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Microbial Finishing at JGI/PGF

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JGI is a leader in performing sequences to support the number of U.S. Department of Energy (DOE) Microbial Programs. The Microbial Genome and GTL programs were established to determine the complete genome sequence of a number of microbes that may be useful to DOE in carrying out its missions. Another program was launched to study hard-to-culture individual microbes and microbial communities. They are very difficult to study but play critical roles in the Earth's ecology. Community Sequencing Program recently started by JGI (<http://www.jgi.doe.gov/CSP/index.html>) also includes sequence and detailed analysis of the genomes of the different representatives of the microbial world.

A completely sequenced, high quality genome is a perfect starting point for the genome annotation (<http://img.jgi.doe.gov/v1.1/main.cgi>), microarrays, knockout experiments etc. Despite the fact that drafted genome contains a sufficiently large amount of information to be usable, a completed one is overall a better product especially if it will be used to analyze previously unknown and difficult-to-cultivate microbes; for the comparative analysis of the clinical isolates or for the creation of microbial strains overproducing different proteins and amino acids. Knowledge of the completely finished genome will allow scientists to modify specific regions of the genome and therefore to affect the expression of the gene being studied. Thus in order to be able to realize these and many other studies, it is necessary to close most (if not all) of the genomes being sequenced at JGI. To this date JGI has accumulated a significant amount of experience closing the microbial genomes. During the last two years the combined efforts of three groups (PGF, LANL, LLNL) allowed to finish 60 microbial projects. Our goal is to fulfill the needs of all of the projects undertaken by JGI and to make the finishing step less time consuming by developing and implementing new strategies and approaches.

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