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DOE CENTERS FORMED TO STUDY THE HUMAN GENOME

Secretary of Energy John S. Herrington has directed two of the department's national laboratories to establish centers to study the human genome, the genetic instructions for the development and functioning of the human body.

The Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico, and the Lawrence Berkeley Laboratory (LBL) in Berkeley, California, will work on the science and technology to analyze this genetic information, which is contained in the DNA of human cells.

Greater understanding of DNA is expected to lead to major advances in all aspects of biology and medicine, especially in the diagnosis, prevention and treatment of the more than 3,000 genetically caused diseases such as diabetes, muscular dystrophy and Huntington's. The project is also expected to provide a major impetus to the nation's biotechnology industry.

"The DOE national laboratories have a unique combination of scientific and computational resources to take on this project," Herrington said. "Biologists will work side-by-side with engineers and computer scientists at world-class facilities."

DOE's research on the human genome stems from the department's mission to evaluate the health effects of energy systems.

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Los Alamos has been asked to explore the possibilities for cooperative research programs with the private sector to develop commercial applications of human genome research. These explorations could lead to a pilot program which could be a model for other DOE laboratories.

The Los Alamos center will help develop the computer and engineering components of the project. LANL is already the home of GENBANK, a national computerized DNA database.

The research of the LANL and LBL centers, in addition to developing new technology required for the project, will focus on physical mapping, cloning, and eventually sequencing the human genome. (A physical map is an ordered set of DNA fragments, while sequencing gives the exact order of individual units within each fragment.) This work will be done in cooperation with efforts at universities, the private sector, DOE's Lawrence Livermore National Laboratory, Livermore, California, and other DOE laboratories.

The Los Alamos and Berkeley centers also will have a major responsibility to coordinate efforts to transfer to the private sector the human genome research results developed at all DOE laboratories.

The human genome project is one of several presidential initiatives to strengthen the nation's economic and technological competitiveness. Its goal is to provide the computational, engineering and biological capabilities needed to both reduce the cost of analysis of DNA as well as increase the speed of analysis.

The Department's Health and Environmental Research Advisory Committee recommended creation of centers as part of a plan for implementing the human genome project.