



STAFF

By: [Tina Reed](#)
AnnArbor.com Staff

University of Michigan invention could advance stem cell science

Posted: Jun 7, 2010 at 6:00 AM [Yesterday]

When **embryonic stem cells** are grown, these sensitive cells need an extra-friendly environment to live in.

University of Michigan researchers have created a special synthetic surface, which they say could create a more consistent environment within a petri dish for those little stem cells. And that, they say, could in turn advance their studies into the world of embryonic stem cell research.

Typically, scientists have grown batches of embryonic stem cells, or cells derived from embryos that have yet to specialize for a certain purpose, on a surface of another set of cells - such as skin cells from mice.

But that can lead to batch variability, making it difficult for researchers to pinpoint why embryonic stem cells behave the way they do. It also raises questions about the unknowns introduced in embryonic stem cell research when animal proteins are involved in growing them.

In a cross-campus partnership, U-M's [Joerg Lahann](#), an expert in creating chemical surfaces, partnered with U-M stem cell biologist Gary Smith to help create a defined synthetic surface for the stem cells.

A paper on their work, at least four years in the making, was [published online last week in the journal Nature Biotechnology](#). U-M is looking to patent the technology and bring it to market.

"We've eliminated or have the potential to eliminate contamination of the cell by unknown human factors," Smith said. "It makes cells more easily used for clinical studies or implantation, which people believe has great potential."

In December, [it was announced](#) that U-M researchers received approval to begin receiving unused embryos for stem cells, more than a year after Michigan voters approved a proposal allowing the research.

At the time, officials said it was a move that could jump start stem cell research, which would lead to clinical breakthroughs and stimulate the state's economy. Michigan will play host to the preeminent scientific conference on stem cells, [World Stem Cell Summit](#), in Detroit in October.

Since the passage of a law that relaxed the rules regarding stem cell research to allow embryonic stem cell research in the state in November 2008, U-M scientists have been working to perfect techniques to prepare for the new lines of stem cells. The researchers say they believe this will help advance their efforts.



Gary Smith is an associate professor of obstetrics and gynecology.

Courtesy |
University of
Michigan



Joerg Lahann is an associate professor of chemical engineering.

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"The field has a long way to go, but this is a big step forward," Lahann said.

Tina Reed covers health and the environment for AnnArbor.com. You can reach her at tinareed@annarbor.com, call her at 734-623-2535 or find her on Twitter [@TreedinAA](https://twitter.com/TreedinAA).

Tags: [stem cell](#), [University of Michigan](#)

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trespass

Posted 23 hours ago



The discovery is great but the story is the result of a patent application. Similar patents have been used to control future discoveries and actually slow the progress of science and healthcare. For example, this discovery might cause the FDA to require that all stem cell therapies use cells grown in cell free cultures (the feeder cells might carry infectious diseases) but as a result all stem cell therapies would have to pay royalties to the University of Michigan or whoever licenses the patent from the U.

Congress needs to revisit whether or not allowing Universities to profit from patenting of publicly funded research is in the best interest of the public who funded the research.

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Rork Kuick

Posted 23 hours ago



There are often multiple funding sources, and it would be hard to apportion any profits. It could also lead to endless gaming of the system by Universities, saying the idea really came from here or there. Lawyer employment would get a boost though.

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Stephen Landes

Posted 19 hours ago



@trespass

What seems to be required is a short course in patent law. Patents provide for protection of the legitimate intellectual property of the discoverer and at the same time provide open information about the discovery to the world. This second "teaching" function is as important as IP protection for it gives everyone the opportunity to study the work freely and to work to identify further improvements or even alternate directions for their own research and patents. As many corporations and individuals have found, the initial patent is not the end of the road, but merely the end of the beginning. Continuous work in the area of the patent will either be done by the originators or competitors. Those who sit idly on their patent will shortly find themselves surrounded by competing work which may significantly reduce the value of the initial work.

Current patent law works well for everyone by assuring the patenter of rewards for their work and the free use of the information for everyone else to use in developing their work.

Your other point about the Feds requiring use of such a patented material is a justification for keeping government out of the business as much as possible. There is no rationale for requiring the use of this new material: if it is the best material to work with it will be adopted, if not then it will languish. We do not need the Feds to tell us what to do, how to live, what methods to use in research, etc.

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Scott Hadley

Posted 19 hours ago



@trespass There are reasons to patent other than to rake in cash via licensing. If you don't



patent the idea then any for profit company can take the idea and make money off of it. Another reason is to maintain the quality of the process when implemented commercially. Go read about the "plumpy nut" patient to learn why you may want to do that.

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Rork Kuick

Posted 19 hours ago



Trespass didn't say "no patent". Maybe they want NIH to have the rights instead. (I'm not sure.)

When companies fund research at the U they may sometimes have "reach through" stipulated, not that anybody here likes that.

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trespass

Posted 19 hours ago



All interesting rationalizations but look at how the patenting of breast cancer genes has led to one company having a monopoly that greatly increases the price of testing. Look also at how gene patents prevent newer methodologies such as whole genome sequencing from being economically feasible.

The right of Universities to patent publicly funded research discoveries has only been the law for a few decades. I would argue that it has promoted the corporatization of Universities rather than promoting more rapid progress in research.

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Edward Vielmetti
AnnArbor.com Staff
Posted 19 hours ago



Here's the U of Michigan's guide to patents:

http://www.ogc.umich.edu/faq_intellectual.htm

The law changed in 1980, in reference to what @trespass referred to. From Wikipedia, which is known to be an unreliable source but in this case looks accurate:

http://en.wikipedia.org/wiki/Bayh-Dole_Act

The Bayh-Dole Act or University and Small Business Patent Procedures Act is United States legislation dealing with intellectual property arising from federal government-funded research. Adopted in 1980, Bayh-Dole is codified in 35 U.S.C. § 200-212[1], and implemented by 37 C.F.R. 401[2]. Among other things, it gave US universities, small businesses and non-profits intellectual property control of their inventions and other intellectual property that resulted from such funding. The Act, sponsored by two senators, Birch Bayh of Indiana and Bob Dole of Kansas, was enacted by the United States Congress on December 12, 1980.

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tinkerbell

Posted 17 hours ago



My brother is dying at the age of 55 of of a rare neurological disease. We need all the experimental studies available.

[Report this comment to staff](#)

trespass

Posted 17 hours ago



@tinkerbell

I certainly sympathize but my point is that patents on University research may actually slow the development of treatments. Patents on stem cell lines and methods of growing stem cells are a minefield for researchers in stem cell therapies.

[Report this comment to staff](#)

trespass
Posted 16 hours ago



@stephen Landes

Your point about keeping the government out of business as much as possible is misplaced when it comes to the Food and Drug Administrations responsibilities to make sure drugs and biological therapeutics are safe. The possibility that a cell line might carry viruses that could cause disease is quite scary and I want the government to make sure that those involved in developing new therapies have thought about the possible public harms. What would have happened if the FDA did not take a serious role in the safety of the blood supply during the early days of the HIV epidemic?

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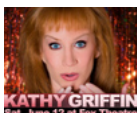
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