



POLICY FORUM: EMBRYONIC STEM CELLS

The Debate in Germany

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Some of the most famous experiments on embryo development in the late 19th and early 20th century were reported by German embryologists, who discovered the self-organizing and self-regulating power of fertilized animal eggs and their subsequent division and differentiation before nidation into the uterus.

Today, German developmental biologists want to undertake research on stem cells produced from human embryos. The prominent scientific agonist is Oliver Brüstle at the University of Bonn. Early in 2000, he applied for federal funding of an experiment in comparative embryology. Previously, he had injected mouse embryonic stem cells into rats of a strain that develops a hereditary defect similar to human multiple sclerosis. The rat's condition improved substantially. He now wants to find out whether human embryonic stem cells can also heal the rat disease. A success could lead, in the very long run, to dramatic improvements in the treatment of human multiple sclerosis.

German law prohibits any manipulation or usage of the early human embryo other than for the purpose of bringing about its implantation into the uterus of the woman who produced the egg. On 30 January, the German parliament debated whether stem cells may be used for medical research if they have been purchased abroad. In several other countries, such as Israel and India, embryonic stem cells may be produced from early human embryos, provided that certain preconditions preventing abuse are heeded. Of course, German jurisdiction does not extend beyond Germany, and the stem cells are no longer potential future human beings, but the conflict between opponents and supporters of stem cell import is a moral one. May stem cells be imported that were produced by procedures strictly forbidden in Germany?

The question of stem cell import is a by-product of a more fundamental debate about the moral status of the early human embryo. In the German-speaking countries, the debate is particularly heated and fundamental for two main reasons, one philosophical, the other historical.

The mainstream of German philosophical thinking in ethics is deontological, that is, moral prescription and judgment are derived

from general principles of reason. This line of thinking goes back to Immanuel Kant (1724–1804), who derived human autonomy, the right to determine one's free will and act correspondingly, from human "dignity." Here, dignity means that a human being must not be used solely as a means for a purpose foreign to itself, but is fundamentally an "end-in-itself." This statement excludes categorically any instrumentalization of a human being for means other than its own existence, thus prohibiting procreation of a human embryo solely for scientific or medical purposes.

Kant would never have concurred with his contemporary Jeremy Bentham (1748–1832) in England, who derived his moral principles from the envisaged outcome rather than from the planning of an act. Moral judgment, according to this tradition, has to proceed by evaluation of all options in terms of their utility for attaining the greatest happiness (or least displeasure) of the greatest possible number.

Kant's ethics of duty rather than pleasure and happiness have been dominant in the German tradition. The German constitution (the "Grundgesetz" or "basic law") of 1949 rules in its first article that "the dignity of man is untouchable." Constitutions of other nations may be less explicit about human dignity, but it seems to be universally acknowledged to follow from the declarations of human rights by the United States and France in the late 18th century that a human being must not be sacrificed for external purposes. This feeling is particularly acute in Germany in light of the barbarous acts of human instrumentalization, including eugenics, euthanasia, and nonvoluntary medical experiments on people in concentration camps, committed during the Nazi regime.

The main question is whether dignity in Kant's emphatic sense pertains to the embryo at a stage when it consists of a few hundred cells. What is a human being? What is its beginning in this fundamental sense? The answer is decisive for the legal ruling on research on human embryos and embryonic stem cells.

One logical answer is that individual human life begins with the formation of the unique genome after the diploid chromosome set has been formed from parental DNA. This unique biological individuality is maintained throughout life. The German Law of Embryo Protection, which states this position explicitly, was supported by a large majority of the parlia-

ment and public when it was passed in 1990.

But another answer is equally well founded. It says that the embryo in vitro is just a prestage that can spontaneously develop only until the blastocyst stage (5 days after fertilization) and cannot survive unless it is implanted into a female uterus. Hence nidation is the decisive step to human life. This conviction has been forcefully promoted by Christiane Nüsslein-Volhard, Germany's leading developmental biologist. Most developmental biologists tend to support the example of the United Kingdom, where permission for research on early embryos may be granted.

The German parliament, when ruling on stem cell import, inevitably sets a precedent for the more general issue of the status of the human embryo in vitro. On 30 January, it did rule—and masterfully avoided any clear decision. Its resolution has now been supplemented by a draft law.

Both papers decree that import of human embryonic stem cells for public as well as private research (the latter in contrast to the United States) is principally forbidden but permissible under certain conditions. Import is subject to authorization by an administrative institution acting on the advice of an interdisciplinary ethics committee on the basis of the fundamental, diagnostic, or therapeutic importance of the research. The problem should "as far as possible have been clarified in vitro and by animal research and should not promise equivalent results on cells other than human embryonic stem cells." To avoid killing of embryos on order, import is to be restricted to cell lines established before the law's passage. Informed consent of the parents is required, on the condition that they receive no payment and that the intention of the fertilization was induction of gravidity, an intention later "abandoned for reasons other than relating to the embryo." This formulation aims to prevent the use of genetically compromised embryos discarded after genetic diagnosis before implantation.

Resolution and draft are under heavy criticism from many directions. Lawyers tell me that a German law cannot enforce truthfulness of relevant guarantees from abroad. It is also doubtful whether a German law can rule on conditions for procedures that would be punishable by law and perhaps even unconstitutional in Germany. Proponents of stem cell research, on the other hand, say that a fixed deadline for production of stem cells would preclude usage of any later methodological improvement and might even make cell lines useless (they eventually degenerate).

If embryo research is a matter of fundamental human rights, then its regulation must not depend on contingencies such as the intention of donors or date of production. If not, then such conditions are impractical and unjustified.

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