

HUMAN-ANIMAL CHIMERA PATENTED

Greenpeace backgrounder on new patent scandal, November 2000

The European Patent Office (EPO) granted a patent (EP 380646) to the Australian company Amrad on 20 January 1999 for a method to produce human-animal chimeras.¹ However, as recently as October 2000, when Greenpeace disclosed an application for a similar patent on such mixed species creatures, the EPO claimed that such patents would never be granted, as they would be against “public order and morality“. But at that time, the patent explained below, which Greenpeace has now discovered, had already been granted! Furthermore, back in February 2000 the EPO has been heavily criticised for granting a highly controversial patent on human embryos. All these examples show that we are not dealing with occasional “errors“, but with a pattern.²

- **EP 380646 -- the latest patent 'scandal'**

The patent covers a “method of producing a non-human chimeric animal“, by mixing human and animal embryonic cells: human stem cells are integrated into animal embryos. As a result the created chimeras are non-human but they may contain human organs, body parts, nerve cells and even human genetic codes.

The chimera creating process starts by isolating a substance (LIF), the objective of which is to stimulate the growth of embryonic cells (stem cells). The patent covers methods to isolate cells from humans and animals, their propagation in the lab, and the use of these cells to create a chimera. Concerning the origin of these cells the patent states “...the embryonic stem cells are derived from humans, mice, birds, sheep, pigs, cattle, goats or fish.” The patent does not disclose the purpose of such animals, nor whether such experiments have actually taken place. But the patent does underline that the patented method is to be used to breed and cultivate human stem cells in the laboratory as shown by the following:

Claim 6: *"The method (...) wherein the animal embryos are derived from mice, birds, sheep, pigs, cattle, goats or fish, and wherein the embryonic stem cells are derived from humans, mice, birds, sheep, pigs, cattle, goats or fish."*

Claim 14: *"A method of producing a non-human chimaeric animal, comprising introduction into said animal at the pre-implantation embryo stage, animal³ embryonic stem cells which have been isolated (...) in accordance to claims 1 to 13."*

The patent includes the creation of a being, comprising an animal embryo into which human stem cells have been introduced. EPC law stipulates that the process of creating a being also includes the being itself:

Article 64 (2): *"If the subject-matter of the European patent is a process, the protection conferred by the patent shall extend to the products directly obtained by such process."*

The patent, which does not give concrete medical uses, was obviously intended to give the company broad monopoly rights on the process and chimaeric creatures.

- **Patentability of chimeras**

Apparently the EPO did not consider this patent to be against public order or morality, as stipulated in the EPC:

¹ Chimeras are mixed species creatures, whose genetic code, chromosomes and cells have been derived from two or more individuals of different species.

² For further information see Greenpeace Background Paper on *Patents Granted on Life - an up-to-date Overview*.

³ In patent law “animal“ includes “humans“, unless otherwise stated

Article 53: "European patents shall not be granted in respect of:(a) inventions the publication or exploitation of which would be contrary to "ordre public" or morality"

Despite statements to the contrary, the controversial EU Directive on the patenting of biotechnological inventions (98/44/EC), which the EPO applies, would not clearly prevent such patents either. Only in the Recitals can a reference be found concerning a prohibition to patent methods to create chimeras – however only those methods are mentioned, which make use of so-called "totipotent cells"⁴:

"98/44/EC - Recital 38: ...such as processes to produce chimeras from germ cells or totipotent cells of humans and animals, are obviously also excluded from patentability."

Following the logic of patent law, this means that other processes could well be patented. The present case uses "pluripotent"⁵ cells, rather than "totipotent" ones. Therefore such a patent could also be granted according to the new EU-directive, under which Chimeras could be defined as patentable "biological material":

Article2(1)a: "biological material" means any material containing genetic information and capable of reproducing itself or being reproduced in a biological system."

- **The position of Greenpeace:**

Greenpeace fundamentally opposes patents on life, such as patents on genes, plants, animals, humans and parts of the human body. Patents on life equate living nature with industrial products which degrades the dignity of life.

A patent grants its owner the exclusive control over his/her invention. Therefore, patents on life fundamentally change our perception and understanding of living nature and our relationship towards it. Living organisms, which have been "created" by industry and which can be patented, cannot have a value of their own, since they are only considered an invention of human beings. Thus they can be exploited without any ethical concerns.

Many institutions, including the Christian churches, the Association of European Doctors and the Expert Committees of the French and Danish Governments, have expressed concerns against such patents on life. They are all of the opinion that patents on human embryos and parts of the human body are a violation of human dignity.

Greenpeace demands:

- Genes, plants, animals, humans and parts of the human body must not be patentable;
- The member states of the European Patent Convention must exercise their political control and prevent the EPO from granting further such patents;
- The EU Directive on patenting biotechnological inventions must not be transposed into national law;
- The EU must initiate new European patent law, which prohibits the patenting of living organisms and their genes.

⁴ "totipotent embryonic cells" are those cells which are created by the first two to three cell-splittings of an embryo after the fertilisation. Such individual cells can still be grown into separate embryos.

⁵ "pluripotent" cells are derived from an embryo which is a little older; such cells can still take on any function in the body, but they can no longer form another embryo.