

Stem Cell Spin

The Bush Policy and Its Unreasonable Critics

For connoisseurs of stem cell spin, recent weeks have offered a feast. In its April 2006 issue, the journal *Nature Biotechnology* published a short paper entitled “An international gap in human ES [embryonic stem] cell research.” The authors, Jason Owen-Smith of the University of Michigan

and Jennifer McCormick of Stanford, carefully reviewed all scientific publications involving the use or derivation of human embryonic stem cells, starting with the very first paper in 1998 and ending just over a year ago.

Their aim, very clear in the tone and tenor of the text, was to show

that American stem cell scientists were falling behind their counterparts abroad, and that the Bush administration's funding policy was to blame. "Expanding the purview of federal [human embryonic stem] cell funding can still prevent the United States from slipping off the leading edge of developments in this vital field," the authors write. A press release accompanying the article breathlessly proclaims that "the fear that United States researchers might lose ground to their international counterparts in human embryonic stem cell research now appears to have become a fact."

Coverage of the study took much the same tone. "The United States is falling behind other countries in human embryonic stem cell research," reported UPI. The *Washington Post* began its brief report on the study by telling its readers "American scientists are falling behind researchers elsewhere in stem cell discoveries because of U.S. limits on the use of federal funding, a study has found."

The study itself, however, tells a very different story. Owen-Smith and McCormick reviewed the 132 human embryonic stem cell articles published in 55 scientific journals since 1998. Far from showing the United States lagging behind in the field, they found that American scientists had by far the most publications—46 percent of the total, while the other 54 percent were divided among scientists from 17 other countries. They also found that the number of papers in the field published by Americans has increased each year,

with a particularly notable growth spurt beginning in 2002.

How, then, to support the image of Americans "falling behind"? The best the authors could do was to note that, as their accompanying press release claims, "human embryonic stem cell research has been accelerating at a faster pace internationally." They point out that while in 2002 a third of the papers published in the world came from the U.S., in 2004 only a quarter did. Their data also show, however, that in 2002 there were only 10 papers published on human embryonic stem cells (of which 3 were American), while in 2004 there were 77 papers, of which 20 were American. So the number of American publications in the field was nearly seven times greater in 2004 than it was in 2002—a trend that hardly supports the image of research stifled or held back by government policy.

To advance the perception of American science in crisis, Owen-Smith and McCormick compare the output of American scientists to that of their counterparts in the rest of the world combined, hoping to obscure the inconvenient fact that no single country comes close to challenging America's dominance of embryonic stem cell research.

Another recent study, highlighted by *The Scientist* magazine in March 2006, found the same to be the case in the larger field of stem cell research. Between 2000 and 2004, 42 percent of all scientific publications in stem cell research were by Americans. Our

nearest competitor was Germany, far behind with only 10 percent of the total.

But the most extraordinary aspect of the Owen-Smith and McCormick study—which the authors conveniently and deliberately fail to highlight—was what it said about the use of those embryonic stem cell lines approved for federal funding under President Bush’s 2001 policy. Besides claiming that America is falling behind, critics of the Bush policy have argued relentlessly that the presidentially-approved lines are inadequate or even useless. But this claim is also severely undermined by the study.

Grudgingly, and almost in passing, Owen-Smith and McCormick note that “Only 14.4% (19) of publications described the use or derivation of lines not approved by the NIH.” In other words, more than 85 percent of all the published embryonic stem cell research in the world has used the lines approved for funding under the Bush policy. Since this is almost twice the number of papers published by Americans, it is clear that a great deal of the work done abroad has also involved these lines, even though most of it could not have been funded by the NIH. The lines are used, in other words, because they are useful, not only because they are eligible for federal support.

Many critics of the Bush policy claim that the Bush lines are useless because they are contaminated with mouse-feeder cells. This claim also seems largely specious. Two recent stud-

ies have shown methods of culturing the NIH-funded lines that leave them free of all trace of animal materials. Discussing his company’s use of the Bush-approved lines, Geron CEO Tom Okarma recently told *Wired News*, “the stuff you hear published that all of those lines are irrevocably contaminated with mouse materials and could never be used in people—hogwash. If you know how to grow them, they’re fine.”

In early April, the *Wall Street Journal* reported similar sentiments from other researchers in the field. While scientists would always welcome more funding for their work (who wouldn’t?), those reached by the *Journal* seem not to see Bush’s policy as the intolerable impediment his political opponents suggest it is. “There is a lot going on in the U.S.,” said Renee Reijo-Pera, co-director of the Human Embryonic Stem Cell Center at the University of California, San Francisco. “The official story [of stem-cell advocates] is how we are falling behind in tragedy and dismay. And I don’t think that is the case.”

Of course, the argument for the Bush administration’s funding policy does not finally rest on scientific utility but on moral and democratic principle. As the President has put it: “We should not use public money to support the further destruction of human life.” This means that some types of research, even if beneficial, should never be conducted with federal dollars. The current limit would not move—and the moral principle it upholds would not change—even if it were true that it “crippled”

American stem cell science. And supporters of the Bush policy should be up-front about the fact that some useful research may not advance as quickly or at all, at least in America, because of such limits. Surely more could be done, and more quickly, if more public dollars were spent on more lines—that is, if the profound ethical dilemmas involved were simply ignored.

That said, it is dishonest to obscure the useful research that the Bush policy has indeed facilitated, and disingenuous to claim that America is “falling behind” when it remains, by far, the world’s leader in stem cell science. Rather than make the narrow case for funding embryo-destructive research, many opponents of the Bush policy zealously claim that the Bush policy “stops” all useful research. In doing so, they wrongly suggest that scientific advance and ethical boundaries are fundamentally opposed to one another, or they ignore the moral issue entirely, treating stem cell policy as if it were entirely a scientific question to be settled by scientific data.

The point of the Bush policy, for all its many limitations and drawbacks, is to show that science can proceed without violating human dignity or destroying nascent human life, even if it cannot proceed as quickly and by as many simultaneous routes. The choice it offers is not between science and ethics, but between a devotion to science and health so total that it abandons all ethical limits, and a devotion to science and health balanced and constrained by a respect for human equality and

dignity, and committed to a culture of life largely understood.

Opponents of the policy usually avoid taking on that basic ethical principle, and so they have offered up various practical arguments against the scientific utility of the policy: the lines are contaminated, there are not enough to support research, they are causing American researchers to fall behind their foreign counterparts. Being practical arguments, these assertions must stand up to factual scrutiny. And so far, the evidence suggests they mostly do not.

One can make reasonable arguments for a more permissive funding policy; one cannot reasonably claim that the policy is wreaking havoc on American science, or that America is becoming backward because only private dollars or state funds are available for the derivation of stem cells from destroyed human embryos. To make such a claim is not science or even the rational defense of science; it is fundamentalism in the name of science, employing the most unscientific means imaginable: playing with the data to advance one’s cause.

All things considered, the Bush policy still looks reasonable as it approaches its five-year anniversary. It is helping useful science advance without making embryo destruction a national project and without trampling on the deepest values of those citizens who believe (with good rational arguments) that embryo destruction is a grave wrong. The fight over the policy has also shown, sadly, that the self-proclaimed defenders of reason cannot always be counted on to be reasonable themselves.