THE WALL STREET JOURNAL.

The Case Against Gene Patents
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16 April 2010
p. A19
English

Last month, a federal court in New York handed a major victory to science and medical innovation when it ruled that patents were improperly granted to Myriad Genetics on two human genes associated with hereditary breast and ovarian cancer. We participated in the case supporting the plaintiffs -- which included prominent medical associations, geneticists and patients -- because we believe the patenting of human genes is wrong as a matter of science and as a matter of economics.

Under the patents granted by the U.S. Patent and Trademark Office, Myriad had total control over the BRCA1 and BRCA2 genes since the 1990s. No other companies have been able to do research on the genes without Myriad's permission.

The court held that genes and human genetic sequences are naturally occurring things, not inventions. They are a part of all of our bodies and contain the most fundamental information about humanity -- information that should be available to everyone. The researchers and private companies that applied for these gene patents did not invent the genes; they only identified what was already there.

Proponents of gene patents argue that private companies will not engage in genetic research unless they have the economic incentives created by the patent system. We believe that a deeper understanding of the economics and science of innovation leads to exactly the opposite conclusion.

Patents such as those in this case not only prevent the use of knowledge in ways that would most benefit society, they may even impede scientific progress. Every scientific advance is built on those that came before it. There is still a great deal to learn about our genes, particularly how they contribute to disease. Gene patents inhibit access to the most basic information.

As we move into an era where the sequencing of all of an individual's genes is common and necessary for personalized medicine, free sharing of information about genes will be vital to understanding the role of these variations in human disease and other traits. In order to translate this information into medical advancements, the basic data must be freely available to everyone to interpret and develop. Our genetic makeup is far too complicated for a single entity to hold the keys to any given gene and to be able to choose when, if ever, to share.

Patents are also not necessary for ensuring that genetic tests come to market. Currently, Myriad does not allow any other lab in the United States to perform full diagnostic testing on patients in order to tell them whether they are at increased risk of hereditary breast and ovarian cancer. Because of this monopoly, Myriad is able to charge more than $3,000 to perform the test, a prohibitively high amount that keeps some women from being tested and making informed health decisions.

Other labs have said they would be willing to perform the test for a few hundred dollars, if only they were allowed, and could also develop new tests in order to provide women with a second opinion about their results. The information provided by the tests is of enormous importance: The lifetime risk of getting breast cancer is as high as 85% for mutation carriers.

Any marginal social benefits of patenting genes clearly do not measure up to the profound costs of locking down knowledge. If, as a result of the refusal to grant a patent for genes, there is a slight slowdown in private research expenditures, it can and should be made up for by an increase in public expenditures.

Like basic mathematical theorems, genes are an example of "basic knowledge" -- the kind of knowledge that typically cannot and should not be patented. Had Alan Turing's mathematical insights been patented, the development of the modern computer might have been greatly delayed. It's true that knowledge cannot be produced without cost, but there is a proven alternative: government- and foundation-supported research in universities and research laboratories.

The court's decision is a critical achievement, particularly for women. But the full benefits of this ruling will only be achieved if the decision is upheld. We see this ruling as a turning point in our thinking about our patent system, and more broadly, scientific research.

Mr. Stiglitz, a professor at Columbia University, won the 2001 Nobel Prize in economics. Mr. Sulston, chair of the Institute for Science, Ethics and Innovation at the University of Manchester, won the 2002 Nobel Prize in medicine.