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Scientists create first GM human embryo

HGA and international civil society groups, scientists and ethicists call for moratorium

British Government must withdraw legalisation of GM embryos pending full public debate

Human Genetics Alert (1) has discovered that American scientists have created the world's first genetically modified (GM) human embryo, without notifying the public or the media. In response, HGA's Director, Dr David King called on the Government to halt its plans to legalise GM embryos in the Human Fertilisation and embryology Bill (HFE Bill), which will be debated in Parliament tomorrow. HGA and an international group of civil society organisations also called for an international moratorium on such experiments until there has been a full debate.

A team of scientists based at Cornell University, and led by Nikica Zaninovic genetically engineered human embryos last year (2). Dr Zaninovic confirmed that this is the first time that a GM human embryo has been created. Government plans to legalise such experiments in the HFE Bill are being debated by MPs tomorrow, yet few MPs are even aware of the plans.

An HFEA document (3) says that, 'The Bill has taken away all inhibitions on genetically altering human embryos', It acknowledges that this raises, 'large ethical and public interest issues', without saying that, despite HGA's repeated warnings about GM embryos, these issues have not been publicly debated.

Attached briefings outline the government's plans and the case against Human Genetic Modification (HGM). In brief, the Government initially stated openly its aim of allowing genetic modification of human embryos in order to permit the development of safe technology to create GM children (4). It even proposed to eventually legalise GM children by executive decision, rather than by a full Parliamentary debate! Although the Bill, in its current form bans the implantation of GM embryos for the present, this is clearly not a permanent ban, since it would be illogical allow the development of technology and then continue to ban its use.

The creation of GM children is not just a hypothetical scenario - leading British scientists, Robert Winston (a Government adviser on these issues), and Ian Wilmut have patented techniques for Human Genetic Modification (5). The ban also contains a major loophole, in that it contains powers for the Government to permit the implantation of GM embryos to treat mitochondrial genetic diseases, without full Parliamentary debate (Clause 3ZA (5)) (6).

HGM is unnecessary for medical purposes, since there are many alternative ways of avoiding passing on genetic conditions, but if permitted it will very soon be used to create 'enhanced' 'designer babies'. This would turn children into objects, designed just like other consumer commodities, and would lead to a new eugenics in which the rich are able to give their children genetic advantages over others. Because of these concerns, nearly all EU countries and many others, have permanently banned HGM, and the EU has banned the creation of cloned and GM embryos, in its last two major research funding programmes (7). Britain must not break this international consensus.

Dr David King, Director of Human Genetics Alert said: "When I discovered these experiments on the Internet I was shocked at these scientists' irresponsibility. This might seem like a small thing, but it is a large first step on the road that will likely lead to the nightmare world of designer babies and a new eugenics. We may be entering the era of Human Genetic Modification, which would be no less significant for humanity than the nuclear era.

"The HFEA is right to say that the creation and legalisation of GM embryos, 'raises large ethical and public interest issues', but neglects to mention that these have not been debated at all. I have been speaking to MPs all week, and no one even knows that the Government is legalising GM embryos. The public has had enough of scientists and Government sneaking these things through and then presenting us with a *fait accompli*. The Government must withdraw these plans, so that we do not cross crucial ethical lines without a full debate."

Dr Marcy Darnovsky, Associate Executive Director, Center for Genetics and Society, a public affairs organization based in California, said: "A small group of researchers has decided on its own to overstep a key ethical boundary that is observed around the world. In response the UK appears ready to lower its own standards. This is a global issue and highlights clearly demonstrates the need for international regulation and for far greater involvement by the public and civil society."

Silvia Ribeiro from ETC Group, a civil society group, based in Mexico City, said: "If the UK Parliament legalises GM Human embryos it would set an awful precedent for the rest of the world. GM embryos may be sold to policymakers today on the vague promise of 'curing disease' but the real money is in 'human performance enhancement' applications (known as HyPEs). In a world in which diabetes drugs are sold with much more profits as 'bikini drugs' and Alzheimer drugs as 'cognitive enhancers', any germ line manipulation will open the door to market-designed babies. Human diversity would be seen as abnormal, further marginalizing disabled people and those too poor -or not wanting- to be 'improved', according to a market-led standard of what and who is a proper human being."

Dr Stuart Newman, Professor of Cell Biology and Anatomy at New York Medical College, said: "Human embryos, particularly within their first two weeks, are poor systems in which to study basic biology or the development of disease. It is clear that technologies for genetically altering human

embryos are being developed with the hope and expectation that legal prohibitions against gestating them for extended periods will eventually be dropped, ultimately leading to organ harvesting and full term GM infants. The Human Fertilisation and Embryology Bill is just another step in this unfortunate direction.”

Dr Richard Nicholson, Editor of the Bulletin of Medical Ethics, said: “The Government seems willing now to permit scientists to do whatever they like in the field of reproductive technology. It thinks it is helping British scientists to keep ahead of the competition elsewhere. But there is little competition because most other countries recognise how obviously unethical any genetic modification of human embryos would be.”

Dr David King will be available for interview on Sunday, May 11th from 8 a.m. He can be reached on +44 (0)20 7502 7516, or +44 (0)7854 256040, and by email at david.king@hgalert.org.

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Notes for editors

1. Human Genetics Alert is a London-based independent secular watchdog group, which supports women's reproductive rights, www.hgalert.org.
2. Fertility and Sterility, Volume 88, Supplement 1, September 2007, Page S310 N. Zaninovic, J. Hao, J. Pareja, D. James, S. Rafii, Z. Rosenwaks. This abstract can be found at www.sciencedirect.com: enter Zaninovic in the author search box. HGA's discovery is reported in today's Sunday Times.
3. The document, 'Lay summary of meeting' can be found at <http://www.hfea.gov.uk/en/1662.html>, along with 'Gene transfer into male germ lines and embryos' which mentions the Zaninovic abstract.
4. The original consultation document can be found at http://www.dh.gov.uk/en/Consultations/Closedconsultations/DH_4123863. The key paragraphs are 5.33 to 5.38.
5. Patent numbers: US2006064763, GB2331751 (Wilmot) and US2002138865, WO0069257, WO0029602 (Winston).
6. HGA's legal briefing on the HFE Act is attached, along with its Parliamentary briefing, and a more detailed summary of the arguments against HGM. The HFEA's documents also mention the loophole for mitochondrial conditions.
7. For EU Framework Programme 6, see http://ec.europa.eu/research/fp6/pdf/fp6-in-brief_en.pdf, For FP7, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:412:0001:0041:EN:PDF>.