



**Testimony of the  
Biotechnology Industry Organization (BIO)  
Before the Maryland House Health and Government Operations Committee**

**Regarding House Bill 885  
The Human Cloning Prohibition Act of 2005  
March 3, 2005**

Mr. Chairman and members of the committee, thank you for the opportunity to present testimony regarding House Bill 885, the Human Cloning Prohibition Act of 2005. On behalf of the Biotechnology Industry Organization (BIO), I would like to state for the record that, as an industry, we are opposed to reproductive human cloning. At this time we see no ethical or medical justification for the replication of an existing or previously existing human being. However, House Bill 885 goes well beyond preventing human reproductive cloning. This legislation will prohibit a very promising area of research and would make felons out of Maryland researchers seeking to develop cures for diseases afflicting millions of people worldwide.

BIO represents more than 1,100 biotechnology companies, academic institutions, state biotechnology centers and related organizations in all 50 U.S. states and 33 other nations. BIO members are involved in the research and development of health-care, agricultural, industrial and environmental biotechnology products. In Maryland, we work closely with the Technology Council of Maryland to represent the 300 biotechnology and lifescience companies and nearly 20,000 employees working to develop cures for patients suffering from diseases such as cancer, diabetes, Parkinson's and Alzheimer's disease as well as many others.

While we categorically oppose human reproductive cloning, we are working closely with researchers and patient communities to promote the very promising

field of stem cell research. Human stem cells, both adult and embryonic, hold significant potential to help scientists develop treatments and regenerate damaged or diseased cells. House Bill 885, as it is currently written would make certain types of stem cell research illegal and subject Maryland scientists and researchers to arrest and punitive fines.

Specifically, House Bill 885 would prohibit a process called somatic cell nuclear transfer (SCNT). This cloning technique allows researchers to remove the nucleus from a donor egg cell and replace it with the nucleus from the cell of a potential patient. The cell is then stimulated to begin the cell division process that will create human stem cells that are genetically identical to the individual seeking the new cells. All of this is done *in vitro*, or outside the human body.

Stem cells are unique in that they can become any cell in the body. Working with these cells, scientists can harness “undifferentiated” human stem cells and direct them to become a variety of specialized cells. Once enough specialized cells have been developed they can then be used to repair spinal cord injuries; regenerate damaged brain cells for people suffering from Parkinson’s or Alzheimer’s disease; regenerate muscle or organ tissue as well as skin cells to treat burn victims. The benefit of this type of therapeutic cloning may someday allow doctors to treat patients suffering from these maladies with cells that are the genetic duplicates of the patients’ own damaged cells. This could significantly reduce rejection issues common with donor cells or organ transplants.

Committee members may be aware of a report published in the March issue of the journal *Diabetes* that details very promising results of using human embryonic stem cells in potentially curing Type 1 diabetes. Researchers at the University of Miami were able to use embryonic stem cells to create insulin-producing islet cells that may well lead to a cure for this debilitating disease. While University of Miami researchers caution that a cure is still far away, if this type of research were banned in Florida, this research could never have been conducted.

We are not alone in our support for preserving all forms of stem cell research. The National Academy of Sciences (NAS) in a recent report concluded:

“The scientific and medical considerations that justify a ban on human reproductive cloning at this time are not applicable to nuclear transplantation to produce stem cells. Because of the considerable potential for developing new

medical therapies to treat life-threatening diseases and advancing biomedical knowledge, the panel supported the conclusion of a previous National Academies' report—*Stem Cells and the Future of Regenerative Medicine*—that recommends that biomedical research using nuclear transplantation to produce stem cells be permitted.”

Medical research has taken quantum leaps in the past decade. Scientists are identifying and developing treatments, and potentially cures, for deadly and seriously debilitating diseases. Cloning techniques have been invaluable in research leading to the production of breakthrough medicines, diagnostics and vaccines to treat heart attacks, various cancers, kidney disease, diabetes, hepatitis, multiple sclerosis, cystic fibrosis, and other diseases. The cloning of genes already has contributed to the development of important medicines, such as tissue plasminogen activator (tPA) to dissolve clots after a heart attack and erythropoietin (EPO) for anemia associated with dialysis for kidney disease.

Legislation to ban the cloning of human beings presents complex issues and requires thoughtful debate. Recent efforts in the U.S. Congress to ban this technology are a clear example of the complexity of this issue. However, many states, such as California and more recently New Jersey have adopted legislation to encourage stem cell research, while placing a ban on human reproductive cloning.

California, the state with the largest biotechnology industry presence in the country, recognizes the promise of this technology. The state became the first in the nation ban reproductive human cloning (1997), to create a safe harbor for all forms of stem cell research (2001), and with the passage for Proposition 71 (2004), the state will allocate \$3 billion to stem cell research over the next 10 years. Nearly a dozen states are now considering legislation to either create safe harbors and/or allocate funding for stem cell research.

If the intent of the State of Maryland is to prohibit human reproductive human cloning, we suggest that the legislature enact House Bill 1183. This legislation expressly prohibits human reproductive cloning but makes provisions for stem cell research. House Bill 1183 would make it illegal to implant cloned cells for the purpose of initiating a pregnancy that could result in the birth of human child.

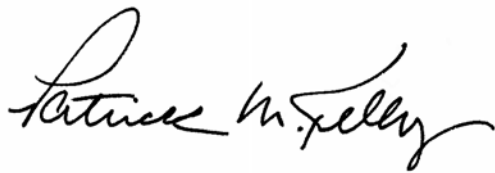
There are many reasons why Maryland should consider enacting legislation like House Bill 1183. Interstate competition for biotechnology industry development is

at an all time high. States like California and New Jersey are keenly aware of this competition and have put in place programs to promote industry development. The passage of their respective stem cell research laws are prime examples of their commitment to biomedical research.

Maryland holds the enviable position of having the fourth largest number of biotechnology companies in the United States. The state has always been a staunch supporter of the advancement of biomedical research and promoting industry growth. Promoting research is imperative if the state is to continue to hold its competitive advantage over other states in the country. We strongly urge you to preserve the opportunity to conduct this promising research in the state and recommend that the committee oppose House Bill 885.

Thank you for the opportunity to submit testimony today. Please feel free to contact me if you have any questions or need additional information.

Respectfully Submitted,

A handwritten signature in black ink that reads "Patrick M. Kelly". The signature is written in a cursive, flowing style.

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