

# A Critical Reading Of This Information Finds:

## Cures, jobs, ethics on the line in vote on stem cell research

*Opposing sides dig in as vote nears on Proposal 2*

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Ryan Dinkgrave lived a carefree life in Livonia until he was diagnosed with type I diabetes at age 10. Suddenly everything was ordered and careful.

“It makes you rethink everything you do,” he said. “You’re young, you’re told you need to do shots, you’re measuring your blood sugar. You have to count, carefully measure everything you eat.”

Dinkgrave, now 25 and of Royal Oak, is among Michigan residents who support Proposal 2, a November ballot initiative allowing Michigan researchers to make embryonic stem cell cultures from excess embryos donated from fertility treatments. Researchers say the cells could unlock the secrets of disease and lead to cures for illnesses such as Alzheimer’s and type I diabetes.

Voters will decide this emotionally charged issue on the basis of a 100-word ballot initiative -- one that could not only affect people’s health, but also the economy of Michigan for decades to come. Proponents say the measure could spark a life sciences sector and pump billions of dollars into the state’s struggling economy.

Opponents insist embryonic stem cell research is unnecessary because alternative types of cells are available for research. They say the measure would take away regulatory power from the state Legislature and potentially lead to cloning. They also argue that life begins at conception, so destroying embryos is wrong even if they might be discarded.

**1** Under a 1978 state law that limits the destruction of embryos, making embryonic stem cell lines is a felony, punishable by up to \$10 million in fines and 10 years in prison. The law, which predates the discovery of embryonic stem cells by two decades, is one of the most restrictive in the nation.

Both groups believe they are saving lives. The difference is how. ‘A profound disadvantage’

Sean Morrison researches stem cells in two nearly identical rooms at the University of Michigan, one for embryonic stem cells and one for adult stem cells.<sup>2</sup>The embryonic stem cell room is privately funded, because the federal government banned funding for most embryonic stem cell research in 2001.

Because of the state ban, he cannot create new embryonic stem cell lines. He can either import other scientists’ lines, or use a series of 21 embryonic stem cell lines preapproved by the Bush administration.

**3** Morrison says it’s costly and complicated to transfer cell lines, and the approved lines are contaminated because they were grown with mouse cells.

**1** Actually, 10 years in prison and \$10 million dollar fine is the maximum punishment for taking part in human cloning research. The Michigan ban on human cloning was passed in 1998. The current punishment for using and/or killing a human embryo for non-therapeutic research is a felony “punishable by imprisonment for not more than 5 years.”

**2** The University of Michigan receives federal funding to work on embryonic stem cells. Some of Sean Morrison’s work on embryonic stem cell lines is federally funded. The University of Michigan and Dr. Morrison have also chosen to do research on embryonic stem cell lines which aren’t federally approved. This research is privately funded.

**3** It’s neither costly nor complicated to transfer embryonic stem cell lines. Harvard University makes 17 human embryonic stem cell lines which aren’t approved for federal government funding available to researchers for free. All the researchers have to do is fill out a request and prove they have the permission of their university or institution to work with Harvard’s embryonic stem cell lines. The web page for Harvard’s embryonic stem cell lines notes “it is our intention to make these cell lines as freely available to the research community as possible.”

4 The researcher Sean Morrison is referencing is Michael Clarke. Clarke didn't leave Michigan because of Michigan's laws against cloning and killing human embryos since Clarke's work at Stanford has do with research into cancer stem cells, not killing human embryos for research. In an article in BioRegion News published on July 14, 2008, Morrison admitted that Clarke's leaving "was not a direct result of Michigan's stem-cell laws."

5 Scientists in Michigan want to kill human embryos and create their own stem cell lines so they can apply for patents in the hopes of making more money if their research is successful.

6 The 73 treatments are not "completely bogus." Evidence for each one of the disease treated is catalogued at [www.stemcellresearch.org](http://www.stemcellresearch.org). Many of the treatments using adult stem cells have occurred in other countries, which is why they aren't all FDA approved.

"We cannot make our own lines in Michigan. This delays the research and creates an inhospitable climate for recruiting people who study ES cells to Michigan," he said. "People who specialize in embryonic stem cell research don't even apply to U-M for jobs. *It puts the state at a profound disadvantage.*"

4 Even experienced researchers will move their labs for fear of what the next ban might be, Morrison said, noting a cancer stem cell researcher at U-M who moved to Stanford, partly because the research atmosphere was more open.

5 Morrison and others said scientists have become advocates, talking to the public about the need to create their own stem cell lines.

"The law was passed in the '70s, before we knew the embryonic stem cell existed. Why be held a slave to a law when we didn't even know they existed?" said Max Wicha, stem cell researcher and director of the U-M Comprehensive Cancer Center.

It's unclear how many embryos are discarded in Michigan each year, but researchers estimate there are 500,000 in storage nationwide. U-M has about 200 frozen embryos that could be donated through informed consent if Proposal 2 passes, said spokesperson Robin Stephenson. Ethical questions

Embryonic stem cell research is immoral because the good of a cure or therapy does not outweigh the evil of destroying an embryo, said Michael Hovey, director of Catholic Social Teaching at the Archdiocese of Detroit.

The Michigan Catholic Conference and the Right to Life lobby are funding a group called Michigan Citizens Against Unrestricted Science & Experimentation (MiCAUSE) to oppose Proposal 2.

"One life is not more valuable than the other, regardless of what point it's at," said Hovey, whose mother has Parkinson's disease.

Even if the research produces life-saving cures, Hovey said, he and other devout believers must conscientiously object.

The Catholic Church advocates adult stem cell research that Hovey said already treats dozens of diseases without destroying embryos. According to [www.stemcellresearch.org](http://www.stemcellresearch.org), an anti-embryonic stem cell research Web site, 73 diseases have adult stem cell therapies.

6 But U-M developmental biologist Doug Engel said the number is "completely bogus." Most of the diseases on the list are being treated with a single type of adult stem cell derived from blood, and many treatments are not Food and Drug Administration approved, he said.

Opponents also criticize the wording of Proposal 2.

Cure Michigan's campaign manager, Mark Burton, said the language "is narrow," and keeps the Legislature from future bans on embryonic stem cell research, therapies and cures.

But Dave Doyle, MiCAUSE spokesman, said the measure simply prevents the Legislature from regulating a new science.

Morrison, noting that state regulation is rare and typically tied to state funding -- which Proposal 2 does not address -- **7** said federal regulations on biomedical research already safeguard practices. In addition, many research universities have stem cell ethics boards.

Opponents also laud non-stem cells that mimic embryonic stem cells. They say these can be used in research without destroying embryos.

**8** Researchers say the technology for creating these cells causes tumors, however, and without more research into how embryonic stem cells work, they have no way of knowing if the substitute is the same as the real thing.

Biotech booms

Proponents say embryonic stem cell research could improve Michigan's economy by replacing lost auto jobs with biotech jobs spanning all levels and pay grades.

North Carolina made a similar transition when its textile industry faded, said Steve Rapundolo of MichBIO, the state's biotechnology industry organization. The North Carolina Community College System BioNetwork now teaches manufacturing workers biotech basics and awards start-up grants.

"It's exactly the kind of thing we need in Michigan," he said.

**9** Rapundolo said Michigan's research restrictions can discourage life science companies from locating in the state: "It's a horrible environment for life sciences," he said.

A handful of states, including New Jersey and California, fund the research themselves. A 2007 report by Rutgers University said that with \$720 million in infrastructure investment, New Jersey over time would gain an estimated \$2.2 billion in economic activity and \$115 million in new state revenues.

In California, the life sciences industry has grown from about 17,000 jobs in the 1970s to about 285,000 today and now is the state's second-largest employer, said Robert Klein, chairman of the board of the California Institute for Regenerative Medicine, which oversees funding of embryonic stem cell research.

**10** A study by the public policy group Michigan Prospect said last week that Proposal 2 would have a small but significant economic impact on Michigan. Opponents called the study arbitrary.

A lesson in history

Carol Brenner, a reproductive biologist at Wayne State University, conducted human embryonic stem cell research in New Jersey. At WSU, she studies in vitro fertilization and heart repair using monkey embryonic stem cells instead.

Brenner said if Michigan voters reject Proposal 2, overturning the federal funding ban won't help. She still would need human cells to push her research forward.

Scientists like Brenner caution advocates like Ryan Dinkgrave, a volunteer with Michigan Citizens for Stem Cell Research and Cures, from overselling the promise, noting cures are years away. But both argue that to do nothing is immoral.

**7** There are no federal regulations on research using human embryos.

**8** Tumor formation is a common occurrence in pluripotent stem cells, whether those cells are created by killing human embryos or by inducing skin cells to revert to a pluripotent state.

**9** If Michigan is such a horrible place for life sciences why does the web site of Rapundolo's organization, MichBio, claim, "Whether yours is an expanding company, a fledgling startup, or a research institution, there is a thriving home for the life sciences in Michigan, and we invite you to be part of it."

**10** The study's own author, Allen Goodman, admitted his research was based on "arbitrary" estimates. Goodman was paid \$24,000 by proponents of killing and cloning human embryos to write the study. The study had so many flaws, Michigan State University political science professor Michael Crow (someone who favors embryonic stem cell research) used Goodman's study to show his students how not to do research.

AND THERE'S STILL MORE (see next page)

11 Every promising avenue? Does that include human cloning? Does that include creating human/animal hybrid embryos? Does that include using tax dollars to pay for human embryo research?

11 "If we want to find a cure, we pursue every promising avenue," Dinkgrave said.

It's an argument that's been heard before.

In the 1970s, scientists developed a way to use bacteria to create human proteins with therapeutic value. Opponents accused them of playing God but researchers and lawmakers created guidelines for the future of the technology, known as recombinant DNA, which has driven biomedical discovery and subsequent therapies ever since.

In 1982, the Food and Drug Administration approved its first recombinant-DNA derived therapeutic.

It was human insulin, the stuff that pumps into Ryan Dinkgrave several times a day.