The Smallest Organisms Make the Biggest Impact

Derek Lovley
Distinguished Professor, Microbiology

CURRENT RESEARCH

Electric bacteria offer a solution for the need for clean energy

Global climate change resulting from increases in atmospheric carbon dioxide is perhaps the biggest environmental concern of our century. Therefore, new strategies to eliminate the need for fossil fuels are necessary. Remarkably, Dr. Derek Lovley, of the University of Massachusetts, has found that microorganisms, the small organisms that inhabit our planet and can be found everywhere within it, may be an essential tool for moving towards sustainability. Dr. Lovley is interested in both the basic science of how microorganisms can electrically interact with their environment as well as practical applications in bioenergy and sustainable electronics. The electrical bacteria that he and his team study have already shown to be successful catalysts for converting carbon dioxide into transportation fuels and other organic commodities that could replace our current energy sources. Not only can these fascinating microorganisms create fuels from carbon dioxide, but also, they can harvest energy from organic waste and in the future may be used as environmental sensors that can look for pollution. Therefore, Dr. Lovley's research supports the old adage, of using lemons to make lemonade as he is truly using the wastes of our world to create viable options for our futures with environmental, industrial, and human health applications!

Dr. Lovley's interest in such research was motivated by an interest in solving environmental problems that will affect the global community. The continued study of basic science has encouraged Dr. Lovley to elucidate the fundamentals of how microorganisms make electrical connections with their environment and as the pioneer of environmental research with microorganisms, he continues to lead...

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AFFILIATION

University of Massachusetts Amherst

EDUCATION

- Ph.D. in Microbiology, 1982

Michigan State University

- B.S. in Biological Sciences, 1978

Clark University

- B.A. in Biological Sciences, 1975

University of Connecticut

AWARDS

- Best Inventions for 2009, Time Magazine, 2009
- Time Magazine Top Environmental Innovator, 2003
- Most Highly Cited Researcher, Institute for Scientific Information, 2001-2014
- Fellow, American Advancement for the Association of Science, 2014
- Proctor and Gamble Award in Applied and Environmental Microbiology, 2004

RESEARCH AREAS

Environment, Clean Energy, Clean Energy

FUNDING REQUEST

Your contributions will support the continued research of Dr. Derek Lovley, of the University of Massachusetts, as he uses electric bacteria to offer a solution for clean energy. Funding will support the graduate students and personnel working on projects and thus, will be instrumental in the training of future scientists. In choosing to support his research, you will help to combat the most pressing environmental pollution of our time.

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