ABSTRACT

Chlorinated organics such as trichloroethene (TCE) have been widely used as industrial solvents as well as dry-cleaning fluids, and as a result of poor storage and disposal practices, are now common contaminants of groundwater resources. Fortunately, chlorinated solvents can be effectively biodegraded in anaerobic environments by naturally occurring microorganisms catalyzing reductive dechlorination processes. Much progress has been made towards exploiting these processes for bioremediation applications. There remains, however, a need for appropriate and cost-effective biomarkers for assessing, monitoring, and optimizing the performance of reductive dechlorination processes in bioprocesses and the environment. This talk will focus on taking a systems-based approach with levels of increasing community complexity integrated with the application of omics-based molecular tools to study microbial strains and communities in order to improve our understanding of bioremediation processes.

BIOSKETCH

Lisa Alvarez-Cohen is the Fred and Claire Sauer Professor, and past-Chair of the Department of Civil and Environmental Engineering at UC Berkeley. She received her Bachelors Degree in Engineering and Applied Science from Harvard University and her M.S. and Ph.D. in Environmental Engineering and Science from Stanford University. She is a fellow of the American Academy of Microbiology and a member of the National Academy of Engineering. She is on the Editorial Advisory Board of Environmental Science and Technology and an Associate Editor of Environmental Engineering Science. Her research areas include environmental microbiology and ecology, biotransformation and fate of environmental contaminants, and developing molecular and isotopic techniques for studying microbial ecology of environmental microbial communities. She teaches courses in environmental microbiology, environmental engineering, and biological process engineering, and has co-authored an undergraduate textbook called Environmental Engineering Science.