

Stem Cells: Ethics & Politics

Phil/Bio 2510
Spring 2009
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hESC August 9, 2001

- By executive order, President Bush restricted federal funding for work on hESC lines created before August 9, 2001, and only from discarded IVF embryos.
- Limited federal funding to originally 60, then 18 hESC lines, many of which were grown on mouse feeder cells.
 - (National Stem Cell Bank: <http://www.nationalstemcellbank.org/>)



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hESC August 9, 2001

- Research on the 60 existing stem cell lines "has great promise that could lead to breakthrough therapies and cures. This allows us to explore the promise and potential of stem cell research without crossing a fundamental moral line by providing taxpayer funding that would sanction or encourage further destruction of human embryos that have at least the potential for life."
- He said he would allow funding for research using existing stem cell lines only, "where the decision on life and death has already been made."
- CNN, August 10, 2001: <http://archives.cnn.com/2001/ALLPOLITICS/08/09/stem.cell.bush/>



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hESC March 9, 2009

- On March 9, 2009 President Obama overturned Bush's 2001 order and instructed the NIH to devise regulations to guide federal funding of hESC research.
- NIH Draft Regulations posted in April 2009 would allow funding for hESC research only on lines derived from discarded IVF embryos; potentially opening >100,000 hESC lines for funding.



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hESC March 9, 2009

- "In recent years, when it comes to stem cell research, rather than furthering discovery, our government has forced what I believe is a false choice between sound science and moral values. In this case, I believe the two are not inconsistent. As a person of faith, I believe we are called to care for each other and work to ease human suffering. I believe we have been given the capacity and will to pursue this research – and the humanity and conscience to do so responsibly."
- The president pledged to develop "strict guidelines" to ensure that such research "never opens the door to the use of cloning for human reproduction. Such a possibility," he maintained, "is dangerous, profoundly wrong and has no place in our society or any society."
- CNN March 9, 2009: <http://www.cnn.com/2009/POLITICS/03/09/obama.stem.cells/index.html#cnrSTCText>



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But...

- **1996 Dickey-Wicker amendment** which is renewed annually, prohibits federal funding of research in which embryos are created or destroyed.
 - (*Nature* 457, 1068-1069; 2009)
- Which at minimum means federal funds can not be used on hESC lines created for the purposes of research.

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Outline

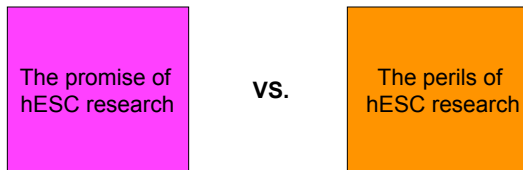
- What's the Big Deal?
 - The Ethical Debate
- Tangent (time permitting)
 - Science to the rescue
- Politics of hESC
 - Two Political Issues

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What's the Big Deal?

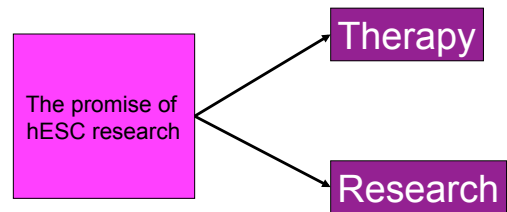
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The Ethical Debate



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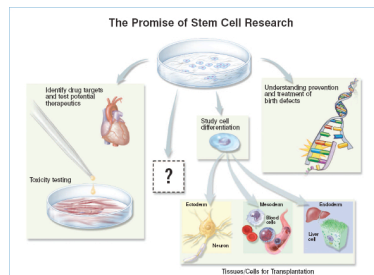
The Promise of hESC



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Therapy and Research

- Therapy
 - Degenerative diseases (cell replacement)
 - Especially neurological diseases & injury
- Research
 - “Disease-in-a-Dish”
 - Cell differentiation
 - Drug tests



<http://stemcells.nih.gov/NR/exeres/CF58BBAC-E8A3-407F-B63E-6A8C4CE40908.htm>

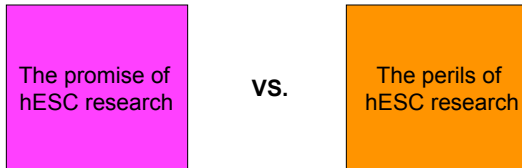
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Technology

- Early Embryo (IVF)
 - Not necessarily matched to therapeutic target
 - Requires embryo (blastocyst) donors
 - No cloning necessary
- Cloning (SCNT)
 - DNA match to therapeutic target
 - Requires egg donors
- iPS
 - Match to therapeutic target
 - No egg or embryo donors

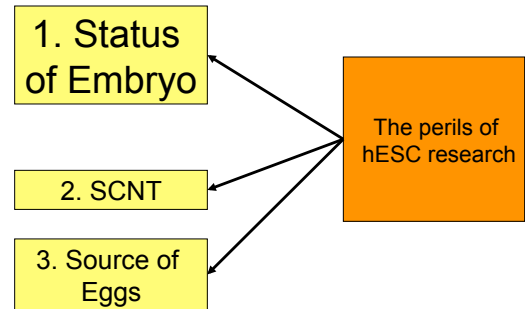
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The Ethical Debate



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The Perils of hESC



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1. Status of the Embryo

Human have a special moral status – such that we should not hurt, kill, or otherwise treat humans with disrespect.

The claim:
embryos are deserving of this special moral status

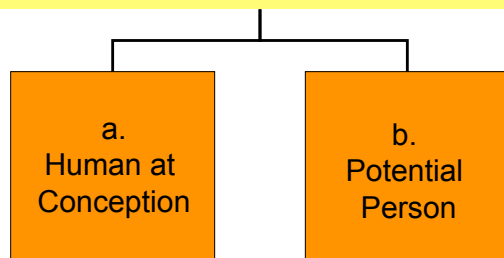
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“If Jack is fatally injured and Jull volunteers to give up her life to save Jack’s, we applaud her selflessness. But if Jack is fatally injured, and Jill kills a nearby baby to save jack’s life, what do we do? In the US, we fund more research on Jill’s technique. This is what Embryonic Stem Cell Research is.”

Jeff Harvey, 11 March 2009
www.nature.com/news/2009/090309/full/458130a.html

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Status of the Embryo



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1a. Human at Conception Argument

P1: Human life begins at conception.

P2: Human life has special moral status.

C: Therefore, SC research that destroys the embryo is unethical.

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1a. Objections – Conception

- Not clear what makes human life special
 - Religious appeal to “sanctity” of human life
 - Rational, self-conscious creatures
 - Species Genome
- Confuses “human life” with “person”
 - “Person” is a moral concept that requires more than mere biological life...
 - For example, consciousness (sentience and/or sapience), rationality, language use, moral empathy, etc.

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1b. Potential Persons Argument

P1: Human embryos are potential persons.

P2: We have moral obligations to potential persons – at least not to harm them.

C: Therefore, SC research that harms the embryo is unethical.

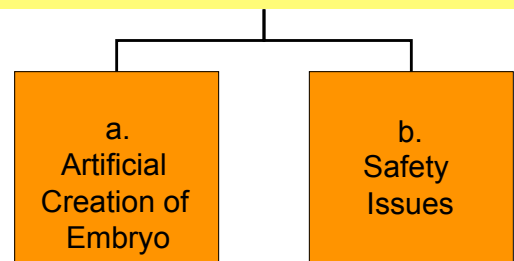
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1b. Objections – Potentials

- Potential person versus not-potential person?
 - Are individual sperm or eggs potential persons?
 - Are embryos not implanted or not intended to be implanted potential persons?
- Obligations to potential persons may not override obligations to actual persons.
 - Relative “weight” of obligation. (If a pregnant woman risks her life to save a person in danger, should we think of her as acting immorally?)
 - Potential person \neq Full Moral Status (maybe partial...)

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2. SCNT



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2a. Artificial Creation of Embryo

Objection is that cloning is either:

- Unnatural, exhibiting a Frankensteinian hubris, control beyond our means...

or

- Devalues human life and reproduction

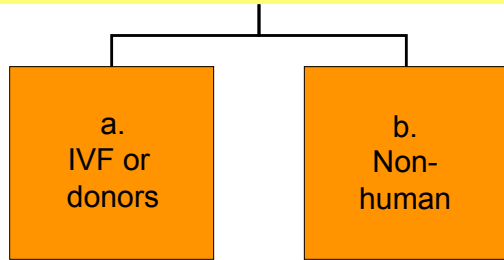
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2b. Safety Issues

- Success rates are extremely low, and thus would be costly for use on human embryos (which are not easy to come by).
- Health risks for resulting clone (e.g., Dolly) may indicate unknown change to genetic or cellular function for cloned embryo and resulting stem cells.

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3. Source of Eggs



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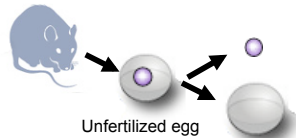
3a. IVF or Donors

- IVF discards
 - Current policy
 - Still requires destroying embryo
 - Consent issues?
- Volunteer Donors
 - Donors not compensated, and risky procedure
 - \$\$\$ may be coercive for disadvantaged women
 - \$\$\$ may be paying for body parts (or sex)

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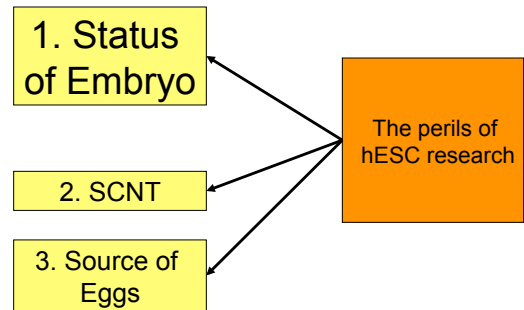
3b. Non-human Eggs

- Rabbit, cow, and primate eggs can theoretically be used with human nuclei to make hESC.
- Worries about
 - Safety
 - Hybrids?



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The Perils of hESC



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Which is the most persuasive ethical argument: pro or con?

The promise of hESC research (2)

vs.

The perils of hESC research (4)

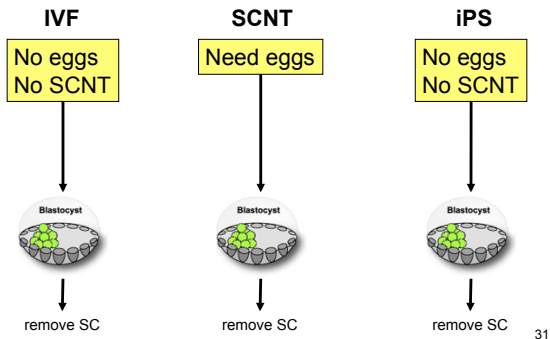
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Does Existing Technology Answer the Ethical Issues?

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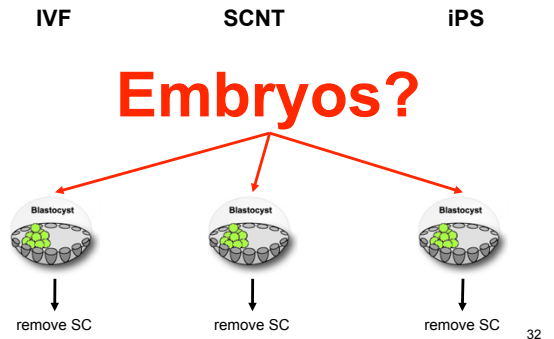
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Stem Cell Options



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Stem Cell Options



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Politics of hESC

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Key Political Events

- **2001**, Aug. 9: Pres. Bush limits Fed\$\$ to current stem cell lines, but no new stem cell lines.*(Cf. 1995-2000 policies.)
- **2004**, Nov. 2: California Prop 71 establishes the "California Institute for Regenerative Medicine" with \$3 billion general state funds (\$350 million annual limit). Other states have similar, but smaller agendas, e.g., NJ.
 - **2005/6:** H.R. 810 "Stem Cell Research Enhancement Act of 2005" which permits Fed\$ for hESC research passed in congress, but vetoed by Pres. Bush.
 - **2007:** Reintroduction of H.R. 3 (and S. 5) "Stem Cell Research Enhancement Act of 2007" But vetoed by Pres. Bush.
- **2009:** March 9 Pres. Obama reverses 2001 order, letting NIH devise regulation policy; Draft regulations posted April 2009.

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Two Political Issues

1. Balancing Interests (Compromises)
2. Economic Concerns

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1. Balancing Interests

Compromises

- Politicians must balance popular and political interests to remain in power and effective
 - Religious Right...Pro-Life...etc.
 - Pres. Bush's compromise?
 - Orrin Hatch's compromise?
 - Pres. Obama's compromise?
- Current change in the air?
 - Popular approval of hESC research & Democratic congress
 - Compare with past conservative influence in executive and legislative branches (and judicial branch?)

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Compromises

Bush

- Prohibited funding for research that destroyed embryos, but allowed research on existing lines, for which the decision about life and death had already been made.
- Appealed to both religious right and researchers

Hatch

- Supports potential person argument, but in favor of using embryos, so long as they are not intended for reproduction; not until implanted in the uterus is the embryo a potential person.
- Appeals to both religious right and researchers.

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Compromises?

2001

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2009

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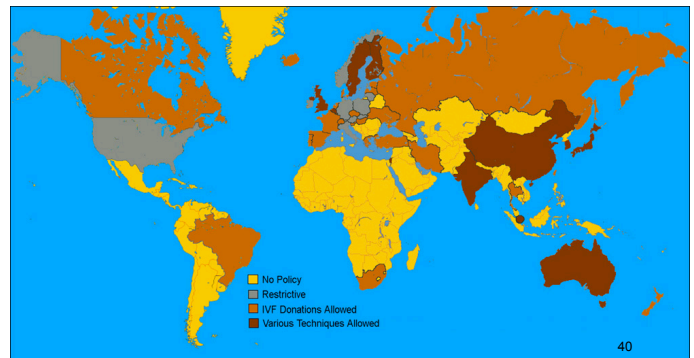
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2. Economic Concerns

- 2001 policy limited scientific advancement
 - Even though private and state funds, Fed limits have lasting impact on future
 - Consider impact of 2009 policy on California initiative/
- US lead in stem cell research threatened by over restrictive policies
 - International biotech competition
 - England, Europe, Australia, Asia, etc.
- Potential stem cell brain drain
 - Promising researchers either move to other countries or pursue other topics

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hESC Policy 2001



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Closing Questions

- Is it about the ethics or the politics?
 - Do the ethical considerations really hold sway in the political arena, or is hESC policy only about appealing to partisan interests?
- Is it about the economics?
 - Does the economic downturn and potential for the US to fall behind in stem cell research/technology override ethical concerns?

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