

Patenting of Genetic Information

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According to the American Medical Association, “gene patenting is a broad term referring to the patenting of either a process that involves isolation of DNA as well as to a chemical substance related to DNA”

There has been a flood of patent requests for genes and small pieces of gene sequences known as expressed sequence tags (ESTs) by private and public entities—after it was announced in June 2000 that the human genome was almost completely mapped. The total number of ‘working’ human genes is said to be somewhere between 28,000 and 100,000, however this represents only about four percent of the total human genome. On the other hand, the function of the remainder 96% of the genetic information is unknown. Hence, owning the patent to any sequence of them now may be beneficial to a patent holder later, when its function become known (Gene patenting).

“A DNA sequence patent provides its holder with a great deal of power to control how anyone—including a physician and his or her patient—uses the “patented” sequence”. One of the enumerated powers is that the patent grants patent holders the right to charge a premium for access to the service. Also, “patent holders can require that physicians wishing to order genetic tests for their patients to have the test done by the patent holder or one of its licensees. The patent holder may impose additional conditions, such as the requirement that the test be conducted at a specific location” (Richard).

A classic example is with the *BRCA1* and *BRCA2* genes. These are mutants that cause a woman’s predisposition to breast and ovarian cancer to increase. The company that owns the patent for *BRCA1* and *BRCA2* is Myriad Genetics. One of their restrictions on the patent is that they require anyone wishing genetic testing for *BRCA1* and *BRCA2* to send their sample to Myriad in Salt Lake City to be “analyzed by a method determined by Myriad at a cost of about US\$2500” (Richard).

Patenting of genetic information, as a result, has brought about a lot of dissent between individual parties, medical activists and patent holders within the recent decades. To

some, patenting of gene sequence is highly unethical especially when it has to deal with humans. “What is inherently human” (Jordan) possesses sanctity and must not be patented. Since the intent of every patent is to preserve ingenuity and to give credit to who credit is due, others argue that patenting a genome ensures development and progress in the technology at stake. However the other side of the argument is that patenting of genes serves as hindrance to innovation rather than incentivizing patent holders.

The restrictions imposed by the patent holders have resulted in gene therapy being unaffordable, inaccessible and the technology resulting in less development. As humans, our cause of action must be to reduce the suffering of our fellow humans. This is directly the opposite of what gene patenting has resulted in. Most patent holders turn to regulate the location where their services are to be conducted as earlier alluded to—which are few places—making it highly inconvenient. The high fees they charge for their services do not make it attractive for most medical institutions to procure their services since they cannot pass on the fees to their patients and the medical care system will not cover for such huge charges. Hence, medical insurance, which pays for this, results in high insurance premium. In terms of development, restriction to a gene sequence prevents other researchers from improving on it to ensure an effective application of the sequence in therapy.

An advantage of patenting a gene will ensure researchers regain the cost and labor they invested into their research and another being to serve as incentive for more researchers to partake in a genome project, the disadvantages presented in the preceding paragraph outweigh such benefits. Although, genetic testing and services should not be free, the fees charged for them must be small to enable more people to benefit from them. Patent holders must also be made to make it freely accessible to any researcher who wants to research on it so that it can be perpetually improved upon to benefit every human.

References

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