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Genome to Life grants awarded

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WASHINGTON, DC - In the hope of building better microbes for use in environmental cleanup and efficient energy production, the US [Department of Energy](#) (DOE) recently awarded \$103 million in multi-year grants to five US institutions for the study of gene networks and microbial biological systems. The grants, part of the 10-year [Genome to Life Project](#), were announced 23 July.

"This is the first major step to doing systems biology," David Thomassen, program coordinator for biological and environmental research at the DOE, told *The Scientist*. While academic, government and industry labs have all heralded so-called 'systems biology' as the major challenge in the wake of multiple sequencing projects, he said, very little systems biology research is actually taking place.

"The rationale," Thomassen said, "is that if we can understand whole systems rather than just pieces of systems, we can develop much more powerful strategies for using those biological systems to solve problems."

The DOE selected the eight microbes that are the focus of these grants on the basis of their roles in bioremediation of metals and radionuclides, degradation of organic pollutants, production of hydrogen or sequestration of carbon, and/or ocean carbon cycling. The eight, which include *Desulfovibrio vulgaris*, *Geobacter metallireducens*, and *Prochlorococcus*, have all been sequenced under the DOE's Microbial Genome program.

The grants are to: [Oak Ridge National Laboratory](#) - \$23.4 million over three years for developing technologies to characterize multi-protein complexes in microbial cells; [Lawrence Berkeley National Laboratory](#) - \$36.6 million over five years to develop computational models for how microbial gene regulatory networks respond to waste sites contaminated with metals and radionuclides; [Sandia National Laboratory](#) - \$19.1 million over three years to study carbon sequestration, protein-protein interactions, and gene regulatory networks in *Synechococcus*, a marine microbe involved in earth's carbon cycle; [University of Massachusetts, Amherst](#) - Cooperative agreement for \$8.9 million over three years to analyze microbial communities involved in the bioremediation of uranium and the production of electricity via electron transfer to electrodes; [Harvard Medical School](#)- Cooperative agreement for \$15 million over five years to develop computational methods for the study of microbial gene regulatory networks and protein-protein interactions.

Just as the DOE's initial contribution to the Human Genome Project led to further funding opportunities, Thomassen said, the Genome to Life Project grants should lay the groundwork for more lucrative follow-up funding opportunities at other agencies such as the NIH and Department of Agriculture.

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