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Patents, Not Just Politics, Create Obstacles to University Stem-Cell Research

By Paul Basken

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For the past several years, scientists who see limitless medical benefits from stem-cell research have battled through hard limits to their ability to pursue their work.

The problem is not just the political debate on whether such research is ethical. A new study released today indicates that overly complicated and restrictive patenting practices, and scientists who do not fully share information and materials, are creating a research bottleneck at the corporate level that could soon hinder work at dozens of universities.

"This is not a problem that is unique to stem-cell science, and most of the solutions are not unique to stem-cell science," said Debra J.H. Mathews, assistant director for science programs at the Berman Institute of Bioethics at the Johns Hopkins University. She is part of the Hinxtion Group, a panel of 77 governmental and academic experts that produced the new report. "But stem-cell science hasn't done it yet."

The report offers five recommendations for government, industry, and universities, with a central focus on improving the sharing of information.

The ideas include creating central data hubs through which all parties can keep abreast of scientific developments in the field and can learn exactly what patents exist on what technologies. Under current practices, too many discoveries at the university level are being left without commercial development, sometimes simply out of fear that a needed technical process in a complicated stem-cell procedure will later be found to have been patented, the group said.

Such information-sharing and patent issues are common throughout science, said another member of the group, Robert Cook-Deegan, director of the Center for Genome Ethics, Law, and Policy at Duke University. The problem is especially severe within

stem-cell research, however, largely because of the field's birth amid political controversy, Dr. Cook-Deegan said.

Stem-cell science traces back to 1998, when James A. Thomson, a professor of anatomy at the University of Wisconsin at Madison, derived the first human-embryonic stem-cell line. The term "stem cell" refers to a cell with the potential to grow into any type of tissue in the body. That ability raises the possibility of cures for a range of ailments and conditions that include cancer, diabetes, heart disease, and paralysis. The political controversy surrounds the use of human-embryonic stem cells, which are typically obtained from the excess embryos created by couples who have been trying to start a pregnancy with the help of a doctor, and some view their use as tantamount to scientific abortions.

The history of political disagreements meant the major initial stem-cell discoveries, made at the University of Wisconsin and Johns Hopkins University, were privately financed and immediately came with patent obligations, Dr. Cook-Deegan said. Restrictions on federal money also prompted financing by state governments, further exacerbating an uncoordinated system of research and patenting practices, he said. Similar political disagreements and financing restrictions complicate international cooperation, he said.

Members of the Hinxton Group acknowledged that despite the threat of extensive and tragic delays in stem-cell research, they have little power to force governments, companies, and universities to adopt their recommendations. History is full of similar situations in which governments only intervened at the stage of a crisis, such as the U.S. government forcing the cooperative development of radio technology and aircraft engines at the start of World War I, Dr. Cook-Deegan said.

For now, Dr. Cook-Deegan said, advocates such as the Hinxton Group can try only persuasion to help advance stem-cell research. "If that doesn't work," he said, "we'll see what happens."

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