

cation and collaboration and retard the overall research effort? Without patent rights, how may the owners of private cDNA sequence databases earn a return on their investment while still permitting other investigators to obtain access to the information on reasonable terms? What are the rights of those who contribute resources such as cDNA libraries that are used to create the databases, and of those who identify sequences of interest out of the morass of information in the databases by formulating appropriate queries? Will the disclosure of ESTs in the public domain preclude patenting of subsequently characterized full-length genes and gene products? And why would a commercial firm invest its own resources in generating an EST database for the public domain?

Two factors have contributed to the fascination with intellectual property in this setting. First is a perception that some pioneers in genomics have sought to claim intellectual property rights that reach beyond their actual achievements to cover future discoveries yet to be made by others. For example, the controversial NIH patent applications claimed rights not only in the ESTs that were actually set forth in the specifications, but also in the full-length cDNAs that might be obtained by using the ESTs as probes, as well as in other, undisclosed fragments of those genes. More recently, private owners of cDNA sequence databases have set as a condition for access agreement to offer the database owners licenses to any resulting intellectual property. These efforts to claim rights to the future discoveries of others raise issues about the fairness and efficiency of the law in allocating rewards and incentives along the path of cumulative innovation.

Second is the counterintuitive alignment of interests in the debate. It was a public institution, NIH, that initially favored patenting discoveries that some representatives of industry thought should remain unpatented, and it was a major pharmaceutical firm, Merck & Co., that ultimately took upon itself the quasi-governmental function of sponsoring a university-based effort to place comparable information in the public domain. These topsy-turvy positions in the public and private sectors raise intriguing questions about the proper roles of government and industry in genomics research, and about who stands to benefit (and who stands to lose) from the private appropriation of genomic information.

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## AAAS Congressional Fellowship Program

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Few individuals in the genetics community are conversant with federal mechanisms for developing and implementing policy on human genetics research. In 1995 the American Society of Human Genetics (ASHG), in conjunction with DOE, initiated an American Association for the Advancement of Science (AAAS) Congressional Fellowship Program to strengthen the dialogue between the professional genetics community and federal policymakers. The fellowship will allow genetics professionals to spend a year as special legislative assistants on the staff of members of Congress or on congressional committees. Directed toward productive scientists, the program is intended to attract independent investigators.

In addition to educating the scientific community about the public policy process, the fellowship is expected to demonstrate the value of science-government interactions and make practical contributions to the effective use of scientific and technical knowledge in government. The program includes an orientation to legislative and executive operations and a year-long weekly seminar on issues involving science and public policy.

Unlike similar government programs, this fellowship is aimed primarily at scientists outside government. It emphasizes policy-oriented public service rather than observational learning and designates its fellows as free agents rather than representatives of their sponsoring societies.

One of the goals of DOE and ASHG is to develop a group of nongovernmental professionals who will be equipped to deal with issues concerning human genetics policy development and implementation, particularly in the current environment of health-care reform and managed care. Graduates of this program will serve as a resource for consultation in the development of public-health policy concerning genetic disease.

Fellowship candidates must demonstrate exceptional basic understanding of and competence in human genetics; hold an earned degree in genetics, biology, life sciences, or a similar field; have a well-grounded and appropriately documented scientific and technical background; have a broad professional background in the practice of human genetics as demonstrated by national or international reputation; be cognizant of related nonscientific matters that impact on human genetics; exhibit sensitivity toward political and social issues; have a strong interest and some experience in applying personal knowledge toward the