



“As to diseases ,make a habit of two things —  
to help, or at least *do no harm.*”

—Hippocrates, *The Epidemics* —

## THE “POLITICAL SCIENCE” OF STEM CELLS LESSON 6: THE HARD SELL ON CELL LINES

*Congress may vote soon on whether to divert taxpayer dollars toward stem cell research that requires destroying live human embryos. In the campaign to promote such funding, political hype has often substituted for the scientific facts. This series will help members of Congress distinguish mere politics from science.*

### POLITICAL:

“When Bush announced his Executive Order limiting federal funding to studies on existing stem-cell lines, he declared that private research had produced more than 60 genetically diverse lines that would be eligible. Researchers now say the number is more like 22, and even those are contaminated with mouse DNA, making them ill-suited for use on humans.”

- “Why Bush’s Ban Could Be Reversed,” CNN.com, May 16, 2005

### SCIENCE:

This confusion is based on a failure to understand the difference between a cell sample derived from an embryo, and the ongoing *cell line* that may be developed over time from that sample.

The Bush policy allows federally funded research on cell lines developed *after* August 9, 2001, as long as the original cells were *derived from an embryo* by that date. Several dozen cell samples remain potentially eligible for federally funded research; the number now available in the form of self-perpetuating *cell lines* is 22 *and growing*. Many other samples, now in frozen storage, are available for future use if the currently active cell lines deteriorate or become inadequate for basic research. And many of these “cell lines not yet available for shipping” (the 16 samples now in storage at Göteborg University, for example) were isolated *without* animal feeder cells, and could be cultured on human cell layers now that this technique has been developed (see <http://stemcells.nih.gov/research/registry/PDFs/UnavailableLines.pdf>).

Ironically, the charges launched against the Bush administration’s cell lines by its critics are far *more* true of the new cell lines those critics insist should receive federal funding. For example, the cell lines created at Harvard last year with private funding from the Juvenile Diabetes Research Foundation soon developed serious genetic abnormalities -- because they were not kept in frozen storage until needed, but were immediately induced to start growing and mutating. C. Cowan et al., “Derivation of Embryonic Stem-Cell Lines from Human Blastocysts,” 350 *New England Journal of Medicine* (2004): 1353-6 at 1355. Recent research suggests that *all* actively developing human embryonic stem cell lines may spontaneously accumulate genetic abnormalities associated with cancer: J. Draper et al., “Recurrent gain of chromosomes 17q and 12 in cultured human embryonic stem cells,” 22 *Nature Biotechnology* (2003): 53-4. And *all* of Harvard’s new cell lines are “contaminated” with mouse feeder cells. Cowan, p. 1353.

For more information to help distinguish politics from science on stem cell research, see our web site at [www.stemcellresearch.org](http://www.stemcellresearch.org).

### FOUNDING MEMBERS

#### Kevin Fitzgerald, S.J., Ph.D.

Research Associate,  
Division of Hematology and Oncology  
Loyola University Medical Center

#### C. Christopher Hook, M.D.

Hematology/Medical Oncology,  
The Mayo Clinic (MN);  
Chair, Mayo Clinical Ethics Council,  
Mayo Reproductive Medicine Advisory  
Board and DNA Research Committee

#### Ralph Miech, M.D., Ph.D.

Associate Professor (Emeritus)  
of Pharmacology  
Brown University School of Medicine

#### Robert D. Orr, M.D.

Director of Ethics, FAHC  
University of Vermont  
College of Medicine

#### Edmund Pellegrino, M.D.

Center for Clinical Bioethics  
Georgetown University Medical Center

#### David Prentice, Ph.D.

Senior Fellow for Life Sciences  
Family Research Council  
Center for Clinical Ethics  
Georgetown University

#### Frank E. Young, M.D., Ph.D.

Former Commissioner,  
U.S. Food and Drug Administration;  
Dean Emeritus,  
School of Medicine and Dentistry,  
University of Rochester;  
Director, Reformed Theological  
Seminary, Metro Washington

#### Joseph Zanga, M.D.

Chairman,  
Department of Pediatrics  
Loyola University Medical Center

1100 H Street, NW  
Suite 700  
Washington, DC 20005  
PH: 202-347-6840  
Fax: 202-347-6849  
[www.stemcellresearch.org](http://www.stemcellresearch.org)

—###—

5/20/05

