



November 20, 2007

FINDINGS

## Are Scientists Playing God? It Depends on Your Religion

By [JOHN TIERNEY](#)

Correction Appended

Now that biologists in Oregon have [reported](#) using cloning to produce a monkey embryo and extract [stem cells](#), it looks more plausible than before that a human embryo will be cloned and that, some day, a cloned human will be born. But not necessarily on this side of the Pacific.

American and European researchers have made most of the progress so far in biotechnology. Yet they still face one very large obstacle — God, as defined by some Western religions.

While critics on the right and the left fret about the morality of stem-cell research and genetic engineering, prominent Western scientists have been going to Asia, like the geneticists Nancy Jenkins and Neal Copeland, who left the [National Cancer Institute](#) and moved last year to Singapore.

Asia offers researchers new labs, fewer restrictions and a different view of divinity and the afterlife. In South Korea, when [Hwang Woo Suk](#) reported creating human embryonic stem cells through cloning, he did not apologize for offending religious taboos. He justified cloning by citing his Buddhist belief in recycling life through reincarnation.

When Dr. Hwang's claim was exposed as a fraud, his research was supported by the head of South Korea's largest Buddhist order, the Rev. Ji Kwan. The monk said research with embryos was in accord with Buddha's precepts and urged Korean scientists not to be guided by Western ethics.

"Asian religions worry less than Western religions that biotechnology is about 'playing God,'" says Cynthia Fox, the author of "[Cell of Cells](#)," a book about the global race among stem-cell researchers. "Therapeutic cloning in particular jibes well with the Buddhist and Hindu ideas of reincarnation."

You can see this East-West divide in maps drawn up by Lee M. Silver, a molecular biologist at Princeton. Dr. Silver, who analyzes clashes of spirituality and science in his book "[Challenging Nature](#)," has been charting biotechnology policies around the world and trying to make spiritual sense of who's afraid of what.

Most of southern and eastern Asia displays relatively little opposition to either cloned

embryonic stem-cell research or genetically modified crops. China, India, Singapore and other countries have enacted laws supporting embryo cloning for medical research (sometimes called therapeutic cloning, as opposed to reproductive cloning intended to recreate an entire human being). Genetically modified crops are grown in China, India and elsewhere.

In Europe, though, genetically modified crops are taboo. Cloning human embryos for research has been legally supported in England and several other countries, but it is banned in more than a dozen others, including France and Germany.

In North and South America, genetically altered crops are widely used. But embryo cloning for research has been banned in most countries, including Brazil, Canada and Mexico. It has not been banned nationally in the United States, but the research is ineligible for federal financing, and some states have outlawed it.

Dr. Silver explains these patterns by dividing spiritual believers into three broad categories. The first, traditional Christians, predominate in the Western Hemisphere and some European countries. The second, which he calls post-Christians, are concentrated in other European countries and parts of North America, especially along the coasts. The third group are followers of Eastern religions.

“Most people in Hindu and Buddhist countries,” Dr. Silver says, “have a root tradition in which there is no single creator God. Instead, there may be no gods or many gods, and there is no master plan for the universe. Instead, spirits are eternal and individual virtue — karma — determines what happens to your spirit in your next life. With some exceptions, this view generally allows the acceptance of both embryo research to support life and genetically modified crops.”

By contrast, in the Judeo-Christian tradition, God is the master creator who gives out new souls to each individual human being and gives humans “dominion” over soul-less plants and animals. To traditional Christians who consider an embryo to be a human being with a soul, it is wrong for scientists to use cloning to create human embryos or to destroy embryos in the course of research.

But there is no such taboo against humans’ applying cloning and genetic engineering to “lower” animals and plants. As a result, Dr. Silver says, cloned animals and genetically modified crops have not become a source of major controversy for traditional Christians. Post-Christians are more worried about the flora and fauna.

“Many Europeans, as well as leftists in America,” Dr. Silver says, “have rejected the traditional Christian God and replaced it with a post-Christian goddess of Mother Nature and a modified Christian eschatology. It isn’t a coherent belief system. It might or might not incorporate New Age thinking. But deep down, there’s a view that humans shouldn’t be tampering with the natural world.”

Hence the opposition to genetically modified food.

Because post-Christians do not necessarily share the biblical view of an omnipotent deity with the sole power to create souls, Dr. Silver says, they are less worried about scientists “playing God” in the laboratory with embryos. In places like California, residents have voted not only to allow embryo cloning for research, but also to finance it.

But sometimes the reverence for the natural world extends to embryos, leading to unlikely alliances. When conservative intellectuals like Francis Fukuyama campaigned for Congress to ban embryo cloning, some environmental activists like Jeremy Rifkin joined them. A Green Party leader in Germany, Voker Beck, referred to cloned embryonic stem-cell research as “veiled cannibalism.”

Of course, many critics of biotechnology do not explicitly use religious dogma to justify their opposition. Countries like the United States, after all, are supposed to be guided by secular constitutions, not sectarian creeds. So opponents of genetically modified foods focus on the possible dangers to ecosystems and human health, and committees of scientists try to resolve the debate by conducting risk analysis.

The outcome hinges more on beliefs than on scientific data. A study finding that genetically modified foods are safe might reassure traditional Christians in Kansas, but it won't stop post-Christians in Stockholm from worrying about “Frankenfood.”

Similarly, some leading opponents of embryo research for cloning, like Leon Kass, say they are defending not Judeo-Christian beliefs, but “human dignity.” Dr. Kass, former chairman of the President's Council on Bioethics, says the special status of humans described in the Book of Genesis should be heeded not because of the Bible's authority, but because the message reflects a “[cosmological truth](#).”

It is not so easy, though, to defend supposedly self-evident truths about human nature that are not evident to a large portion of humanity. Conservatives in the House of Representatives managed to pass a bill banning Americans from going overseas for stem-cell treatments derived through embryo cloning. But the bill didn't pass the Senate.

It is by no means certain that this type of stem-cell research will ever yield treatments for diseases like [Parkinson's](#), but should that happen, it is hard to see how any Congress — or any law — could stop people from seeking cures.

The prospect of cloning children is much more distant, particularly now that researchers are becoming optimistic about obtaining stem cells without using embryos. For now, scientists throughout the world say they do not even want to contemplate reproductive cloning because of the risks to the child. And public-opinion polls do not show much support for it anywhere.

Even if human cloning becomes safe, there may never be much demand for it, because most people will prefer having children the old-fashioned way.

But some people may desperately want a cloned child — perhaps to replace one who died or to

provide lifesaving bone marrow for a sibling — and won't be dissuaded, no matter how many Christians or post-Christians try to stop them. To reach this frontier, they may just go east.

Correction: November 23, 2007

The Findings column in Science Times on Tuesday, about the different views of biotechnology in Eastern and Western religions, misspelled the surname of a political economist and author who has lobbied Congress to ban embryo cloning. He is Francis Fukuyama, not Fukyama.

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