

Summary Recommendations

The MPIWG makes the following recommendations with respect to infrastructure, research and human resources:

Infrastructure:

- Microbial genome sequencing should be expanded to include under-studied microbes as described above, either in complementary efforts by individual agencies, in multi-agency joint efforts, or international collaborations.
- Individual agencies should continue or, as necessary, increase support for research on technique and tool development. All such efforts should be coordinated through the MPIWG.
- The Federal government should initiate a deliberate planning effort to address the issue of providing sustained support for genomic resources and ensuring access to these resources for the academic, government, and not-for profit research communities.
- Resolving the database issues (including standardization of annotation and inter-operability) should be a top priority, and this should be undertaken as an interagency effort with planning activities to begin immediately.
- Standardized bioinformatics tools for the analysis of microbial genomes should be developed.

Research:

- Each agency, as its mission directs, should encourage and support genome-enabled microbial research objectives such as those described above.

Human Resources:

- Individual and interagency activities initiated as part of the Microbe Project should contain elements that encourage training and/or educational activities, and include efforts to enhance the diversity of participants in all aspects of each activity. Interagency coordination of the development and distribution of training materials should be encouraged.

Follow-on Activities by the MPIWG

As first steps in acting on these recommendations, the MPIWG plans to:

- Create an Interagency Microbe Project Web Site, where all individual and interagency programs, program announcements, and requests for applications will be listed. The MPIWG recommends that, where appropriate, future individual agency program announcements include a statement indicating that the activity is part of a coordinated Federal effort in microbial genomics, and provide a link to the Interagency Microbe Project web site.
- Hold workshop(s) to address database incompatibilities, annotation standardization, long-term support, and other database issues.
- Hold workshop(s) to address the competing priorities of rapid release of sequence data vs. scientific fairness and intellectual property concerns.
- Hold workshop(s) to address issues related to Biological and Genomic Resource Centers, such as establishing standards for deposition, quality assurance, access, and distribution, and developing mechanisms for short- and long-term support for such resources.

Recommended Investment

It is estimated that an annual investment of \$230 million across a dozen agencies is needed for the foreseeable future to make significant progress on the infrastructure, research and human resources objectives outlined above. This estimate is based on the following needs:

- \$60 million to support an expanded and broader microbial genome sequencing effort, including the development of new technologies to drive costs down.
- \$20 million to provide increased support for research on technique and tool development.
- \$40 million to address the issues of providing sustained support for Biological Resource Center(s) for genomic resources, ensuring access to these resources for the academic, government, and not-for-profit research communities, and resolving database issues.
- \$100 million to enhance support for genome-enabled microbial research.
- \$10 million for human resource development.