

Communication

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Communicating Genomics:GTL

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Accelerating GTL Science

For the past 15 years, the Human Genome Management Information System (HGMIS) has focused on presenting Human Genome Project (HGP) information and on imparting knowledge to a wide variety of audiences. Our goal has been to help ensure that investigators could participate in and reap the scientific bounty of this revolution, new generations of students could be trained, and the public could make informed decisions regarding complicated genetics issues. Since 2000, HGMIS has built on this experience to communicate about the DOE Office of Science's Genomes to Life program, sponsored jointly by the Office of Biological and Environmental Research (BER) and the Office of Advanced Scientific Computing Research (OASCR). To reflect our mission more accurately, HGMIS is changing its name to Genome Management Information System, and Genomes to Life recently became the Genomics: GTL systems biology program.

Genomics: GTL (GTL) is a departure into a new territory of complexity and opportunity requiring contributions of interdisciplinary teams from the life, physical, and computing sciences and necessitating an unprecedented integrative communications approach. Because each discipline has its own perspective and language, effective communication, in addition to technical achievement, is highly critical to the overall coordination and success of GTL. Part of the challenge is to help groups speak the same language, from team and research-community building and strategy development through program implementation and the reporting of results to technical and lay audiences. Our mission is to inform and foster participation by the greater scientific community and administrators, educators, students, and the general public.

Specifically, our goals center on accelerating GTL science and subsequent applications. They include the following:

- Foster information sharing, strategy development, and communication among scientists and across disciplines to accomplish synergies, innovation, and increased integration of knowledge. Emerging from this effort will be a new research community centered around the advanced concepts in GTL.
- Help reduce duplication of effort.

- Increase public awareness about the importance of understanding microbial systems and their capabilities. This information is critical not only to DOE mission needs in energy and environment but to the international community as well.

In our work with interdisciplinary teams assembled by BER and OASCR to discuss and develop scientific and programmatic strategies for accelerating the progress of GTL, we create internal documentation Web sites that organize draft texts, presentations, graphics, supplementary materials, and links. From such team activity arose a number of important documents, including more than 30 texts and presentations since October 2000:

- Roadmap and Web site, April 2001.
- Handouts for several BER and OASCR advisory committee meetings.
- Workshop reports.
- Numerous overview documents, including abstracts and flyers.
- Contractor-grantee workshop research abstracts books.
- HGP to GTL transitional poster for the public.

We are working with DOE staff and teams of scientists to develop the next program and facilities roadmap for GTL. This roadmap, a planning and program management tool, will be reviewed by the National Academy of Sciences. GTL facilities are part of the Office of Science director's 20-year plan for frontier research facilities that will become part of the national science infrastructure.

All GTL publications are on the public Web site, which also includes an image gallery, research abstracts, and links to program funding announcements and individual researcher Web sites. Site enhancements are under way.

In addition to the GTL Web site, we produce such related sites as Human Genome Project Information, Microbial Genome Program, Microbial Genomics Gateway, Gene Gateway, Chromosome Launchpad, and the CERN Library on Genetics. Collectively, HGMIS Web sites receive more than 15 million hits per month. Over a million text-file hits from more than 300,000 user sessions last about 13 minutes—well above the average time for Web visits. We are leveraging this Web activity to increase visibility for the GTL program.

For outreach and to increase program input and grantee base, we also identify venues for special GTL symposia or presentations by program managers and grantees. We present the GTL program via our exhibit at meetings of such organizations as the American Association for the Advancement of Science, American Society for Microbiology, American Chemical Society, IEEE Society, National Science Teachers Association, National Association for Biology Teachers, and Biotechnology Industry Organization (BIO), as well as at carbon sequestration meetings and the G8 energy ministers' conference. We also organize "Meet the Funders" and special GTL presentations at national and international meetings of BIO and ASM. We mail some 1600 packages of educational material each month to requestors, and we furnish handouts in bulk to meeting organizers who are hosting genomics educational events.

In the past year, we participated in the closing of the HGP and the accompanying exhibition in Congress. We continue to create and update handouts, including a new primer that explores the impact of genomics on science and society, as well as flyers on careers in genetics and on relevant issues of concern to minority communities. We supply educational materials in print and on the Web site about ethical, legal,

and social issues (called ELSI) surrounding the increased availability of genetic information.

We helped draft the ocean ecogenomics sensing concept being developed by NOPP, a confederation of 15 federal agencies (including DOE) that seeks to provide leadership and coordination of national oceanographic research and education programs. Ecogenomics is a new field that increasingly will be empowered by the results of GTL and other programs.

In anticipation of communications needs and new avenues to more comprehensively represent GTL science to multidisciplinary audiences, we continually seek ideas for extending and improving communications and program integration efforts. We welcome suggestions and input..

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