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# Preamble STEM CELLS

## TALKING POINTS:

Dr. John Shea, M.D., F.R.C.P. (C)

### Scientific Considerations:

You are a member of the human race from the time of your conception (fertilization). This fact has been established scientifically since the mid eighteen-fifties.

The use of human stem cells from sources other than the embryo (somatic stem-cells or adult stem cells) has proved very successful for over twenty years and should be pursued.

No disease has yet been alleviated or cured by the use of embryonic stem-cells.

Embryonic stem cells can be a bit too flexible, differentiating into all kinds of tissue, some desirable and some not. When injected under the skin of certain mice, they grow into teratomas, tumours consisting of numerous tissue types, from gut to skin to teeth.

Embryonic stem cells used in patients with Parkinson's disease have produced tardive dyskinesia, uncontrollable movement of the limbs.

Embryonic stem cells will be treated by the recipient's body as foreign, and the likelihood of tissue rejection is highly probable.

Somatic stem-cells derived from a patient are never rejected by that patient's body.

Common sources of somatic stem-cells are bone marrow, umbilical cord blood and placentas and umbilical cords are available.

Umbilical cord blood is virtually free of infection by cytomegalo virus.

There is only a one in four hundred chance of a perfect match from a non-relative bone marrow donor. Even with a suitable donor, there is an 80% risk of moderate to severe tissue rejection.

Malignant disease successfully treated by marrow transplant or cord blood are acute lymphocytic leukemia, acute myelogenous leukemia, adult chronic myeloge-

nous leukemia, juvenile chronic myelogenous leukemia, non-Hodgkin's lymphoma, multiple myeloma, neuroblastoma and Hodgkin's disease.

Non-malignant disease, successfully treated: aplastic anemia, thalassemia, Fanconi's anemia, sickle-cell anemia etc.

Recent somatic stem-cell research successes: cow skin cells transformed into beating heart cells in a cow (PPL Therapeutics, Scotland 2001), human fat cells transformed into cartilage, muscle and bone (UCLA and University of Pittsburgh), mouse heart damage repaired by bone marrow cells (*Nature Magazine*, New York Medical College, April 2001). Successful stemcell harvesting from bone, cartilage, brain and heart, (*National Post*, April 16, 2001).

A patient with host-tissue rejection will often have to be put on anti-rejection drug treatment for the rest of his/her life.

A stem cell once separated from the embryo, which occurs spontaneously in identical twinning, can follow one of three courses:

- 1) It may die
- 2) It may revert to becoming another embryo and
- 3) It may be cloned.

**If the stem-cell reverts to becoming another embryo, it in turn, will be killed by stem-cell research.**

British researcher, Dr. Helen Hodges, says adult stem cells may prove safer and more flexible than fetal cells. Some of her work shows adult stem cells traveling to the area needing repair, whereas fetal stem cells remain where they are injected. And because patients can "donate" their own adult stem cells for treatment, their immune systems won't reject them.

In 1999, the journal *Science* reported that adult stem cells were "much more accessible and can develop into a surprisingly broad repertoire of cell types." In the publication, Professor Prentice says that "in the last two years, we've gone from thinking that we had very few stem cells in our bodies and recognizing that many (perhaps most) organs maintain a reservoir of these cells".

Professor Prentice goes on to say that adult stem cells have shown themselves to be scientifically more successful than embryonic stem cells both because of the variety of different tissues they can become and because

they are more readily available.

Donald P. O'Mathuna, a professor of bioethics and chemistry at Mount Carmel College of Nursing in Columbus, Ohio, states that drugs are being developed to activate adult somatic stem cells.

### **Political Considerations:**

The idea that an embryo does not come into existence until 14 days after conception (at the time of implantation) is a fiction - - pretending to be a scientific fact.

The 'fourteenth day' fiction has been promulgated by obstetricians and pharmaceutical companies since the late 1970's in an effort to promote the IUD (intra-uterine device) as a contraceptive and not, as it truly is, an abortifacient.

The morning-after pill and the use of embryonic stem-cells are being promoted by means of the same fiction.

Harry Blackmun (Roe Vs. Wade): "...beginning of life could not be determined." He ignored biological science. The beginning of life can only be determined by biology, not by philosophy, theology or religion.

In 1997, 73 'scientists' solicited the National Institutes of Health (NIH) to support stem-cell research -but none of them were human embryologists.

December 1998, Harold Varmus, director of NIH made this statement: "...human Totipotent stem cells are not embryos." He omitted that:(a) stem cells are obtained by death of embryo, and(b)these cells sometimes revert back to a zygote.

His conclusions were derived from the advice of two organizations:

- (1) National Bioethics Advisory Commission (no human embryologists), and
- (2) The Human Embryo Research Panel, appointed by him (again, no embryologists on the panel).



### **Ethical Considerations**

Science has nothing to say about the *value* of human life.

The human being from the moment of conception has inherent human rights which includes the right not to be unjustly killed or deliberately harmed.

Basic moral principles should not be re-defined by public debate, vote or consensus.

The proposed legislation by Health Minister Allan Rock, on the one hand, criticizes and condemns certain morally unacceptable procedures, and on the other hand, allows them to take place, if permitted by the government.

The use of embryonic stem-cells for research kills the embryo.

Somatic stem-cell research involves very few moral problems.

Concerned Women for America points out that embryonic stem-cell research, which destroys a human being, violates The Nuremberg Code, an ethical framework used to govern human research. The Nuremberg Code was formed in the wake of the atrocities committed in the

name of science in Nazi Germany. The primary principle in the Nuremberg Code states, "Voluntary consent is absolutely essential." The Code also prohibits experimentation that causes injury, disability or a person's death. Both of these principles are violated in embryonic stem cell research.

We must never allow human beings at the embryonic stage, or at any other stage to be used for experimentation.

If parents of an embryo gave their consent to it being used for research purposes, but were not informed that this embryo was a member of the human species (race), their consent would have been misinformed and therefore legally invalid.

In this section follow questions designed to unpack the content of the articles appearing on page 14 of the September edition of *The Interim* newspaper, authored by Francis Hill and Peter Stock, and the supplementary material of Dr. John Shea on these preceding pages.

1. What is a stem cell?
2. What types of stem cells are there ? Where are they found? What can they be used for? Is one type superior to another? How?
3. Why is this issue, ESCR, often emotional?
4. How does the media milk the emotions? Has the media covered the issue in a responsible way?
5. Briefly summarize the main scientific, political ethical and legal points raised by Dr. Shea.
6. Does the end justify the means?
7. What is the determining factor in the debate?
8. According to the three parts of morality... intention, circumstances and action, discuss the objective morality of ESCR.
9. Why are some scientists and journalists using ad hominem arguments?
10. Why has science taken on an almost religious aura in our times?
11. Define the particular discriminations mentioned in the Hill article... ageism and sizeism. How do these two rather subjective and arbitrary decisions square with a "highly educated" population re scientific matters?
12. Why is much of the media claiming this is a science issue and not a pro-life issue?
13. How does IVF relate to ESCR? Since we have all these human embryos, what do we respectfully do with them?
14. How has the issue of cloning entered the ESCR controversy?
15. Why has moral relativism taken such a strong hold on much of western society?
16. How does ESCR parallel the Nazi justification for certain human experimentation?
17. What is the media misinformation that Stock refers to?
18. What advantages do somatic adult stem-cells have over embryonic stem cells?
19. What is the fundamental principle of the Nuremberg Code?
20. What is the current legal status of ESCR in Canada?
21. What practical measures does Stock suggest be taken to deal with the situation?

## SCIENTIFIC AND MEDICAL TESTIMONY

There is little data to support, or infer, that embryonic human stem cells have any advantages over adult human stem cells in medical research. As a scientist in the field of human tissue regeneration, it is clear to me that integrating functional new tissue, not simply healthy tissue, into a diseased area requires integration of hundreds if not thousands of signals.

*Usala, [www.stemcellresearch.org/testimonies/usala](http://www.stemcellresearch.org/testimonies/usala)*

...the mass of cells that begins the process of specific differentiation occurs very shortly after conception. The promotion of a specific and integrated genome pathway results in the beginning of that particular species of animal. The embryos that are fertilized in vitro differentiate and integrate their cellular signals in a specific way that are human. When they acquire rational thought or feeling is as yet debatable; when they are defined as human is not.

*Usala, [www.stemcellresearch.org/testimonies/usala](http://www.stemcellresearch.org/testimonies/usala)*

I believe that the only defensible position is that life begins at conception whether in the petri dish or the uterus. To destroy embryos for only potential benefits that are promised to suffering people before the work is done in animals is misleading, inappropriate and in my opinion, utilitarian ethics. We do pre-clinical tests of medicines in animals rather than rush into humans to avoid mistakes as much as possible. Why rush into experiments or trials with ES before completing animal studies and exploring adult stem cells?

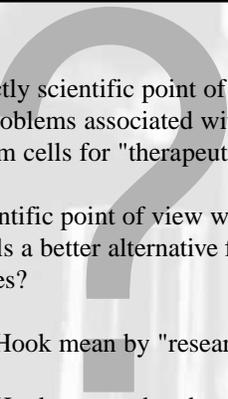
*Usala, [www.stemcellresearch.org/tesimonies/usala](http://www.stemcellresearch.org/tesimonies/usala)*

It comes down to this fundamental question: Is the human embryo a human being whose research protocols ought to be governed by ordinary medical ethical rules? She is. The human embryo is a person in an early phase of maturation through which everyone of us passed. She is not some other species. She is not merely tissue. Tissue cannot continue to develop into a full adult human being, unless acted upon by extreme laboratory manipulations which are still of uncertain feasibility.

*Hook, [www.stemcellresearch.org/testimonies/hook](http://www.stemcellresearch.org/testimonies/hook)*

Another classic principle of human subject research is that we should pursue knowledge using the least dangerous or damaging approach feasible. The ostensible therapeutic goals of human embryonic stem cell research can be pursued via methods that do not lead to the destruction of human life. It is ethically mandatory that adult stem cell research be pursued to its conclusion before research threatening the life of a human being is considered.

*Hook, [www.stemcellresearch.org/testimonies/hook](http://www.stemcellresearch.org/testimonies/hook)*

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1. From a strictly scientific point of view outline some of the problems associated with the use of embryonic stem cells for "therapeutic" purposes.
  2. From a scientific point of view why are somatic adult stem-cells a better alternative for such therapeutic uses?
  3. What does Hook mean by "research protocols"?
  4. What does Hook mean when he states that the human embryo is not "merely tissue"?

## **VARIOUS ARGUMENTS FAVOURING/SUPPORTING ESCR**

Some people may think that biologists are cloning human embryos only to see how far they can push the scientific envelope, but there are many legitimate reasons for investigating cloning. Embryologists believe that research into cloning could help improve the life of future generations...many biologists believe that they have a personal duty to the improvement of society, perhaps even a moral obligation. To this end the techniques of embryonic cloning and alteration have been offered to society as an option for the improvement of humanity.

Doctors hope that by being able to study the multiple embryos developed through cloning, they can determine the causes of spontaneous abortions.

Contraceptive specialists believe that if they can determine how an embryo knows where to implant itself, they can develop a contraceptive that would prevent embryos from implanting in the uterus:(Watson 66).(note added: from a pro-life point of view this would be not contraception but an early form of abortion).

Cancer research is possibly the most important reason for embryo cloning. Oncologists believe that embryonic study will advance understanding of the rapid cell growth of cancer. Cancer cells develop at approximately the same phenomenal speed as embryonic cells do. By studying the embryonic cell growth, scientists may be able to determine how to stop it, and also stop cancer growth in turn: (Watson 66).

Another important area of embryo cloning research is embryonic stem cell development. Stem cells are undifferentiated cells that can develop into almost any type of cell in the body. These cells are not attacked by a person's immune system, because of their fast development and undifferentiated status. Many doctors believe that these stem cells could be used in treatments for brain and nervous system damage. In adult humans, when damage to nerve tissue takes place, the nerve tissue does not regenerate and replace the lost tissue. However, since the stem cells are undifferentiated they could theoretically be used to replace the damaged cells: (Marshall 1026).

Genetic screening is a branch of cloning research that is already being used in hospitals in England. Parents who have a history of genetically inherited disease, such as cystic fibrosis, can use embryo screening to determine if their child has received the defective gene. Several embryos can be developed via in vitro fertilization procedures, and then be cloned. The DNA from one of the cloned embryos would then be removed and standard genetic testing, using riflips, would be used to detect whether or not that embryo contained the genetic disease. If the cloned embryo does not contain the defective gene, then one of the other identical embryos can be used for implantation in the parent. This would almost guarantee that the child would be free of the genetic disease: (Marshall I O25).

Perhaps a more questionable use of cloned embryos is for spare parts. It is possible that parents could decide to use one cloned embryo for implantation and eventual birth of a child, and save any spares by freezing them.

If the child were to become critically sick, and need a bone marrow transplant, one of the frozen embryos could be thawed and implanted into the uterine wall for development of another identical child. The bone marrow from this child could then be used to help save the life of the child, perhaps even without the necessity of carrying the child to full term: (Cloning 1 117).

**Reasons for Embryo Research,**  
[www.cac.psu/~gsg109/qs/em01003](http://www.cac.psu/~gsg109/qs/em01003)

The early-stage human embryo is not a person, since personhood requires a functioning brain and nervous system.

**Schafer, Toronto Star, July 31/01**

Anyone who would ban research on embryonic stem cells will be responsible for the harm done to real, alive, postnatal, sentient human beings who might be helped.

**Mack, Newsweek, July 9/01**

Even had Mr. Bush decided differently, in the long run, stem cell research would have prevailed. For it follows not only from what modern human beings want for themselves, but from what they're persuaded is due to others that such research cannot be repressed.

**Orwin, The National Post, August 11/01**

1. What are some of the so-called "legitimate reasons for investigating cloning" according to some writers/scientists?

2. Are any of these arguments convincing? Why or why not?

3. What philosophy of life do these arguments espouse?

4. How does the question of "personhood" affect the debate?

5. According to some observers why is ESCR and human cloning seem inevitable?

6. Should human cloning be permitted?(for a well reasoned argument against, see Dr. Patricia A. Baird's article in  
[www.rcpsc.medical.org/english/annals/vol33-4e/cloning](http://www.rcpsc.medical.org/english/annals/vol33-4e/cloning)

## ARGUMENTS OPPOSED TO ESCR

Scientifically, there should no longer be any confusion that individual human life begins at conception. There are two reasons for this. First, unlike sperm and ovum, the embryo possesses the active (inherent) capacity to develop itself into a fetus, infant, child, and adult. It is a distinct, unified, self-integrating human organism. Dr. Landram Shettles, the first scientist to achieve conception in a test tube, writes that conception not only confers life, it "defines" life. That is to say, at no point does the distinct organism that came into being undergo a "substantial change" or change of nature. It is human and will remain so. It is an immature human, as is an infant, but a human being nonetheless. Living things do not become entirely different creatures in the process of changing their form.

**Klusendorf, Stand to Reason, July 12/01**

Philosophically, embryos differ from newborns (or, for that matter, toddlers) in terms of size, location, and development, but these differences are not morally relevant.

**Klusendorf, Stand to Reason, July 12/01**

Moreover, if human beings derive value from their level of development, personhood could be expressed by a bell curve in which human beings move toward full personhood in their early years, reach full personhood during their middle years (when they reach their intellectual peaks), then gradually lose personhood as they age. Presumably, your rights as a person would increase, stabilize, and then decrease in the process. This is absurd.

**Klusendorf, Stand to Reason, July 12/01**

To sum up, destructive embryo research is an ethical free-fall that strips human beings of inherent dignity. It's also unnecessary. We can pursue the treatment of disease in morally acceptable ways. We may have to. As you may know, a carefully controlled NIH study designed to treat Parkinson's disease with embryonic dopamine cells not only failed to benefit patients, but also produced "catastrophic" side effects in 15 percent of the transplant recipients. Apparently, the implanted cells grew too well, churning out chemicals that caused patients to wither and jerk uncontrollably.

**Klusendorf, Stand to Reason, July 12/01**

Cloning allows one to view the new human person created through cloning as an object or commodity that can be accepted or destroyed, depending upon the qualities he or she possesses. This is nothing less than the practice of eugenics.

Human cloning represents a cruel, exploitative way of treating human persons in an early stage of development. Human cloning violates the principle of nondiscrimination by allowing for eugenics, allowing certain clones to live while simultaneously killing other cloned human persons in early development.

Halting the human cloning project is a moral duty upon all of us that must be translated into cultural, social, and legal terms.

**C. Howard, Jr., *Celebrate Life*, July-August, 2001**

Clearly, the proposed research that leads to the death of the individual embryonic human being is not therapeutic and violates the prohibition against disproportionate harm. Most importantly, no proxy can authorize the death of a ward through participation in research.

Proxies must always act in the best interests of the ward. Any proxy that would authorize the deliberate killing of a ward is in breach of his or her responsibility and has relinquished any right to serve in the capacity of a proxy.

**Hook, [www.stemcellresearch.org/testimonies/hook](http://www.stemcellresearch.org/testimonies/hook)**

All of the many attempts to use some developmental milestone beyond fertilization as the point at which a human being is finally recognized as a human being have been arbitrary, subjective and proposed by those who want to do something to or with the individual in question.

**Hook, [www.stemcellresearch.org/testimonies/hook](http://www.stemcellresearch.org/testimonies/hook)**

Because living human embryos are human beings whose participation in research should be governed by traditional codes of human subject research ethics, the current proposal to destroy them raises additional concerns. The post-Nuremberg codes allow that, in cases where the prospective subject cannot provide informed consent, a proxy may provide it. However, they require that the research have therapeutic value to the subject, or, if not of therapeutic value, the information cannot possibly be obtained via other means. In all cases, direct harm or death to the individual is forbidden...

**Hook, [www.stemcellresearch.org/testimonies/hook](http://www.stemcellresearch.org/testimonies/hook)**

One of the most fundamental moral principles is that *the ends do not justify the means*. Concentration camps can-

not be justified in the name of national unity. Slavery does not become good, even if it helps the economy. Murder is

wrong, even if there is a good reason, such as increasing the murderer's happiness. Stem cell research would turn the destruction of unborn human life into a positive good. The proponents of abortion could feel righteous about all the good they would be doing for society. Pro-abortionists are not advocating stem cell research because they want to help people with Parkinson's disease. They want to use the issue to legitimize the taking of unborn life.

Another fundamental moral principle in any civilized society is that *adults sacrifice themselves for their children – not the other way around*. Adults are supposed to provide for, protect, and, if necessary, give their lives to defend their children. They are not supposed to sacrifice children for their own well-being, much less use a baby's tissue to cure the diseases of old age.

**Veith, *A New Modest Proposal*,**

**[www.worldmag.com/world/issue/O7-28-01/national](http://www.worldmag.com/world/issue/O7-28-01/national)**

1. What are the main scientific and philosophical arguments against ESCR? Which is the most convincing? What kind of philosophy of life underlies these arguments?
2. From a strictly biological basis when does a human being come into existence?
3. Why is ESCR not "therapeutic" research?
4. How can ESCR be considered a form of age discrimination?
5. What two fundamental principles stand opposed to ESCR?
6. How does ESCR violate The Nuremberg Code, an ethical framework which is supposed to govern human research?
7. Should basic moral principles be re-defined by public debate, vote or polls?



## MODEST PROPOSALS

In 1729 Jonathan Swift, in deadpan prose and in a kindly, benevolent style, satirically suggested that Irish babies be sold for food. That way, he argued, there would be more food to go around and fewer mouths to feed. Besides, baby skin would make a really soft leather, making possible a new industry that would create jobs and boost the Irish economy. Swift was lampooning the moral utilitarianism of the enlightenment which taught that anything could be morally justified if it were "useful", giving the greatest tangible benefit to the greatest number.

*Veith, A New Modest Proposal,*

[www.worldmag.com/world/issue/07-28-01](http://www.worldmag.com/world/issue/07-28-01)

### A RECENT MODEST PROPOSAL THAT WAS IMPLEMENTED

Nazi doctors wanted to carry out experiments for the improvement of the German genetic stock. The subjects of the experiments were to be Jews, homosexuals, gypsies, old people, the mentally ill and other categories of human beings considered expendable and so many extra mouths to feed. For the betterment of the master race these "subjects" could be killed in the course of scientific experiments. Great benefits were to accrue to society, both in the advancement of scientific knowledge and in ridding society of useless people. Eventually gas chambers were seen as the "final solution" to the problem of "impure races of dubitable value". The Jewish holocaust in which some 6 million Jews and other victims lost their lives began as a "benign" effort to improve the "race". (see also the P. Stock article in Sept. issue of *The Interim* newspaper)

### THE CURRENT MODEST PROPOSAL

(Satirically posed)

Since the original cells of a fetus can develop into all the organs of a human body, why not use these so called "stem cells" to regenerate damaged tissue in adults? Doctors could grind up all of that fetal tissue from abortions and unwanted test-tube embryos at the fertility clinics into a really good medicine. People with serious diseases could be helped, pain would be reduced, and medical breakthroughs would be possible. The economy would benefit from the new research and the expansion of the high tech bio-genetic industry. The next step would be to manufacture, mass-produce stem cells, by

joining eggs and sperm in the thousands, millions of conceptions. Factories could then process them into tons and tons of disease-fighting tissue.

*Veith, A New Modest Proposal,*

[www.worldmag.com/world/issue/07-2801/national](http://www.worldmag.com/world/issue/07-2801/national)

1. Is there a connection/similarity between Nazi eugenics and ESCR/human cloning?(look up a proper definition of eugenics)
2. Is the current ESCR proposal similar to Jonathan Swift's "modest proposal"?
3. What does Veith warn us about through the use of satire?

### SOME VIEWS AND STATEMENTS OF RELIGIOUS ORGANIZATIONS

*United Methodist Church of U.S.A.*

The United Methodist Church has called for a complete and total ban on human cloning, including embryo cloning, for any purpose. Speaking through its only official voice, the General Conference, which met in May 2000, the church called for a ban on human cloning and "procedures that intentionally generate 'waste [human] embryos' which will knowingly be destroyed." (2000 Book of Resolutions, p. 249.)

"Destroying human embryos for the sole purpose of carrying on scientific research that promises only the possibility of potential treatments with little concrete evidence of success again raises profound and disturbing moral and ethical issues" Winkler(Methodist spokesman)wrote in the letter. "Such practices seem to be destructive of human dignity and speed us further down the path that ignores the sacred dimensions of life and personhood and turns life into a commodity to be manipulated, controlled, patented and sold."

*Statement of General Board of Church and Society, United Methodist Church, U.S.A.*

[www.stemcellresearch.org/pr/prumc](http://www.stemcellresearch.org/pr/prumc)

*Catholic Organization for Life and Family*

With regard to the use of human embryos as a source of stem cells, some believe that the human embryo is a

being with full moral status from the moment of conception and has an inalienable right to life(ergo)..the use of a human embryo for research purposes is morally unacceptable. Others consider that an early human embryo is just a collection of cells, its moral status equivalent to that of any other cells in the body. A middle ground confers upon the human embryo a special moral status because of its potential to develop into a human being. In this view, the human embryo has neither the full moral status of a person nor an absolute right to life. Though it has a right to protection, this right is not absolute and can be overridden; for example, by the possibility of a major benefit to other humans and to society in general.

In our view, and it is supported by scientific and other professional opinion, a human being exists from conception.

It is a scientific error to refer to the human embryo or foetus as a potential human; it is a human with potential...the Law Reform Commission of Canada in a working paper more than ten years ago(also) affirmed that the product of conception is a human being.

True, the present Code has a curious provision in section 206 to the effect that a child doesn't become a human being until it has proceeded completely from its mother's body. This, far from being a proper definition of the term, runs counter to the general consensus that the product of human conception, in the womb or outside, is a human being....there is no longer any question that the embryo is a human being. This is--not only a well accepted scientific given, but the very reason why the human embryo is so valuable to researchers.

***Response of the Catholic organization for Life and Family (COLF) to the paper published by the Canadian Institutes of Health Research(CIHR) on Human Stem Cell Research, [www.ccb.ca/docs/stem-cell](http://www.ccb.ca/docs/stem-cell)***

1. What strong argument did the United Methodist Church make against ESCR?

2. What did the Catholic Organization for Life and Family (COLF) argue in their response to the discussion paper published by the Can. Inst. of Health Research? On what basis is ESCR morally unacceptable?

## ETHICAL ALTERNATIVES TO ESCR AND CLONING

But, actually it's science, not abortion opponents making the case for using non-embryonic stem cells.

Overwhelmingly, the incredible medical breakthroughs coming in the past two years involving stem cell research have involved non-embryonic stem cells.

***Fumento, The National Post, July 28/01***

Adult blood stem cells seem able to spawn both brain and bone cells. "Stem cells from one tissue, like bone marrow, can actually be reprogrammed into cells that can repopulate muscle or brain," says Dr. Jeffrey Leiden, who recently left Harvard to become chief scientific officer for Abbott Laboratories.

***Dr. Jeffrey Leiden, Newsweek, July 9/01***

Dr. Donald Orlic of the National Genome Research Institute told NBC News in late March that "we are currently finding that these adult stem cells can function as well, perhaps even better than, embryonic stem cells".

***Fumento, The National Post, July 28/01***

To opponents of using embryos, this ends the debate. "Why kill anybody", as Sen. Sam Brownback put it, referring to stem cells from IVF embryos, "when you can instead tap into willing adults with hardly more fuss than drawing blood?"

***U.S. Senator Sam Brownback, Newsweek, July 9/01***

A new study from the Montreal Neurological Institute (MNI) of McGill University has identified a non-controversial source of stem cells that can produce a number of different cell types, including the type of neural cells needed to potentially help patients recover from a spinal cord injury or Parkinson's disease.

These findings are published today on-line in the highly cited scientific journal *Nature Cell Biology* in an article entitled "Isolation of Multipotent Adult Stem Cells from the Dermis of Mammalian Skin" by J.G. Toma, M. Akhavan, K.J.L. Fernandes, F. Barnabe-Heider, A. Sadikot, D.R. Kaplan, and F.D. Miller... they have isolated stem cells from the dermis of adult rodents that will proliferate and differentiate in culture to produce very different cell types--neurons, glia, smooth muscle cells, and fat cells. These novel stem cells, SKPs, were isolated from the skin of juvenile and adult rodents

– an accessible non-embryonic source. Human studies have indicated that similar cells are present in adult human skin.

"We believe our discovery is important as we have identified an exciting new stem cell from a non-controversial source that holds considerable promise for scientific and therapeutic research," says Dr. Freda Miller. "SKPs represent a novel multipotent stem cell less biased than other adult stem cells. They have the ability to differentiate into diverse cell types of different embryonic lineage and can be cultured for one year without losing this ability...this is extremely significant as rather than being programmed to generate only skin cells, SKPs can be directed to become neurons or neuronal support cells or even muscle cells - depending on what is needed. Importantly, SKPs also represent a potentially autologous (i.e. originating from within the same individual) stem cell source that can generate neural cell types damaged in spinal cord injury or Parkinson's disease. This means that complications seen in donor transplantations are avoided as the patient's own cells are being transplanted."

[www.mcgill.ca/public/releases/2001/august/stemcells/](http://www.mcgill.ca/public/releases/2001/august/stemcells/)

1. What diseases have been actually alleviated or cured by the use of embryonic stem-cells?
2. What successes have been attained in successfully treating malignant diseases through somatic adult stem-cells?
3. Why is the discovery by the McGill university research team important? Why does it not receive the same kind of coverage as the push for the funding of ESCR?
4. Why is the ethically problematic ESCR being heavily promoted by scientists and the media in general when an ethically viable and probably superior alternative exists, namely somatic adult stem cells?

## THE ECONOMIC DIMENSIONS OF ESCR

The Discussion Paper's purpose is to provide funding guidelines. Federal funding of research involving human embryos makes taxpayers involuntary participants in actions they may oppose on both ethical and scientific

grounds. Canadians remain deeply divided on the morality of abortion and rights of the fetus. Taxpayer funds should not underwrite research that involves the destruction of live human beings. Scientists and patient groups that favour embryonic stem cell research are no doubt putting pressure on the government to fund this research.

But suddenly last week the recycling argument was seriously weakened when scientists at the Jones Institute for Reproductive Medicine in Norfolk, Virginia, announced that they had custom-made human embryos just to "harvest." The researchers said they paid women between \$1,500 and \$2,000 apiece for their eggs, and then used them, with the egg donors' consent, to create embryos to destroy.

***The Report Newsmagazine, July 30/01***

Private companies are determined to exert control over what some are calling the ultimate human frontier, the design and manufacture of human embryos, cells, tissues and organs.

***Rifkin, Toronto Star, July 25/01***

By securing patents on the cloning process as well as on cloned human embryos and stem cells, companies like Geron and Advanced Cell Technology can dictate the terms for further advances in medical research using stem cells. The mass production of cloned human embryos provides an unlimited source of stem cells.

***Rifkin, Toronto Star, July 25/01***

NJ reports that "the media coverage has often missed the pecuniary interests of the scientists who have been prominent in supporting government funding for research into the use of stem cells from human embryos." While such scientists are often prominent faculty members at prestigious universities and public research institutions they are also often board members and shareholders of biotechnology companies which stand to make hefty profits from ESCR. "They are in short, both disinterested scientists and very interested entrepreneurs," says NJ's Neil Munro in "Mixing Business With Stem Cells".

NJ profiles the potential bias of four leading scientist spokesmen favouring funding of ESCR:

- Thomas Okarma, who has testified repeatedly for federal funding of ESCR, is the CEO of Geron Corp. (market value \$700 million last July) - the market leader in this research. NJ notes that Geron's stock value fell 50 percent, after the Bush Administration began reviewing the Clinton Administration's policy that allowed federal funding for stem cell research.

- Douglas Melton, a leading scientist advocating funding for ESCR "is typically identified in media reports as chairman of Harvard University's department of molecular and cellular biology. However, Melton is also a board member of Curis Inc., a commercial stem-cell company.

- Stanford University's Irving Weissman, who has often urged funding for ESCR, "is also the founder of two companies, SyStemix Inc. and Stem Cells Inc. At Stem Cells, Weissman serves on the board and owns shares."

- Within the National Institutes of Health, Ronald McKay is a prominent supporter of funding embryonic stem cell research, and has been quoted frequently in the media as an NIH scientist. But he also helped found, and still owns shares in Neuralstem Biopharmaceuticals, a company in College Park Md.

**Neil Munro, "Mixing Business With Stem Cells,"  
National Journal, July 21, 2001,  
[www.lifesite.net/ldn/2001/july/O10724](http://www.lifesite.net/ldn/2001/july/O10724).**

1. Should taxpayer funds be used for research to which many object on moral and ethical grounds?
2. Should scientists, politicians and investors be making decisions about ESCR? Are there other groups which ought to have a say?
3. What is the economic dimension of ESCR?
4. Research the companies and universities which hold the existing cell lines. Who is investing in this research? As an investor would you invest in this type of business venture, why or why not?
5. What major point was the *National Journal* making about "disinterested scientists and very interested entrepreneurs"?

### **SOME GENERAL QUESTIONS FOR STUDY/DISCUSSION PURPOSES**

(Please note that ESCR refers to Embryonic Stem Cell Research)

1. "As with any scientific or technological advance the most important question that needs to be asked is whether or not the gains outweigh the potential

losses?" Is this really the most important question?

2. Charles Krauthammer in a *Time* magazine essay, July 23, 2001 asked: "People are horrified when a virgin hill is strip-mined for coal; how can they be unmoved when a human embryo is created solely to be strip-mined for its parts?" Why is there so little compassion for the human embryo?

3. Investigate what the major world religions have contributed to the debate on human cloning and ESCR?

4. Do leaders like Pope John Paul II perform an invaluable service to the whole world in reminding political leaders and scientists that they do not have sovereignty over all aspects of life, or do such moral leaders serve as obstacles to "progress"?

5. Is it possible to successfully defend the inalienable dignity of the human person against the "desperately defective morality of utilitarianism and its reduction of the human person to an object fit for manipulation"?

6. Should Canada ban human cloning for any and all purposes, and join other nations to do so on a world-wide basis?

7. Consider ways in which schools can participate or even take the lead in making recommendations to our Parliament re ESCR legislation.

### **REPORT AND PROJECT TOPICS AND ACTIVITIES FOR FURTHER STUDY BY INDIVIDUALS, GROUPS OR WHOLE CLASS**

1. You are a newly conceived embryo. Explain your status as a member of the human family under the present laws of Canada.
2. As an embryo make your case as to why you should not be interfered with and why you merit protection.

Continued on next page

3. If you were a scientist charged with carrying out experiments on embryos for research purposes, justify the course of action you would follow.
4. Research a web-site which deals with the ethics of human cloning or with ESCR.
5. Why was The Nuremberg Code created? How does it apply in the debate over ESCR?
6. Research the statements of Pope John Paul II on life issues like abortion and embryonic research.
7. Compare the positions of Canadian political parties on the issue of ESCR.
8. Research the connection between ESCR and proabortion advocates.
9. Write an essay in which you reconcile "the competing values of relieving the suffering of the sick and of preserving human integrity".
10. You are a Member of Parliament in Canada. Explain how you will arrive at a decision concerning the future direction of ESCR and other reproductive issues.
11. Research cartoons on the topic of ESCR and evaluate the intent of the cartoonist and the philosophy underlying it.
12. Describe the actual scientific technique of human cloning.
15. Cloning has been a theme in literature for many years. Has it been presented as a benign possibility or a monstrous travesty of the human condition?
16. Critique a film whose premise or basic theme is some form of human cloning. How has Hollywood prepared or softened the human mind to accept cloning or ESCR?

## WEB SITES OF NOTE

### [www.lifesite.net](http://www.lifesite.net)

reliable Canadian source, gives daily updates on all life issues

### [www.nih.gov/news/stemcell](http://www.nih.gov/news/stemcell)

U.S. government Dept of Health & Human services, National Institutes of Health, quite comprehensive

### [www.StemCells.ca](http://www.StemCells.ca)

another good site, covers science/ethics of ESCR

### [www.cbhd.org](http://www.cbhd.org)

Center for Bioethics & Human Dignity, comprehensive

### [www.stemcellresearch.org/pr/prumc](http://www.stemcellresearch.org/pr/prumc)

Coalition of scientists and medical people who question and oppose unethical ESCR

### [www.stemcellresearch.org/testimonies](http://www.stemcellresearch.org/testimonies)

individuals who gave testimony to U.S. congressional committees prior to Pres. Bush statement

### [www.worldmag.com/world/issue/07-28-01/national](http://www.worldmag.com/world/issue/07-28-01/national)

provides ethical perspectives

### [www.str.org](http://www.str.org)

Stand to Reason magazine, ethical perspectives

### [www.stemcellresearch.org](http://www.stemcellresearch.org)

Do No Harm: The Coalition of Americans for Research Ethics, provides ethical perspectives

### [www.thelutheran.org](http://www.thelutheran.org)

Lutheran church point of view

### [www.studyweb.com](http://www.studyweb.com)

site should be used with great caution, great variety of sources

### [www.humancloning.org](http://www.humancloning.org)

extremely in favour of human cloning, repeats every utilitarian argument

### [www.rcpsc.medical.org/english/annals/vol33-4e/cloning](http://www.rcpsc.medical.org/english/annals/vol33-4e/cloning)

medical publication with opinions on current public issues

### [www.cccb.ca/docs/stem-cell](http://www.cccb.ca/docs/stem-cell)

web site of Canadian Conference of Catholic Bishops, has their response to proposed legislation

### [www.cac.psu/~gsg109/qs/em01003](http://www.cac.psu/~gsg109/qs/em01003)

use with caution, very pro-ESCR

### [www.physiciansforlife.ca](http://www.physiciansforlife.ca)

excellent, reliable, Canadian source