Rifkin Files Human-Chimp Chimaera Patent

By Rick Weiss Washington Post Staff Writer Thursday, April 2, 1998; Page A12

A New York scientist has quietly applied for a patent on a method for making creatures that are part human and part animal in a calculated move designed to reignite debate about the morality of patenting life forms and engineering human beings.

The scientist, Stuart A. Newman, a cellular biologist at New York Medical College in Valhalla, said he has not created such creatures and never intends to. Indeed, he said, although the hybrids could be extremely useful in medical research, his goal is to stop the technology from being used by anyone -- and to force the U.S. Patent and Trademark Office and the courts to reexamine this country's 18-year history of allowing patents on living creatures, which he considers unethical and immoral.

Patents are not allowed on human beings, but patent law experts said there is nothing in U.S. patent code that would preclude someone from winning a patent on a partially human creature. Already, the patent office has awarded several patents on animals with minor human components -- including laboratory mice engineered with human cancer genes or human immune system cells.

Even if the patent is not awarded to Newman, several experts agreed, the ploy could achieve its primary goal of forcing a national debate about the commercialization of life in an era when genes, cells, tissues and organs are being shuttled increasingly across species barriers and blurring the distinctions between humans and non-human animals.

"It is a classic slippery slope," said Thomas Murray, director of the Center for Biomedical Ethics at Case Western Reserve University. "If we put one human gene in an animal, or two or three, some people may get nervous but you're clearly not making a person yet. But when you talk about a hefty percentage of the cells being human . . . this really is problematic. Then you have to ask these very hard questions about what it means to be human."

The patent office's policy of not granting patents on human beings is based on the 13th Amendment to the Constitution, which blocks slavery. But the office has never been faced with the question of "how human" an animal would have to be before it was deemed worthy of that protection.

"It's going to force the patent office to deal with some uncomfortable questions," said Newman, a co-founder of the Council for Responsible Genetics, a nonprofit bioethics group based in Cambridge, Mass.

A spokesman for the patent office said she could not comment on the application, a copy of which was provided to The Washington Post by Jeremy Rifkin, a Washington-based activist who has long advocated against what he sees as the potential dangers of biotechnology. Newman devised his method with Rifkin and has assigned him co-

ownership. The patent application was filed Dec. 18, but its existence is made public for the first time in today's issue of the scientific journal Nature.

Newman's application is for a technique in which human embryo cells would be mixed with embryo cells from a monkey, ape or other animal. Under laboratory conditions similar to those already used successfully by scientists working with other species, the cells would be expected to knot together into a single embryo. After a few days or longer, that embryo could be transferred to the womb of a surrogate mother -- perhaps a woman, perhaps an animal -- to develop into a creature that Newman said would be a somewhat unpredictable mix of the two species. He refers to the creatures as animal-human "chimeras" (pronounced kai-MER-ah), named after the beast of Greek mythology that had a lion's head, goat's body and serpent's tail.

Because this has never been attempted, it remains theoretical whether the approach would actually produce a living creature. But the method is an updated version of one used more than a decade ago to create "geeps," which were part goat and part sheep. People and monkeys are more closely related to each other than are sheep and goats, Newman said, so there's every reason to believe the technique would work.

"I think it's very reasonable to assume that at least some of these would develop into a full animal," Newman said. It's also reasonable to assume, he said, that someone may actually want to make some.

Chimeric embryos and fetuses could be aborted and studied to help understand human development, Newman said. Human tissues growing in an animal could also be used to test the toxicity of certain chemicals. And if human or mostly human organs were to develop in such creatures, they might be useful for transplantation.

(The work would be legal if done using private money; only research on embryos using federal funding is prohibited.)

Patents give inventors exclusive rights to their creations for 20 years, and can be awarded on the basis of a detailed description of an invention even if it has not yet been made or used.

Newman's application seeks a patent on both the process and any creatures created with it, said Patrick J. Coyne, a Washington patent attorney who filed the application. If approved, the patent would be used to block anyone else's attempts to commercialize such a process. "We don't see anything that should preclude patentability," Coyne said.

For years, the patent office assumed that living things could not be patented and agreed to grant patents on some plants and seeds only after Congress passed specific laws commanding it to do so.

The office rejected the first request for a patent on a bacterium -- one engineered to digest oil spills -- in 1978. But in a 5-to-4 decision in 1980, the U.S. Supreme Court overruled

that decision, saying living things could be patented as long as they met the standard criteria for patentability.

Seven years later, the office granted its first patent on an animal -- a genetically engineered mouse -- and it has since granted 79 other animal patents -- including several on mice, rats and rabbits and one each for an engineered bird, fish, pig, guinea pig, sheep and abalone. More than 1,800 patents have also been granted for genes and lines of cultured cells, including human ones, that scientists believe have medical potential.

No matter what the patent office rules on Newman's request, Rifkin said, the team hopes to use the application to show that the narrow Supreme Court decision of 1980 -- upon which all animal patents are based -- does not adequately address the modern state of biotechnology.

"It's been on the narrowest of judicial threads that we've begun a worldwide press for intellectual ownership of biological organisms," said Rifkin, president of the Washington-based Foundation on Economic Trends. "I'd like to see the Supreme Court revisit the issues."

John Barton, a Stanford University Law School professor who specializes in high-tech law, said the application had a good chance of forcing such a discussion, if not in the Supreme Court then at least in some lower courts and Congress. "He's going to produce a real firestorm," Barton said. "It's going to reopen the issue of what are the limits of genetic engineering, cloning and fetal research."

Unlike the European patent office, Barton said, which can reject patents on inventions that "offend public order or morality," the U.S. patent office is not empowered to take ethical criteria into account. Because of that, he and others said, it is up to the Congress and the courts to decide how to deal with questions about the ownership of life forms.

If a patent application is rejected by the patent office, the decision can be appealed as far as the Supreme Court.

Ananda Chakrabarty, the University of Illinois scientist who in 1978 invented the oil-eating bacterium, said he still favors granting patents on life forms because it rewards inventors and fosters innovation. "If someone could make organs of some kind out of human cells inside an animal embryo, then why not do so and patent them?" Chakrabarty said. Still, Chakrabarty added, some limits on the ownership of human-like beings may be appropriate. "It depends upon how far you want to go."

A decade ago, Congress considered passing a law to restrict patents on humans, said Kevin W. O'Connor, chief author of a 1989 Congressional Office of Technology Assessment report called "Patenting Life." The effort failed, in part because of the difficulty of defining "human." Now, he said, that question has become even more difficult to answer, even as it becomes more important to do so.

"With cloning, with Dolly, with everything we've been hearing in the past couple of years, science is progressing and so these issues have come to the fore," said O'Connor, now executive director of the American Institute for Medical and Biological Engineering in Washington. "What does it take to be human? A cell line? A limb? A whole human? A chimera? We don't have a definition of what a human being is for patent purposes."

Charles Van Horn, a Washington attorney who until 1988 directed the patent office's biotechnology examining group, said unusual applications like Newman's are traditionally held to a high standard of proof of feasibility. So Newman may not get very far without actually making some human chimeras. Moreover, he and others said, the application could languish for months or years because the patent office has a backlog of biotech applications.

Mark Hansen, an ethicist at the Hastings Center in Garrison, N.Y., who has written about the issue of patenting life, said he thought it was unlikely that Newman's proposal would lead to a reversal of the current policy. "What it will do is highlight that there will need to be a line drawn somewhere. It will certainly force us to look again at what makes us unique and what makes us human."