K.G. Robinson, and G.S. Sayler. 2002. Quantification of *Nitrosomonas oligotropha*-Like Ammonia-Oxidizing Bacteria and *Nitrospira* spp. From Full-Scale Wastewater Treatment Plants by Competitive PCR. *App. Environ. Microbiol*. 68:1, p. 245-253.
2. Abd-El-Haleem, D., A.C. Layton, G.S. Sayler. 2002. Long PCR-amplified rDNA for PCR-RFLP- and Rep-PCR-based approaches to recognize closely related microbial species. *J. Microbiol. Meth*. 49:315-319.
3. Ripp, S. and G.S. Sayler. 2002. Field release of Genetically Engineered Microorganisms (GEM). In: G.Bitton (ed.) The Encyclopedia of Environmental Microbiology. John Wiley & Sons, NY, NY, p. 1278-1287.
4. Layton, A.C., J. Sanseverino, B.W. Gregory, J.P. Easter, G.S. Sayler, and T.W. Schultz. 2002. In Vitro estrogen receptor binding of PCBs: Measured activity and detection of hydroxylated metabolites in a recombinant yeast assay. *Toxicol. Appl. Pharmacol*. 180:157-163.
5. Bolton, E.K., G.S. Sayler, D.E. Nivens, J.M. Rochelle, S. Ripp, and M.L. Simpson. 2002. Integrated CMOS photodetectors and signal processing for very low-level chemical sensing with the bioluminescent bioreporter integrated circuit. *Sensors and Actuators B 85*. 179-185.
6. Langworthy, D.E., R.D. Stapleton, G.S. Sayler, R.H. Findlay. 2002. Lipid analysis of the response of a sedimentary microbial community to polycyclic aromatic hydrocarbons. *Microbial Ecology*. 43:189-198.
7. Raman, D.R., A.C. Layton, L.B. Moody, J.P. Easter, G.S. Sayler, R.T. Burns, and M.D. Mullen. 2001. Degradation of estrogens in dairy waste solids: Effects of acidification and temperature. *Transactions of the ASAE*. 44(6):1881-1888.
8. Ripp, S. and G.S. Sayler. 2002. Microbial biodegradation and bioelectronic sensing of polyaromatic hydrocarbon in the environment. In: (Y.A. Al-Shayji, J.S. Sidhu, M. Saleem, K. Guerinik, eds.)

Biotechnology Applications for the Arid Regions, Kuwait Institute for Scientific Research, Kuwait, 237-244.
9. Abd-El-Haleem, D., S. Ripp, C. Scott and G.S. Sayler. 2002. A *luxCDABE*-based bioluminescent bioreporter for the detection of phenol. *J. Indust. Microbiol. Biotech*. 29:233-237.
10. Dionisi, H.M., A.C. Layton, K.G. Robinson, J.R. Brown, I.R. Gregory, J.J. Parker, and G.S. Sayler. 2002. Quantification of *Nitrosomonas oligotropha* and *Nitrospira* spp. using Competitive Polymerase Chain Reaction in Bench-Scale Wastewater Treatment Reactors Operating at Different Solids Retention Times. *Water Environment Research*, 74(5):462-469.
11. Lajoie, C.A., G.S. Sayler, and C.J. Kelly. 2002. The Activated Sludge Biomolecular Database. *Water Environment Research*, 74(5): 480-487.
12. Harms, G., A.C. Layton, H.M. Dionisi, I.R. Gregory, V.M. Garrett, S.A. Hawkins, K.G. Robinson, and G.S. Sayler. 2003. Real-Time PCR Quantification of Nitrifying Bacteria in a Municipal Wastewater Treatment Plant. *Environ. Sci. Tech*., 37(2):343-351.
13. Sayler, G.S., S. Ripp, D. Nivens, and M. Simpson. 2001. Bioluminescent Bioreporter Integrated Circuits: Sensing analytes and organisms with living microorganisms. *J. Environ. Biotech*., 1(1), 33-39.
14. Simpson, M.L., D.D. Cox, and G.S. Sayler. 2003. Frequency domain analysis of noise in autoregulated gene circuits. *Proc. Nat. Acad. Sci. USA* 100(8):4551-4556.

Awards and Honors

- NIH Research Career Development Award, USPHS, 1980-1985
- Science Digest Top 100 Innovators in Science and Technology
- Chancellor Research Scholar, University of Tennessee, 1994
- University of Tennessee College of Arts and Sciences-Senior Researcher Award, 1994
- American Society for Microbiology, Procter and Gamble Award in Applied and Environmental Microbiology, 1994
- AAM, Foundation for Microbiology Lecturer, 1994-1996
- Silver and Gold Alumni Award, University of Idaho, 1995
- Finalist for a 1998 Discover Magazine Technology Innovation Award with M. Simpson for the development of the Bioluminescent Bioreporter Integrated Circuit
- DOW Foundation SPHERE Award 1998-2000
- Distinguished Professor, University of Tennessee, 2000

Professional Activities

- Associate Editor, *Environmental Science and Technology*, American Chemical Society September 1997-present
- Editorial Boards. *Molecular Ecology*, 1991-1999: *Biodegradation*, 1990-2000; *Microbial Ecology*, 1989-1993; *Industrial Microbiology*, 1986-1988; *Applied and Environmental Microbiology*, 1986-1989; *Journal of Microbiological Methods*, 1982-2000.
- Water Environment Research Foundation, Research Council, 1999-2002
- ASM, Conference Committee, 1996-2003
- Lifetime Fellow American Academy of Microbiology, 1991
- EPA, Environmental Biology Peer Review Panel Chair, ORD 1990-1993
- Chair, Review Committees for LBL, ANL, BNL and ORNL for Environmental and Biotechnical Research Programs, DOE
- ~300 invited presentations and keynote addresses at national and international meeting
- National Academy of Sciences, NRC subcommittees on Rad/Haz Wastes and Explosive Detection and Systems Biology
- Member ASM, AAAS, ACS, SETAC, SIM, SPIEE