

Looking Back

A Debate Still Patently Alive

This spring marks the twentieth anniversary of the first U.S. patent granted for a higher-order organism—a major milestone on the road toward treating human biology as intellectual property.

In its 1980 *Chakrabarty v. Diamond* decision, the U.S. Supreme Court opened the door for the patenting of animal life, ruling that a particular bacterium was not simply a “product of nature” but was—because it had been genetically modified—a “manufacture” or “composition of matter” and therefore patentable. In 1987, the U.S. Patent and Trademark Office vastly broadened the scope of patentable animal life to include not just microorganisms but all “non-naturally occurring non-human multicellular living organisms, including animals.” As attorney Andrew Kimbrell has put it, under that 1987 ruling, “a patented animal’s legal status is no different from that of other manufactures such as automobiles or tennis balls.”

The first animal patented under the new dispensation was, according to the language of the patent, a mouse “whose germ cells and somatic cells contain an activated oncogene sequence” introduced by scientists. An oncogene is a gene that, if present in an animal, makes it likely that the animal will develop tumors. In other words, this mouse had been genetically engineered to be susceptible to cancer—making it useful for researchers trying to determine the carcinogenicity of certain materials or trying to develop new cancer-fighting techniques. The Harvard scientists who inserted the cancer genes into the mouse were granted a patent in the United States on April 12, 1988; patents overseas followed several years later.

In the two decades since the advent of the “OncoMouse,” hundreds of other genetically-modified animals have been patented—frogs and dogs, cats and cows, and more. And even though human *beings* are not patentable, aspects of human *biology* can be patented: human tissues, organs, and cells, for instance. A significant fraction of the genes that make up the human genome have been patented, too.

It must be acknowledged that the temporary private ownership of biological intellectual property has been a boon for biotechnological research: the ability to patent and profit from genetically-modified life, including aspects of human life, has helped to attract talent and resources that have resulted in new medicines and treatments. But at the same time it represents a worrying commercial and legal complement to the reductionism of modern genetic research—the belief that what matters most (or perhaps all that matters) about life is the material and mechanism that underlie it. It is one of the great challenges of our time to resist the pernicious implications of that reductionism, especially as it is applied to human beings, even while encouraging and benefiting from the research it makes possible.