

Rush for patents is choking US stem cell research

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Cures for paralysis, blindness and diabetes could all be in reach with embryonic stem cell research, but the pursuit of medical progress is being choked by the US rush to secure patents, experts say.

Scientists are busily filing for legal patents that give them exclusive [intellectual property rights](#) for each discovery they make in the hopes that one day, one will lead to a blockbuster cure and big cash for those who devised it.

But the process means that US scientists -- already stymied by years of government funding freezes linked to controversy over the destruction of human embryos -- often find themselves blocked because other universities or private companies have already secured exclusive rights.

"You just have this complete minefield out there and you know who the victims are? It's the patients," said Bob Lanza, chief scientific officer at Advanced Cell Technology, which is researching the use of human [embryonic stem cells](#) to halt some forms of [blindness](#).

Lanza recalls bumping up against his company's main competitor, Geron Corporation, when it came to researching stem cells in reversing diabetes, a process he said he had been working on with animals for many years.

"When I came to ACT to try to do it with stem cells I couldn't because the rights to use embryonic stem cells for diabetes had been exclusively licensed to Geron," he said.

"Here I was, a scientist trying to cure diabetes and I couldn't use my entire lifetime of expertise to try and develop that technology," he said.

Geron last year became the first company to start clinical trials of embryonic stem cells in humans, starting with a patient who had [spinal cord](#) injuries. ACT soon followed with its plan to start trials on [macular degeneration](#).

Lanza said his company has spent around 100 million dollars of investor funds on its research, and has had to play the game of securing intellectual property (IP) rights in order to compete.

"I am coming from a company where we have blocking IP as well," Lanza said. "In order for us to get money we have to file patents to protect our rights otherwise we get prohibited from even pursuing our own technology."

The emergence of private companies at the head of the field is unusual, when medical breakthroughs are typically funded by the National Institutes of Health which pours more than 30 billion dollars a year into scientists' coffers.

President Barack Obama in March 2009 lifted restrictions that predecessor George W. Bush had imposed on embryonic stem cell research, releasing hundreds of millions of dollars, but so far no government funded projects have reached the clinical trial stage.

Meanwhile, science is rapidly advancing in the field of creating induced pluripotent cells, which like human embryonic stem cells can be manipulated to form other cells.

Now, scientists can take adult cells, such as skin, and turn them into other cells, such as blood.

The result has been an explosion of US patents that no one has even taken the time to count.

"We are at a point in stem cell science where it is important that the community start to think about how intellectual property is being taken, how it is being protected and how data and material sharing are all impacting the science and the translation of science into treatments and valuable products," said Debra Mathews of Johns Hopkins University.

Mathews was part of a panel discussion Monday on recommendations from the Hinxton Group, a US-British team that addresses ethics in science.

The group urged the creation of two central databases; one on stem cell lines in use worldwide and one on intellectual property rights so scientists can readily access information.

They also urged the creation of international stem cell banks.

"This has worked quite well in the UK," said Robin Lovell-Badge of Britain's National Institute for Medical Research.

"Any new cell line that has been made has been lodged in the bank immediately. People deriving these cell lines don't mind doing that," he said.

In Europe, scientists cannot file patents on human embryonic stem cells because of a 2008 ruling which said it would go against the public order.

And some experts believe the US entanglement over legal rights will just make it easier for other countries to take the lead.

"You have countries like the United States which are somewhat ambivalent about [stem cell research](#) and have sometimes contradictory policies," said Robert Cooke-Deegan of Duke University's Center for Genome Ethics, Law and Policy.

"You have other countries like Israel, China, (South) Korea, Singapore where stem cell science is seen to be hot and commercially valuable and something where those countries could leapfrog over European and North American science and get ahead."

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