

Stem Cells: Science Ethics and Politics

Activity 5: Taking a Stand On Stem Cell Research

Assignment 1: In-Class Symposium

Stem cell research is a controversial issue which exposes individuals from all sectors of society to the scientific and ethical dimensions of a heated debate. Stakeholders include scientists, biotechnology and pharmaceutical industries, law makers, pro-life leaders, patient advocacy groups, and human rights organizations. In March of 2004, the United States President's Council on Bioethics released a report that would expand the possibilities of stem cell research in the United States, but President Bush remained steadfast in his decision to limit federal funding of embryonic stem cell (ESC) research. Meanwhile, the United Nations has repeatedly postponed a vote on an International Treaty to Ban Human Cloning, and international consensus regarding regulations has not yet emerged, forcing many researchers to move forward with caution. Some researchers are turning to the private sector for support, while others have established a self-imposed moratorium against further research until their governments draft appropriate guidelines. Some nations, like the UK, are establishing national registries for stem cell lines and issuing licenses for research using these lines.

In this assignment, you will role-play members of one of the interests groups influencing the direction of stem cell research. As a class, you will conduct a symposium and hear the perspectives of other groups to gain a wider appreciation for the complexity involved in public policy governing stem cell research.

Instructions

Day 1:

1. Students will be assigned to one of the seven public interest groups listed below. Each group has a strong interest in stem cell research, but they do not share the same views on the methods, application, regulation, or funding of stem cell research. To gain a sense of the issues at stake in this debate, students should begin by reading Cook, G. (2004). "After 2 Children via IVF, pair faced stem cell issue." *Boston Globe*. April 4: A1. This is a short article that discusses how two sets of parents struggle with the issue of embryo donation; Doug Melton a scientist with diabetic children in need of embryos for research, and a family who considers donating extranumerary IVF embryos for research.
2. Outside of class, each student should complete the assigned reading and prepare an individual statement that outlines their group's stance on stem cell therapies. The statement should be one to two pages in length.
 - Address the use of stem cells derived from each of the following seven sources: 1) embryonic stem cells (ESCs) from existing stem cell lines, 2) ESCs from excess embryos created by IVF clinics for the purposes of having a child, 3) ESCs from embryos created by IVF for research purposes only, 4) ESCs from embryos created by somatic nuclear transfer cloning technology, 5) ESCs from embryos that were created by somatic nuclear transfer cloning technology and genetic engineered to lack implantation capabilities, 6) fetal or cord cell blood and 7) adult stem cells (ASCs).
 - Provide scientific evidence and ethical reasoning for the group's stance

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- Address the funding and legal parameters (i.e. historical examples of past scientific progress debates, and economic, political, and religious concerns)
- Clearly outline the extent of regulation (prohibitive, controlled or unrestricted) and the corresponding criteria and prescribed punishment, if any.
- Address the opponents' arguments against your group's position using logical arguments. To prepare for this portion of the statement, you must be aware of alternative points of view, why they exist, and how they might be most effectively countered.

3. Instructors may choose to collect the individual statements during the next class period.

Day 2:

4. Groups will spend 10-15 minutes discussing the highlights of their individual statements.
5. Each small group will use three minutes to report the consensus statement from their group, while remaining true to the character of the particular stakeholders they represent.
6. Groups will then spend 10 minutes preparing a rebuttal to other groups' statements.
7. Each group will takes 2 minutes to report their rebuttal.
8. Instructors will wrap up by providing comments and addressing any outstanding questions.

Reading for General Scientific Background on Stem Cell Research

- University of Michigan. (2006). "Stem Cells Explained and Explored." Online. University of Michigan. March 21. This site has excellent animations of ASC and ESCs procurement and use. http://www.umich.edu/news/stemcells/022706_TabA.html or <http://www.lifesciences.umich.edu/research/featured/tutorial.html>.
- Financial Times and Scientific American (2005). *The Future of Stem Cells Supplement*. *Financial Times and Scientific American*. New York. June 20. <http://news.ft.com/reports/stemcells2005>.
- The Center for Genetics and Society.(2004). "Research Cloning Arguments." Online. The Center for Genetics and Society. This site highlights the important points for and against stem cell research using cloning and includes rebuttals. <http://www.genetics-and-society.org/technologies/cloning/researcharguments.html>
- Hall, S. (2003). "Eve Redux: The Public Confessions Over Cloning." *Hasting Center Report* 33(3): 11-15.
- Council for Responsible Genetics. (2001). "What Your Mother Never Told You About Stem Cells." Council for Responsible Genetics. http://www.genewatch.org/educational/stem_cells_mom.pdf
OR (2002) *ENGAGE: Stem cells: Information booklet*. Ontario Genomics Institute (OGI) by Genome Canada, and the Joint Centre for Bioethics (JCB) at the University of Toronto. http://www.stemcellnetwork.ca/engage/materials/information_book.pdf
- The Dolan DNA Learning Center. "Cloning 101." Cold Spring Harbor Laboratory. This site demonstrates the Roslin and the Honolulu techniques with animations <http://www.dnalc.org/stemcells.html>

Public Interest Group Readings

Patient Advocacy Organizations (Juvenile Diabetes Foundation, MDA.org, etc.)

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- Pondrom, S. (2005). "Current Human Embryonic Stem Cell Lines Contaminated With Potentially Dangerous Non-human Molecule." Online. University of California San Diego News Online. January 23, 2005.
http://ucsdnews.ucsd.edu/newsrel/health/01_23_Varki.asp .
- Valente, M. (2005). "Argentina: MDs Use A Stem Cell Technique to Treat Diabetes." Online. Cord Blood Registry Online. January 12.
http://www.cordblood.com/cord_blood_news/stem_cell_news/a_argentina.asp .
- Weiss, R. (2004). "Stem Cells Are An Unlikely Therapy For Alzheimer's" *Washingtonpost.com*. June 10:3.
<http://www.washingtonpost.com/ac2/wp-dyn/A29561-2004Jun9?language=printer>
- Westphal, S.P. (2003). "Risky Business." *The New Scientist* 179(2404): 24. Or Vogel, G. (2002). "Rat brains respond to embryonic stem cells." *Science* 295(5553): 254b-255.
- Massachusetts General Hospital. (2002). "Researchers Identify Hormone That Prompts Adult Stem Cells to Differentiate into Insulin Producing Cells." Online. Massachusetts General Hospital News Release. July 17.
<http://www.mgh.harvard.edu/news/releases/071702islets.htm>
- Caplan, Arthur. (2002). "Attack of the Anti-cloners." *The Nation Online*. May 30.
<http://www.thenation.com/doc.mhtml?i=20020617&s=caplan>

Basic Science Researchers (AAAS, ASCB, International Society of Stem Cell Research, etc.)

- Weissman, I. (2006). "Politic stem cells." *Nature* 439(7073): 145-148. Advanced reading but very important.
- Wade, N. (2006). "Science Academy Creates Panel to Monitor Stem Cell Research." *The New York Times* February 16:A21.
- CBS. (2004). "The Issues: Stem Cell Research with Elizabeth Kaledin." Online Video.CBS News. July 8. This 2.5-minute **video** news clip shows Doug Melton of Harvard University explaining his reasoning and passion behind stem cell research. The clip also shows President George Bush stating his views on stem cell research.
<http://www.cbsnews.com/stories/2004/07/08/eveningnews/main628171.shtml>
- Kalb, C. et al. (2004) "Stem Cell Division." *Newsweek* October 25: 42-49.. A comprehensive review of the current ESC restrictions and movement to establish lines with private money (Prop 71, Melton). Important to view the 2-minute **video** clip of Irv Weissman describing the stem cell ban/restriction. <http://www.msnbc.msn.com/id/6263270/site/newsweek/>
- Shaw, J. (2004) "Stem-cell Science: When Medicine Meets Moral Philosophy." *Harvard Magazine* 106 (6). July-August: 36-45.
<http://www.harvardmagazine.com/on-line/070483.html>
- Lamb, G. (2004). "In Cloning Debate, A Compromise." *Christian Science Monitor* April 8. Online edition.
<http://www.csmonitor.com/2004/0408/p14s01-stct.html>
- Blackburn, E. and Rowley, J. (2004) "Reason as our guide." *PLoS Biology*, 2(4): 421-423.
<http://www.plosbiology.org/plosonline/?request=get-document&doi=10.1371/journal.pbio.0020116>

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- McGinley, L. et al. (2002). "Cloning Clamor Grows-Nobel Winners Oppose a Ban, Frist Announces His Support As Senate Prepares for Debate." *Wall Street Journal*. April 10: 1.

Industry (biotechnology companies)

- Cookson, C. (2005). "Universities and Companies Rush To File Stem Cell Patents in Spite of Controversy." *Financial Times*. June 20: 1.
- Gibbs, W. (2005). "The California Gambit, Special Report: The Future of Stem Cells." *Financial Times and Scientific American*: A24-27.
http://www.sciam.com/print_version.cfm?articleID=00074394-3130-12BC-ADB783414B7F014C.
- Today's Stem Cell Research.(2005). "US Patent Office Rejects PharmaStem Cord Blood Stem Cell Patents." Online. *Today's Stem Cell Research*. March 1, 2005.
<http://www.stemnews.com/archives/000430.html> .
- Rabin, S. (2005). "The gatekeepers of hES cell products." *Nature Biotechnology's Cell Therapies Focus Online* 23(7): 817-819.
- Levine, D.S. (2003). "Biotech Industry Edges Closer to Stem-cell Research." *San Francisco Business Times* 17(40):1.
<http://www.bizjournals.com/sanfrancisco/stories/2003/05/12/story3.html?t=printable>

Law Makers (Senators, Parliaments, United Nations, etc)

- Dalrymple, M. (2006). "Bush Vetoes Stem Cell Bill As Promised." Online. Video. ABCNews. 2006. <http://www.abcnews.go.com/Politics/wireStory?id=2212851> or Stolberg, S.J. (2006). "First Bush Veto Maintains Limits on Stem Cell Use." *New York Times* July 20:11.
- Gardner, R. et al. (2005). "A Patchwork of Laws, in Special Report: The Future of Stem Cells." *Financial Times and Scientific American*: A16-A21.
http://www.sciam.com/print_version.cfm?articleID=00031AB9-D9A9-12B9-969983414B7F0000.
- Bent, S.A. (2005). "Under the Microscope." *The Scientist* 19(13): 22-23. . <http://www.the-scientist.com/article/display/15595/>
- Weiss, R. (2004) "58 Senators Seek Easing of Rules for Stem Cells." *Washingtonpost.com*. June 8:3.
<http://www.washingtonpost.com/ac2/wp-dyn/A23279-2004Jun7?language=printer>
- Parry, E. (2004). "Statement by Sir Emyr Jones Parry, Permanent Representative to the United Kingdom Mission of Great Britain and Northern Ireland to the United Nations: Convention Against the Reproductive Cloning of Human Beings: Statement 21 October 2004." Online. UK Information Services. October 21, 2004.
http://www.ukun.org/search/Search_show.asp?Aid=796&T=1 .
- Thomson, A. (2003). "Statement by Adam Thomson, Deputy Permanent Representative to the United Kingdom Mission to the United Nations: General Assembly: Agenda Item 158: International Convention Against the Reproductive Cloning of Human Beings:Statement 9 December 2003." Online. UK Information Services. December 9, 2003.
http://www.ukun.org/search/SearchResults.asp?link=-1&article_ID=718&TableName=tblUKMIS_Articles .

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Under-represented Minorities (The Hispanic Federation, The NAACP, etc.)

- California Stem Cell Report. (2006). "Ortiz Not Satisfied With Egg Expense Rules." California Stem Cell Report. <http://californiastemcellreport.blogspot.com/2006/02/ortiz-not-satisfied-with-egg-expense.html>
- Bok, H. et al. (2004). "Justice, ethnicity and stem-cell banks." *The Lancet* 264: 118-121. <http://www.hopkinsmedicine.org/bioethics/Programs/PCEEPP/publications/lancet7.04.pdf> .
- John Hopkins Medicine Press Briefing. (2003). "Panel: Clinical Use of Embryonic Stem Cells Jeopardized by Policy on Federal Funding." November 10. http://www.hopkinsmedicine.org/Press_releases/2003/11_10_03.html
- Holland, S. (2003). "Fair Access to Stem Cells." *The Hastings Report*: 3. http://www.thehastingscenter.org/pdf/publications/fair_access_to_stem_cells.pdf#search=%20Diversity%20ethnic%20stem%20cells%22
- Faden, R. et al. (2003). *Public Stem Cell Banks: Considerations of Justice in Stem Cell Research and Therapy*. The Hastings Report. November-December. <http://www.hopkinsmedicine.org/bioethics/research/pceepp/fadenHCR.pdf> and methods http://www.thehastingscenter.org/pdf/publications/public_stem_cell_banks_methods.pdf.
- Entine J. and Satel S. (2001). "Race Belongs in the Stem Cell Debate." *Washingtonpost.com*. September 9:01. <http://www.washingtonpost.com/ac2/wp-dyn/A60970-2001Sep8?language=printer>

Pro-Life Organizations (American Life League, Americans United for Life, etc.)

- The White House (2005). "President Discusses Embryo Adoption and Ethical Stem Cell Research." Online. The White House. May 24, 2005. <http://www.whitehouse.gov/news/releases/2005/05/20050524-12.html> .
- Thompson, C. (2005). "Four Ways to "Ethically" Harvest Stem Cells." Online. Wired Online. June 2005. http://wired-vig.wired.com/wired/archive/13.06/stemcells_pr.html .
- Thompson, C. (2005). "How to Farm Stem Cells Without Losing Your Soul." Online. Wired Online. June 2005. http://wired-vig.wired.com/wired/archive/13.06/stemcells_pr.html
- The Stem Cell Network. (2002) "Adult Stem Cells Used to Repair Damage from Parkinson's Disease." *Stem Cell Network*. April 9. Reviews a revolutionary procedure to stimulate **adult neuronal stem cells** to differentiate into functioning neurons. <http://www.stemcellnetwork.ca/news/articles.php?id=27>
- Fox, M. (2003). "Human Cloning Experiment Repeated." *MSNBC.com*. <http://www.msnbc.msn.com/id/3730738/>
- Today's Stem Cell Research Online.(2005). "Embryonic-Like Stem Cells Derived From Umbilical Cord Blood." Online. Today's Stem Cell Research. August 19, 2005.
- Dobsen, P. (2004). "Ignore the Ethics of Stem Cell Research and They'll Pass You By." *National Catholic Reporter* 40 (2):16.
- Sullivan, B. "Religions Reveal Little Consensus on Cloning." MSNBC <http://msnbc.msn.com/id/3076930/>
- CNN. (2001). "Elizabeth Cohen: Ethics of Stem Cell Research." CNNHealth. July 18. <http://www.cnn.com/2001/HEALTH/07/17/cohen.otsc/>

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Women's Health Organizations (National Organization for Women, Society for Women's Health Research, etc)

- Check, E. (2006). "Ethicists and biologists ponder the price of eggs." *Nature* 442(7103): 606-07. <http://dx.doi.org/10.1038/442607a>
- Pearson, H. (2006). "Health effects of egg donation may take decades to emerge." *Nature* 442(7103): 607-08. <http://dx.doi.org/10.1038/442607a>
- Hyun, I. (2006). "Fair payment or undue inducement?" *Nature* 442(7103): 629-30. <http://dx.doi.org/10.1038/442629a>
- Normile, D. et al. (2006). "South Korean team's remaining human stem cell claim demolished." *Science* 311(5758): 156-157.
- Tufts University. (2004). "Fetal Cells Foster Research." Online News Tufts University. August 30. <http://enews.tufts.edu/stories/083004FetalCellsFosterResearch.htm>
- Stevens, A. (2002) "Cloning Debate Splits Women's Health Movement." *Women's News* June 9. <http://www.womensenews.org/article.cfm/dyn/aid/935/context/archive>
- **OR** Cyranoski, David. (2004). "Korea's stem-cell stars dogged by suspicion of ethical breach." *Nature* 249 (6987):3.
- CNN.com. (2002). "Stem Cell Debate Video Gallery." Online. CNN. This site contains a collection of news clips available as short **video** downloads from the link Video Gallery. Includes gender, political, social, and religious perspectives. Review the Women Represent Two Sides of the Debate. <http://www.cnn.com/SPECIALS/2001/stemcell/>.
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