

# The price of life

A call for radical reform, as the Guardian launches its special inquiry into the onrush of gene patenting

[Special report: the ethics of genetics](#)

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In the years ahead, the planet's shrinking gene pool is going to become a source of increasing monetary value. Multinational corporations already are scouting the continents to locate microbes, plants, animals and humans with rare genetic traits that might have market potential. After locating the desired traits, biotech companies are modifying them and seeking patent protection for their new "inventions".

While the technological expertise needed to manipulate the new "green gold" resides in scientific laboratories and corporate boardrooms in the north, most of the genetic resources needed to fuel the new revolution lie in the ecosystems of the south.

Southern countries claim that what northern companies call "inventions" are really the pirating of local genetic resources and the accumulated indigenous knowledge of how to use them. The life-science companies, on the other hand, argue that patent protection is essential if they are to risk financial resources and years of research and development bringing new and useful products to market.

Extending patents to life raises the important legal question of whether engineered genes, cells, tissues, organs and whole organisms, are truly human inventions or merely discoveries of nature that have been skilfully modified by human beings.

The discovery of chemical elements in the periodic table, while unique, non-obvious when first isolated and purified, and very useful, were none the less not considered patentable as they were discoveries of nature, despite the fact that some degree of human ingenuity went into isolating and classifying them. The US patent office has said, however, that the isolation and classification of a gene's properties and purposes is sufficient to claim it as an invention.

The prevailing logic becomes even more strained when consideration turns to patenting a cell, or genetically modified organ, or whole animal. Is a pancreas or kidney patentable simply because it has been subjected to a slight genetic modification? What about a chimpanzee? Here is an animal who shares 99% of the genetic makeup of a human being. Should he or she qualify as a human invention if researchers insert a single gene into their biological makeup? The answer, according to the patent office, is yes.

The patent issue is likely to become one of increasing public concern as a result of the stunning breakthroughs in the government-funded human genome project. It is expected

that in less than eight years, nearly all the genes that make up the genetic blueprints of the human race will have been identified and become the intellectual property of trans-national life science companies.

Such firms also are patenting human chromosomes, cell lines, tissues and organs. PPL Therapeutics, the life-science company that cloned Dolly the sheep, has received a patent that includes cloned human embryos as intellectual property.

The increasing consolidation of corporate control over the genetic blueprints of life, as well as the technologies to exploit them, is alarming because the biotech revolution will affect every aspect of our lives. The way we eat, the way we date, the way we have babies, the way we raise and educate children, the way we work, even the way we perceive the world around us and our place in it - all our individual and shared realities will be deeply touched by the biotech revolution.

What might it mean for subsequent generations to grow up thinking of all life as mere invention, where the boundaries between the sacred and the profane have all but disappeared?

Life patents strike at our core beliefs about the very nature of life. The last great debate of this kind occurred in the 19th century over the issue of human slavery, with abolitionists arguing that every human being has "God-given rights" and cannot be made the commercial property of another.

Like anti-slavery abolitionists, a new generation of genetic activists is beginning to challenge the concept of patenting human life, arguing that human genes, chromosomes, cell lines, tissues, organs and embryos should not be reduced to commercial intellectual property controlled by global conglomerates and traded as mere utilities.

No one doubts for a moment the great potential value in mapping the human genome and the genomes of our fellow creatures. But, if we are to use this knowledge wisely, we need to begin by ensuring that it be held as a collective trust, and not made the private preserve of a handful of life-science companies.

We should consider crafting a great global treaty to make the human gene pool - and the gene pool of our fellow creatures - a "commons" administered jointly by every nation on behalf of all future generations. It would be a treaty similar to the one we established making Antarctica a commons.

The battle to keep the Earth's gene pool an open commons, free of commercial exploitation, will be one of the critical struggles of the biotech century.

Jeremy Rifkin is the author of *The Biotech Century: The Coming Age of Genetic Commerce* (Victor Gollancz, 1998)