

# Welcome to Genomics:GTL

## Contractor-Grantee Workshop II

---

Welcome to the second of what we hope will be many Genomics:GTL (formerly Genomes to Life) contractor-grantee workshops. Although only in its third official year of funding, GTL already is attracting broad and enthusiastic interest and support from scientists at universities, national laboratories, and industry; colleagues at other federal agencies; Department of Energy leadership; and Congress.

You are part of the leading edge of a new era in biology in which we will continue to use a broad array of innovative technologies and computational tools to systematically leverage the knowledge and capabilities brought to us by DNA sequencing projects. With these resources, we will seek to understand the functioning and control of entire biological systems. GTL certainly is not the first, nor will it be the last, to conduct systems biology research, but we believe the program offers a roadmap for these new explorations. GTL research is, of necessity, at the interface of the physical, computational, and biological sciences.

GTL will require you to develop technologies that enable us to “see” biology happen at finer scales of resolution. It also will require substantial integration of our broad capabilities in mathematics and computation with our new knowledge of biology. Thus, the look of the scientists and research projects at this second GTL workshop is considerably different from that of last year’s workshop. Only with this integration can we achieve GTL’s fundamental goal: To understand biological systems so well that we can accurately predict their behavior with sophisticated computational models.

Microbes remain GTL’s principal biological focus. In the complex “simplicity” of microbes—both individual microbes and complex microbial communities—we find capabilities needed by DOE, indeed by our entire nation, for clean energy, cleanup of environmental contamination, and sequestration of atmospheric carbon dioxide that contributes to global warming. In addition, the fundamental knowledge and technologies developed in GTL will be usable in all areas of biological research.

This second GTL program workshop is an opportunity for all of us to discuss, listen, and learn about exciting new advances in science; identify research needs and opportunities; form research partnerships; and share the excitement of this program with the broader scientific community.

This workshop also kicks off a year-long process to develop a GTL roadmap that will outline the Genomics:GTL program:

- Research plan and science deliverables;
- Infrastructure, including national user facilities;
- Impacts on energy production, environmental cleanup, and carbon sequestration;
- Ethical, legal, and societal considerations;
- Interagency partnerships and coordination; and
- Program governance.

We will be calling on many of you over the coming weeks and months to provide critical input to and review of this roadmap. Our plan is to have the document ready for National Academies review by January 2005. We thank you in advance for your help in developing this important document that will help guide the direction of and serve as an informational resource on the GTL program.

We look forward to a stimulating and productive meeting and offer our sincere thanks to all the organizers and to you, the scientists, whose vision and efforts will help us all to realize the promise of this exciting research program.



Ari Patrinos  
Associate Director of Science for  
Biological and Environmental Research  
Office of Science  
U.S. Department of Energy  
Ari.Patrinos@science.doe.gov



Ed Oliver  
Associate Director of Science for  
Advanced Scientific Computing Research  
Office of Science  
U.S. Department of Energy  
ed.oliver@science.doe.gov